

UiT

THE ARCTIC
UNIVERSITY
OF NORWAY

Faculty of Biosciences, Fisheries and Economics. Norwegian College of Fishery Science

Resource Management and the Challenges of Migration in Artisanal Fisheries

A case study on the mobility of the fishing people in Jamestown and Chorkor fishing communities in Ghana

Rexford Atuobi

Master thesis in International Fisheries Management (30ECTS) - May 2016



DECLARATION

I hereby declare that, this thesis is the result of my own original research and that no part of it has been submitted anywhere, or else for any purpose. All references have been duly acknowledged and I therefore bear a sole responsibility for any shortcomings.

Rexford Atuobi

I hereby certify that this thesis was supervised in accordance with the procedures laid down by the University of Tromsø, Faculty of Biosciences, Fisheries and Economics.

Professor Bjørn Hersoug

Supervisor

DEDICATION

This thesis is dedicated to my father, Mr. Okyere Atuobi Yiadom, my mother, Madam Janet Osei-Sarfo, my sister Mrs. Regina Asantewaa Bamikole and to my late brother, Mr. Emmanuel Edzona for their encouragements.

ACKNOWLEDGEMENT

I would not have been able to write this thesis without the help and guidance of the Almighty God. I am very grateful to Him for strength, good health and the knowledge to complete this work and make it a reality.

I also want to thank the following for the immense assistance they provided during this research;

First, I wish to extend my profound gratitude to my accommodative supervisor, Professor Bjørn Hersoug for his constructive criticisms, guidance, dedication, time and supervision throughout the research. I'm also grateful to the entire lecturers of the Faculty of Bioscience, Fisheries and Economics (BFE) at University of Tromso, the Programme Coordinator, Hektoen Ane-Marie and my colleagues at IFM.

I am also grateful to UiT, for the opportunity to study and the Norwegian State Educational Loan Fund (Lånkassen) who financed my entire studies in Norway. I also want to acknowledge the efforts of Mr. Nemorius N. Peng-Yir (Head, Administration and Operation Division) of the Fisheries Commission and Mr. Paul Bannerman, National Coordinator, Marine Fisheries Research Division, Ghana. And also to the chief fishermen in Chorkor and Jamestown, opinion leaders and other respondents for their knowledge, time, patience and contributions during the research data collection process. I say a big thank you, without you this research wouldn't have materialized to be a reality.

Lastly and equally important to Dr. and Mrs. Adekoya Olayiwola, my family, South Odorkor Ramseyer ypg, beloved friends (F4LYF, RVG) and all my loved ones for their prayers, immerse support and encouragement.

May the Good Lord bless you.

ABSTRACT

Small-scale (artisanal) fishing is increasingly important to the rural poor and accounts for majority of fish catches in Africa. Migration or mobility (movement) is a basic feature as it constitutes one of the strategies that fishing communities often use in order to secure their livelihoods. It forms an integral part of the small-scale fishing industry and has influenced the fishing sector for many centuries. As a result, the constant mobility of fishers' breeds misunderstanding that leads to conflicts and marginalization in their new destinations. The failure of the institutions at their destinations in negotiating access to the resource, also restricts them to the fringes of societies.

The research analyses how migrant fishers gain access to fishing rights in their new destination and how they maintained the resource. This was based on case studies in the fishing communities of Jamestown and Chorkor, in the Greater Accra region of Ghana. The research draws on the qualitative method of research through the use of interviews, observations and questionnaires. It shed light on the reasons and motives of migration by small-scale fishers to these communities, and impacts of migration with regards to the integration of migrants in these local fishing communities. Institutional management structures in regulating the use of the resource by both migrant and local fishers were also discussed in the research.

The research discovery points out, that access to fishing grounds by migrant fishers in their new communities are quite similar to the local fishers and is also linked to the principle of differentiated social actors. Small-scale fishers tend to migrate to these communities in response to the movements of fish during the glut season but motives and patterns for migration have become diverse in recent decades. Both positive and negative impacts were recorded with regard to integration of migrant fishers in Jamestown and Chorkor. The regulation and management of the use of the resource is done by both the formal and informal institutions, with the informal institutions playing a major role.

The research brings to bare results the existing knowledge on how to provide co-management strategies, inclusive governance and social development approaches in promoting access to fishing rights by migrant fishers. It also sheds light on how migration as a relevant strategy can be accommodated for mutual benefit and management of the resource.

Keywords: Migration, Entitlement, Fisheries resource, Fishing rights.

TABLE OF CONTENTS

	Page
List of contents	
DECLARATION.....	i
DEDICATION.....	ii
ACKNOWLEDGEMENTS.....	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	v
LIST OF FIGURES.....	x
LIST OF TABLES.....	xi
LIST OF PICTURES AND BOX.....	xii
LIST OF ABBREVIATIONS AND ACRONYMS.....	xiii
CHAPTER 1: INTRODUCTION.....	1
Background information.....	1
Migration or mobility (seasonal movement of fishers)	2
Fisheries resource management.....	3
The research problem.....	4
Research objectives and questions.....	5
Justification and relevance of the study.....	6
Background information of study areas.....	6
Socio-demography of Jamestown.....	7
Socio-demography of Chorkor.....	7
Organization of the study.....	8
CHAPTER 2: LITERATURE REVIEW	9
(THE THEORITICAL FRAMEWORK).....	9

Introduction.....	9
The theory of the tragedy of the commons.....	9
Implications and critique of the tragedy of the commons.....	10
Common property institutions and sustainable governance.....	11
The theory of entitlement.....	14
Limitations and critiques of the entitlement approach.....	15
The theory of environmental entitlement	16
Institutions and sustainable CPR management.....	18
Informal institutions.....	18
Formal institutions.....	20
Migration of fisher folks.....	21
Patterns of migration.....	22
Internal migration.....	23
International migration.....	23
Reasons and motives for migration.....	24
Start of migration.....	25
Continuation of migration.....	25
The role of women and children.....	26
Livelihood space.....	27
CHAPTER 3: METHODOLOGY	29
(RESEARCHER DESIGN AND ANALYTICAL METHODS).....	29
Introduction.....	29
The research process.....	29
Data sources.....	30
The sample (population and sampling methods).....	30
Methods of data collection.....	31

Role and status during fieldwork.....	32
The research instruments.....	32
Observation.....	32
Interview and questionnaire.....	33
Extraction and case studies.....	35
Analysis of the data (Analytical approach).....	35
Data reduction.....	36
Data display/presentation.....	36
Interpretation and conclusion drawing.....	36
Limitations of study.....	37
The reliability and validity of data.....	37
CHAPTER 4: THE FISHERY SECTOR IN GHANA	39
Overview of the Ghanaian fishing industry.....	39
Brief history, coastal morphology and oceanography.....	39
Current state of the Ghanaian fishing industry.....	40
Marine fisheries.....	41
The inland fisheries.....	41
Aquaculture.....	41
Fish output and processing.....	41
Economic impact of the fisheries sector.....	42
Fisheries governance and management set up in Ghana.....	42
The general legal framework.....	42
Pre-UNCLOS legislation.....	43
Post-UNCLOS legislation.....	43
Fisheries governance and management set systems.....	45
Government of Ghana (GoG) governance structure.....	46

The traditional governance structure.....	47
The role of the chief fisherman.....	48
Implications of migration on fisheries governance.....	48
The fishery sector institutions.....	49
Formal institutions.....	49
The Ministry of Fisheries and Aquaculture Development.....	49
Fisheries Commission.....	51
Department of Fisheries.....	52
District Assemblies.....	53
Informal institutions.....	53
Community-Based Fisheries Management Committees.....	53
Other institutions.....	54
The fishery sector management systems.....	54
Marine fisheries management systems.....	55
Volta lake fisheries management system.....	56
CHAPTER 5: RESEARCH FINDINGS AND DISCUSSION	58
Differentiated social actors in Jamestown and Chorkor.....	58
Access and rights to fisheries resource in Jamestown and Chorkor.....	59
The fishing grounds.....	59
Discussion.....	61
The role of institutions in the use and management of the resource.....	62
Formal institutions.....	62
Informal institutions.....	64
No fishing on special days.....	64
Ban on the use of explosives, poisonous chemicals and light fishing equipment.....	65
Casting shift sysytem.....	65

The use of standard mesh size.....	65
Sanctions on violation of rules by informal institutions.....	65
Discussion.....	66
Conflicts among fishers.....	67
Negotiation of conflicts.....	68
Reasons and motives for migration.....	69
Impacts of migrant fishers in Jamestown and Chorkor.....	71
Positive impacts.....	71
Negative impacts.....	71
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS	73
Conclusion.....	73
Recommendations.....	74
REFERENCES	76
APPENDIX	82

LIST OF FIGURES

Figure 2.1. A Framework for analysing the commons	14
Figure 3.1. Iterative qualitative process.....	30
Figure 3.2. The flow model showing the components of data analysis during the study.....	37
Figure 4.1. Governance structure of an ideal type coastal village in Ghana.....	45

LIST OF TABLES

Table 2.1. Overview of differences between informal and formal institutions.....	21
Table 2.2. The synthesis of usual categorizations of fishing migrations in West Africa.....	24
Table 2.3. Synthesis of explanatory factors stimulating fisher migration.....	26
Table 3.1. Components of Data Analysis: Flow Model.....	35
Table 5.1 Reasons for migration in Jamestown and Chorkor.....	70

LIST OF PICTURES AND BOX

PICTURES

Picture 3.1: A picture showing the chief fisherman of Jamestown solving disputes on light fishing between local and migrant fishers.....	33
Picture 3.2: The author’s interview with migrant fishers in Chorkor.....	34

BOX

Definitions of different types of fisheries migration.....	22
--	----

LIST OF ABBREVIATIONS AND ACRONYMS

CBFMC	Community-Based Fisheries Management Committee
CPRs	Common Pool Resources
DA	District Assembly
DoF	Department of Fisheries
EEZ	Exclusive Economic Zone
FAD	Fish Aggregation Devices
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GoG	Government of Ghana
GSS	Ghana Statistical Service
HRMD	Human Resource Management Development
ICCAT	International Convention for the Conservation of Atlantic Tunas
IEZ	Inshore Exclusion Zone
IMF	International Monetary Fund
LI	Legislative Instrument
MCS	Monitoring, Control and Surveillance
MDAs	Ministries, Departments and Agencies
MoF	Ministry of Fisheries
NGO	Non-Governmental Organization
PNDC	Provisional National Defence Council
PSI	President's Special Initiative
SFC	State Fishing Cooperation
SSA	Sub Sahara Africa
TAC	Total Allowable Catch
UNCLOS	United Nations Convention of the Law of the Sea

CHAPTER 1

INTRODUCTION

This chapter represents the background information of the study, the problem statement, the research objectives and questions, the significance (justification) as well as the organisation and structure of the study.

Background information

Small-scale (artisanal) fishing is increasingly important to the rural poor and accounts for majority of fish catches in Africa. It plays an essential role in exploiting marine resources, providing food for household consumption thus playing a vital role by aiding in nutrition and meeting demands for both local and domestic markets. In West Africa, especially Ghana, small-scale (artisanal) fishing serve as a source of employment to millions both directly and indirectly, and a medium of other economic activities such as trade.

Existing research and studies suggests small-scale fishing communities in Africa despite sharing sociocultural, geographic, demographic and institutional characteristics may vary widely from country to country, community to community with higher rates of fertility, lower incomes (and income stability) and population growth. (Marquette et al., 2002). Higher rates of fertility in small-scale fishing has been linked to heavy demands of labour in fishing and the role played by kin-based labour and lower income (and income stability) due to wide seasonal fluctuations in the availability of fish (ibid). This population-poverty-environment nexus in many small-scale (artisanal) African fishing communities raises the possibility of “Malthusian overfishing” as it leads to increasing demands for fish and fish-related income as well as push migrations (Pauly et al., 1989; Marquette et al., 2002).

Seasonal availability of fish at certain places along the coast sets in a motion cycle of over exploitation and depletion of fish stocks in areas of origin as well as migrant destinations as it plays an important role in shaping migration patterns of the small-scale African fisherman (Marquette et al., 2002). Thus in this regard the effects of fishery resources on human population dynamics especially on migration may be as important as any potential effects of human population dynamics on fishery resource.

Migration or mobility (seasonal movement) of fishers

Migration or mobility (movement) is a basic feature, as it is seen as an alternative to population pressure and other diverse factors to provide different and better opportunities. This general trend is also true for fishers and other fishing population as migration forms an integral part of their lives and has influenced the fishing sector for many centuries. Migration has also been described as the history of peoples' struggle to survive and to prosper, to escape insecurity and poverty, and to move in response to available opportunities (Njock and Westlund, 2010). Despite the importance of movement (mobility) or migration to fishing communities, the forms and reasons are many and there is a rich diversity of migratory or movement lifestyles.

Movement (mobility) or migration are sometimes difficult to differentiate, Marshall (1994) explained that migration involves the more or less permanent movement of individuals or groups across symbolic (or political) boundaries into new residential areas and communities. While mobility is the movement of persons from one place to another, described as geographical, social, economic or occupational with a permanent reference point (ibid). Two dimensions of mobility were identified by Rajan (2002) based on time and direction; time mobility could be inter-generational and intra-generational, while directional mobility may be vertical, horizontal and spatial.

The focus of this thesis is spatial mobility which is the movement of labour for fishing which entails changes in the geographical location of respondents. The various forms of fishermen spatial mobility as identified by Rajan (2002) are as follows:

- (i). Commutation is “the expansion of work space”, in terms of fishermen moving out of their community of origin and landing their catch in another.
- (ii). Circulation is “the expansion of work space for a longer period and the residence of mover, may also be shifted for a longer period in connection with the occupation”.
- (iii). Migration entails permanent settlement in which the mover settles in the destination village with family i.e. both place of work and place of residence are shifted.

Movement (mobility) or migration among small-scale fishers has been a very old practice both within and beyond the boundaries of West Africa, ¹be it inland, coastal or maritime, with Ghana known as the region's major 'exporter' of fishermen ,who can be found regularly in at least a

¹ Vertical mobility refers to movements up and down in the social ladder. Horizontal mobility is the movement across socially. Spatial mobility is related to changes in the geographical location of occupations of respondents (Hall, 1969).

dozen countries (Kraan, 2009). The Ghanaian fishermen, an influential group in West African fisheries, play a significant part in this mobility. When subdivided into ethnic-technical groups, the Ghanaian artisanal fishermen have migrated to different places (Odotei 1995). The Ga, using their hook and line technique are based mainly in harbours (in Ghana mostly from Tema) and have therefore migrated to other harbours in Ivory Coast or Liberia from which they engage in fishing, the Fante are the most mobile fishing group making mainly use of the purse seine technique (Kraan, 2009). They move seasonally during the sardinella season from July to September as well as also for longer periods of time even after they have migrated permanently to other locations like the Gambia and the Ivory Coast. The Anlo-Ewe artisanal fishers form a much more sedentary migrant group than other Ghanaian fisher groups using their beach seine technique everywhere they go.

The Ghanaian small scale fishers are also predominantly found in areas from Togo, Côte d'Ivoire to Benin. In Côte d'Ivoire the marine fisheries are largely dominated by foreign fishermen, most of them (90 percent) coming from Ghana, with 60 to 70 percent of the fishers in Togo and 55 percent of the fishers in Benin being Ghanaians (Odotei, 2002; Atti-Mama, 1991; 2006).

However, despite their migratory lifestyles, Ghanaian fishermen also play an important role in their countries as well.

Fisheries resource management

The rapid increase in number and migration of fishermen in Ghana and Africa has raised concerns (economic and environmental) about the management of the resource. Fishery resources, just like other natural resources, is common property and it is subjected to appropriate management to avoid over exploitation and depletion. Thus the fisheries resource management system embodies the regulatory framework for all fishing activities. It requires either collective action at industry level (local) or external, usually government, intervention. (Puthy and Kristofersson, 2007). It is also an integrated process of information gathering, analysis, planning, consultation, decision making, allocation of resources and formulation and implementation, with enforcement of regulations or rules which govern fisheries activities and accomplishment of other fisheries objectives (FAO 1995, 2001).

According to Puthy and Kristofersson (2007), the principles of fishery resource management consists of three components (i) the fisheries management system (FMS), ii) monitoring, control and surveillance (MCS), and iii) fisheries judicial system (FJS) which are strongly interdependent, linked in the same chain and very crucial to success.

(i). FMS – the FMS specifies the regulatory framework for fishing activity, as indicated by MoF (2002). It is any form of control or adjustment of fishing operations such as the amount of fishing, type of gear used, size of fish, etc., in order to optimize the use of the natural resource. The FMS are mostly based on explicit legislation, i.e. formal in the form of published laws and regulations with others informal, primarily based on social customs and conventions i.e. a part of the social culture governing fishing behaviour (Puthy and Kristofersson, 2007). This may be grouped into two broad classes; i.e. direct and indirect fisheries management. Direct fisheries management control the components of fishing activity directly by commands while indirect fisheries management tries to induce fishers and fishing firms to behave indifferently by modifying their operating conditions of the fishery without imposing constraints (ibid).

(ii). MCS – The primary purpose of the MCS is to observe the fishing industry activities and to enforce adherence to the rules of the FMS, by collecting data to improve both the fisheries management and FJS as well as the MCS system itself i.e. monitoring of the fishing (harvesting) industry and the enforcement of fisheries management rules (ibid).

(iii). FJS – The FJS is part of the general judicial system, to process alleged violations of fisheries management rules and issues or apply sanctions as appropriate, thus complementing the MCS activities in enforcing the fisheries management rules. The FJS is the weakest link in the fisheries management principles as public information and awareness is not well distributed and the people are not well-informed (ibid).

The research problem

Migration has become a relevant strategy by the people of West Africa to secure better livelihoods with evidence suggesting that one in every three individuals no longer resides in their place of birth (Randall, 2005). This strategy is also adopted by small-scale fishermen in the fishing industry, as entry is sometimes allowed from most of the neighbouring countries without restrictions due to the open access system of the resource.

Most fishers initially migrate to other places in response to the movements of fish during the glut season to get better catches, but motives and patterns for migration have become diverse in recent decades. (Randall, 2005). According to Overå (2001) small-scale fishers in Ghana tend to migrate to other places to accumulate wealth as their ultimate aim to invest in order to improve the well-being of their household and personal status. But despite the importance of migration to small-scale fishermen, access to fishing rights in their new communities is a problem (Lindqvist and Molsa, 1994). The integration of migrants into recipient communities is not always easy despite the open access of the resource as most foreign and native communities live next to each other but do not work together to collaborate since they do not belong to the same society (Njock and Westlund, 2010). As a result, this constant mobility of fishers breeds misunderstanding that leads to conflicts and marginalization, and failure of the institutions at their destination in negotiating access to the resource also restricts them to the fringes of societies they found themselves in (Njock and Westlund 2008; Fregene, 2007). Most small-scale (artisanal) fishing communities in Ghana comprises of both local and migrant fishers, therefore institutions (political and social) at the origin and destination nodes by migrant fishers are important in negotiating access to the resource (Overå, 2005).

There is also little information on causes and courses of fishermen migration, as most of the studies in Ghana tend to focus on artisanal marine fishing industry, the role of women in the artisanal fisheries, and methods of fishing (Owusu, 2009). Therefore, the main focus of this research is to give answers on how migrant fishers get access to fishing rights in the study areas, as well as identify how the institutions manage the resources and the impacts of migrant fishers in the area, though migration may have a direct and positive impact on the life of a migrant fisher, it may as well equally constitute a challenge.

Research objectives and questions

The main objective of the study is to identify how migrant fishers in the study areas (Chorkor and Jamestown) get access to fishing rights. Are they different or similar to the local fishers and from what we know about the migrant fishers generally in Ghana?

Based on the main objective, the research will answer the following specific questions:

1. How do migrant fishers get access to fishing rights in Jamestown and Chorkor, and what are the institutions involved?

2. How the institutional management structures regulate the use of resources by migrant fishers?
3. What are the factors that cause fishers to operate as migrant fishers in the area? (Push and pull factors?)
4. What are the impacts (Positive and negative) of migrant fishers on their new communities?

Justification and relevance of study

The significance of the study is to investigate how small scale migrant fishers get access to fishing rights and how they manage access to the resource. This will help to address the problems faced by migrant fishers in their new localities. It will also contribute to the existing knowledge on how to provide strategies and relevant steps in promoting access to migrant fishers.

Access to fishing grounds will contribute to existing knowledge on how the institutions (formal and informal) regulate and maintain these resources with respect to small-scale migrant fishers. Detailed information on the socio-economic characteristics of migrant fishers and factors that cause them to act will be provided. These together with the impacts of migrant fishers in their new communities will help policy makers in formulation of policies and institutions addressing challenges with local and migrant fishers. Reasons and motives for migration will also be imperative in developing statistics and policy formulation. The study will also be useful to non-governmental organizations (NGO) and individuals who are in support or interested in protecting the rights of migrants as well as the management of fisheries.

The research will give a detailed information on the economic importance of migration to the fishing sector and also add to the area of social research on migrant fishers in West Africa.

Background information on study areas.

The study was conducted in two of the notable fishing communities in the Greater Accra Region of Ghana, West Africa i.e. Jamestown and Chorkor. These two communities are noted for small-scale fishing comprising of both local and migrant fishers, with well-structured informal management system thus justifying the choice of the research study area. The research was conducted at the local level headed by their chief fishermen.

Socio-demography of Jamestown

Jamestown, an area in Ga Mashie is the oldest district in the city of Accra, Ghana. It is located in the Odododiodioo constituency of the Accra Metropolitan Assembly directly east of the Korle Lagoon. It forms part of the sixteen municipalities and districts in the Greater Accra Region. Ga Mashie which comprises of Jamestown and its suburbs covers one hundred hectares along the southwest Atlantic coast of the greater Accra region. A population of 97,464 was recorded by The Population and Housing Census in 2000 (GAMADA Factsheet, 2008).

According to the GSS (2012), the district Ga Mashie has a projected population of about 125,000 thus making it one of the most densely populated districts in Accra and Ghana as a whole. The district is inhabited by the Gas, of the Ga-Adangbe tribe with considerable number of other tribes in the district which includes the Akans, Ewes, Guans, Mossi-Dagomba and others (Quartey-Papafio, 2006).

The main occupation for the people of the district has traditionally be fishing which currently employs over 16,000 people. Historically the fisheries have always contained some form of division of labour. The men are involved in the actual fishing activities and the women mostly fish mongers who are engaged in the preservation, marketing and trading of fish (Mahama et al., 2011).

Socio-demography of Chorkor

Chorkor is an old fishing village also located in the Ablekuma-South Constituency, in the Accra Metropolitan Assembly with fishing and fish mongering as the main occupation of the people. It is also densely populated community in the Greater Accra Region of Ghana and shares borders with Korle-bu Electoral Area to the north, Korle Gonno Electoral Area to the east and the Mamprobi Electoral Area to the west. The area is estimated to accommodate about 4.3 million people including an influx population of one million who commute to the city for various socio-economic activities daily (GSS, 2012). It is one of the poorest populated area in the district with unemployment currently at 12%. The main ethnic group in Chorkor is Ga-Dangme, followed by the Akans.

Despite their poor nature, the people of Chorkor are remembered for the manufacture of the ‘Chorkor oven’, a widely known oven used in the smoking of fish.

Organization of the study

This study consists of six chapters with various sub headings.

Chapter one gives a general introduction to the study which includes the background information on the research, problem statement, research objectives and questions background information on the study areas and finally the significance or relevance of the study.

The literature review (theoretical framework) of the study is found in Chapter two.

Chapter three outlines the methodology used in the research i.e. the research design and analytical models employed.

Chapter four looks at the Ghanaian fishery sector in general. This include a summary on the policies, institutional framework and management structures in the sector.

Findings on the research, discussion and analysis are found in Chapter five.

Finally, Chapter six gives a general summary and conclusions where recommendations are also made.

CHAPTER 2

LITERATURE REVIEW

(THE THEORITICAL FRAMEWORK)

Introduction

Sustainable management of natural and common resources have been proposed by many theories. This chapter therefore gives an overview of theoretical frameworks to understand and assess the effective management of fishery resource in the Ghanaian small-scale fisheries. The theoretical framework on this study consists of insights from the theory of the tragedy of the commons, the theory of environmental entitlement approach and the institutions (formal and informal) involved in fisheries regulations.

The theory of the tragedy of the commons

Fisheries resource and its' management has long been associated with the theory of the tragedy of the commons. According to Hardin's (1968) theory on the tragedy of the common, resources that are held in common such as the fishery resource will inevitably suffer over exploitation and degradation. An example is the Ghanaian artisanal fishing industry which is mostly characterized with an open access regime.

Garrett Hardin's article on "*The Tragedy of the Commons*", was developed after the findings of Gordon's (1954) model on bio-economic equilibrium model to explain the decline of resources held in common with others. The theory was based on an observation of what could happen when a hypothetical open access pasture is open for all people to use (Degefa, 2010). The framework on the model of the "*The Tragedy of the Commons*" focuses on pastures used in common for cattle grazing by herders, showing no problem with common usage until the number of cattle reaches the carrying capacity of the pasture (Nickler, 1999). Additional cattle were added to the common pasture by herders with the aim of gaining extra profits, which eventually led to overgrazing and destruction of the pasture as the end result. Hardin argued by saying "each man is locked into a system that compels him to increase his herd without a limit in a world that is limited". Therefore, people are selfish by nature and the pasture will be overexploited due to the maximization of benefits by individual users over several users (Hardin, 1968).

Implications and critique of the tragedy of the commons

The theory on the “*The Tragedy of the Commons*” has several assumptions that are noteworthy, (Sharma, 2001):

- Every individual is selfish and rationally utility-maximizer at the cost of the commons since animals are held individually while the range is owed by everyone or no one;
- Common resources are finite and scarce;
- Grazing commons is used as a metaphor for the general problem of over-population;
- There is mutual distrust that others will capture the benefits of the common resource;
- All rural produces in a community practise the same livelihood have the same interesting a resource and can act fully independently of their fellow producers;
- There is a need for coercive enforcement, i.e. ‘to legislate temperance’. Thus in the ultimate analysis, solution lies in privatization of CPRs because only private property internalizes the ‘externalities’ of non-exclusive resource exploitation.

Many scholars and articles have relied on Hardin’s framework to control access and use of common-pool resources (CPRs), e.g. fishery resources with regard to public policy. Stern et al. (2002) advocated that the framework has lent intellectual support to approaches that natural resources can be sustained and managed if management responsibilities lie in a single space. According to Nickler (1999) fishery resources are similar to Hardin’s pasture, in that increased fishing has caused certain fish stocks to become overfished to a point that threatens the survival of the fishery, i.e. too many fishermen chasing too few fishes. Therefore, the model on the “*The Tragedy of the Commons*” underscores the need for outside regulation of fishery resources so as to prevent the tragedy.

In contrast to the collective action school, others have criticized Hardin’s theory. His diagnosis of over-population as the cause of degradation has been declared unrealistic. According to Sharma (2001) and World Bank (1984) this is due to the fact that population growth is more closely associated with poverty, absence of health and sanitation, lack of social security in old age, malnutrition and cultural practices than with individual reproduction behaviour. Therefore, seeking of answers in moral reasoning and the observation that the problem has ‘no technical solution’ is not sound (Sharma, 2001). The theory also only applies in situations where there are scarce resources (i.e. demand exceeds supply), and it is against equitable distribution of wealth which do not lend themselves to the restriction of human use or affordable exclusion mechanisms (Young, 2007). In Hardin’s view, humanity means the rich and elite mobility, in the absence of a world government controlling reproduction, ‘the ethics

of a life boat' must govern in order for somebody to be sacrificed in the interest of 'humanity' (Sharma, 2001). This assumption was disagreed and criticised, as solutions to environmental problems such as taxes (residual and depletion) are socially and economically regressive (O'Riordan, 1976). Solutions will also be fully effective if they are accompanied by a genuine attempt to ensure fair and equitable distribution (ibid). Thus Hardin failed to acknowledge the existence of the benefits to individuals (e.g. security, mutual support) that comes from collective behaviour (Lane and Moorehead, 1995). The theory was also heavily criticised for his Darwinian view that man must imitate natural selection based on the criterion 'survival of the fittest'. This is against the masses' interest who are poor for exogenous factors (adverse terms of trade, land tenure etc.) for which they are not responsible (Sharma, 2001).

Hardin's theory failed to recognise the important role of institutional arrangements which provide for regulation and exclusion use of cultural factors between property rights regime and outcome (Feeny et al., 1990). The theory however overemphasized wrongly on the dominance of individual defective strategy and the absence of community, thus inappropriate social organisation is seen as the result of (other than perverse human nature) divergence of individual concern and collective interests (Schelling, 1971; Sharma, 2001). Schelling (1971) further lamented that appropriate institutions had not been devised to deal with abundance of 'bads' in the way there has been successful creation of mechanisms to cope with the scarcity of goods as management of common resources needs community efforts and reciprocity of all members involved.

Therefore, the theory on the "*The Tragedy of the Commons*" is not as result of reliance on CPRs, since it only applies to 'open access' commons with strategies confined to unmanaged commons (Degefa, 2010). And in order to accomplish the regulation of the CPRs, there is the need for the creation of a system that coerces people into following regulations. An example of such system has been outlined and proposed in theory of environmental entitlement which involves the role of institutions.

Common property institutions and sustainable governance

institutional arrangements for sustainable resource use has gone under a remarkable change over the years. This is a result of the direct explosion of work on common property arrangements and CPRs with anthropologists, economists, political scientists, environmentalists, and rural sociologists among others, contributing to the burgeoning

literature (Agrawal, 2001). According to Ostrom (1990) CPRs refer to natural or people-made resource systems that share two important characteristics:

- Excludability i.e. difficulty of exclusion which arises from several factors such as the cost of designing and enforcing property rights to control access to the resource, fencing of the resource, etc.
- “Subtractability” i.e. the resource creates rivalry between different users in that the resource units that one user extracts from a CPR are not available to others. Thus each user is capable of subtracting from the benefits that others derive from the resource (a CPR).

Because of these two characteristics, CPRs are potentially subject to over-exploitation, depletion or degradation with a broad challenge in the management of CPRs on how to co-ordinate their use by individuals as population grows in order to prevent overexploitation (Degefa, 2010; Williams, 1998). This has led to numerous frameworks and designs to describe a situation to ensure sustainable governance of CPRs in a co-ordinated manner. Examples of such works were the works of Robert Wade, Elinor Ostrom, Jean-Marie Baland, Jean-Phillippe Platteau and Oakerson with a differences in their common property theories of sustainability of CPRs.

Wade (1988) relies primarily on data collected from 31 South Indian villages in a single district to examine when corporate institutions arise in the villages and what accounts for their success in resolving common dilemmas. He pointed out that effective rules of restraint on access and use are unlikely to last when there are many users, when the boundaries of the CPRs are unclear, users of the resource live in groups scattered over a large area, detection of rule-breakers is difficult etc. (Agrawal, 2001; Wade 1988). He concludes in greater detail that the origin of commons institution is as a result of environmental risks being the crucial factor (Agrawal, 2001).

Ostrom (1990) crafted eight design principles to define her work on community-level governance of resources. This was done on the basis of lessons from a sample of fourteen cases where users of the resource attempted with varying degrees of success to create, adapt, and sustain institutions to manage the commons (Agrawal, 2001). According to her principles, groups that are able to organize and govern their behaviour successfully are marked by the following principles (Degefa, 2010):

(1) Group boundaries are clearly defined, (2) Rules governing the use of collective goods are well matched to local needs and conditions, (3) Most individuals affected by these rules can participate in modifying the rules, (4) The rights of community members to devise their own rules are respected by external authorities, (5) A system for monitoring behaviour of group members exists and the members themselves undertake the monitoring, (6) A graduated system of sanctions is used, (7) Community members have access to low-cost conflict resolution mechanisms, and (8) Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested institutions.

These principles facilitate better performance of CPR management over time.

Baland and Platteau (1996) followed a similar strategy as does Ostrom (1990) with a comprehensive and synthesizing review of a large number of studies on the commons (Agrawal, 2001). They suggested that the core argument in favour of privatization lies on the comparison between a well idealized fully efficient private property system and that of an anarchical situations created by open access. Thus the privatization of CPRs, regulation by central authorities or appropriation tends to eliminate the implicit entitlements, personalized relationships which characterizes communal property arrangements (Baland and Platteau, 1996). These steps are likely to impair efficiency, and likely to disadvantage traditional users whose rights seldom get recognised under privatization or expropriation by state (Agrawal, 2001).

In Oakerson's framework, a CPR can be described with these attributes or variables (Degefa, 2010):

(1) the physical attributes of the specific resource or facility and the technology used to appropriate its yield, the decision-making arrangements (organization and rules) that govern relationships among users (and relevant others).

(2) The mutual choice of strategies and consequent patterns of interaction among decision makers, and the outcomes or consequences.

A multi-level framework and better understanding of the dynamic relationships among the variables are crucial for the governance and sustainability of a resource (Oakerson, 1990; Degefa, 2010). Failure to appreciate the dynamic nature of the institutions will often lead to proliferation of simplistic interventions in communal resources management which undermine the dynamic nature of people's responses to livelihood uncertainty, a view supported by Mehta et al., (1999) and Degefa, (2010).

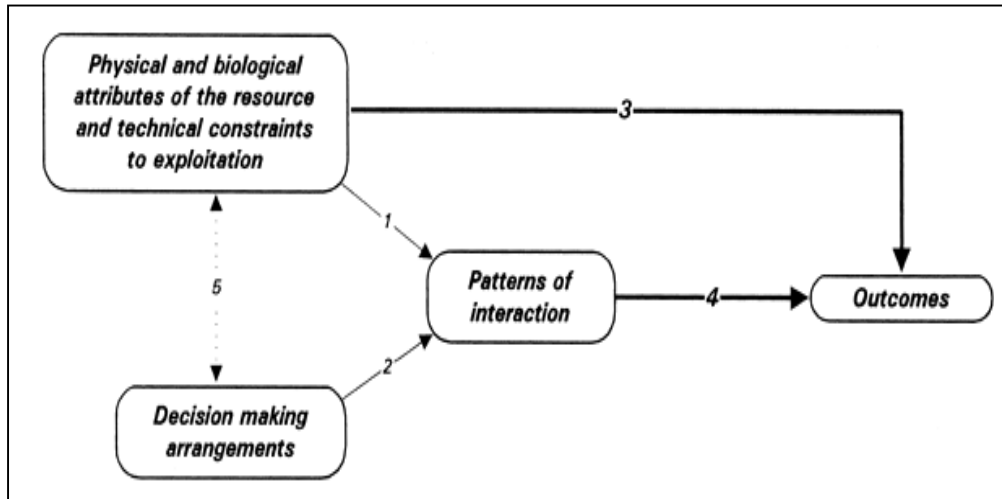


Figure 2.1: A Framework for analysing the commons

(Source: Oakerson, 1990)

The theory of entitlement

The theory of entitlement was spearheaded by Sen (1981), which deals centrally with the problem of inequality. The theory is generally concerned with the ways in which institutions (formal and informal rules) creates and reinforce unequal access to CPRs (Johnson, 2004).

The theory on environmental entitlement was formulated by Leach et al. (1999) based on Sen's theory on entitlement. Leach's framework on environmental entitlement involves and categorizes institutions at three different levels i.e. macro, meso, and micro levels which considers heterogeneity among communities (Degefa, 2010). The framework describes the relationships and scale levels among the institutions to solve conflicting interests in organizing livelihoods. The theory also shows how the political arena of livelihoods should be analysed through the work of the institutions in order for social actors to gain access and control over local resources since communities are not treated as static or undifferentiated.

(De Haan and Zoomers, 2005).

The theory of entitlement, an approach to famine analysis was developed by Sen in 1981. According to Sen (1981), entitlements is "the set of alternative commodity bundles that a person can command in society using the totality rights and opportunities that he or she faces". This was to explain the cause of famine and how people can starve in the midst of abundant food due to the consequence of failure in their ways of control over food (Leach et al., 1999). The theory differentiates between the various relationships that exist between a person, the food available, and the availability of food. This according to Devereux (2001) is descriptive

rather than a normative concept since entitlement is derived from legal rights rather than morality or humans. Thus an “entitlement set” is the full range of goods and services that a person can acquire by converting his or her “endowments” i.e. assets and resources which includes labour power through exchange. The entitlement approach aims to describe comprehensively all the legal sources of food, which Sen reduces to four categories, in the context of poverty and famine: “production-based entitlement” (growing food), “trade-based entitlement” (buying food), “own-labour entitlement” (working for food), “inheritance and transfer entitlement” (being given food by others). Starvation in this concept is therefore the condition when one’s full entitlement set does not provide them with adequate food for subsistence.

The entitlement approach tends to shift the analytical focus away from a fixation of food supplies (Malthusian) i.e. the logic of “too many people, too little food” on to the inability of people to acquire food (ibid).

Limitations and critiques of the entitlement approach

Sen recognised four limitations of the entitlement approach in *Poverty and Famine*, which he mentions with little elaborations (Devereux, 2001).

- “First, there can be ambiguities in the specification of entitlements”
- “Second, while entitlement relations concentrate on rights within the given legal structure in that society, some transfers involve violations of these rights, such as looting or brigandage”
- “Third, people’s actual food consumption may fall below their entitlements for a variety of other reasons, such as ignorance, fixed food habits, or apathy”
- “Finally, the entitlement approach focuses on starvation, which has to be distinguished from famine mortality, since many of the famine deaths—in some cases most of them—are caused by epidemics.

Sen’s philosophy, known as the Entitlement Approach has generated controversies over the past years and been criticized especially in areas of poverty literature.

First, the theory was founded on posterior food supply situation which claims inadequate explanation to famine by arguing that the traditional approach explains food price behaviour in all food supply situation during a famine, thus failing to recognise the fact that speculative (not

actual) supply and demand forces determine prices in a market economy in the short-run (Qudrat-I Elahi, 2006). The market economy is based on the theory that operates on a conceptual and legal frame work of voluntary exchange (command through market channels), therefore the theory failed to recognise other means of gaining access and control which implies that it is inconsistent with the principles of capitalism. (Leach et al., 1999).

Secondly, the theory differentiates food from other basic necessities of life such as education, healthcare etc. to give it an 'entitlement status' because the poor cannot afford these necessities and services with their limited endowment (Qudrat-I Elahi, 2006). The theory was heavily focused on entitlement mapping, with endowments been transformed into entitlement. Finally outlining entitlement as a main cause of famine was in appropriate, as the theory was founded on a hidden hypothesis that income distribution in the non-communist state is optimal both politically and economically. The assumption is too implicit since it did not take into consideration other means to have access and control of resource other than entitlements.

The theory of environmental entitlement

The theory of environmental entitlements is a framework for understanding the institutional dynamics of environmental change. The theory, which was inspired by Sen's theory on entitlement, is defined as an "alternative set of benefits derived from environmental goods and services over which people have legitimate effective command and which are instrumental in achieving wellbeing". (Leach et al., 1999:225).

The theory focuses on implications of intra-community dynamics and ecological heterogeneity i.e. the relation between different levels of goods e.g. land, fishing grounds, farms etc. and principles of differentiation such as religion, age, ethnicity, sex etc. It builds on a conceptual framework which pinpoints the central role of institutions, endowments, and capabilities. Where institutions refer to the regularized patterns of behaviour between individuals and groups in a society; endowments are the social actors' right to a resource e.g. land, skills, labour and capability refers to what people can be or do with their entitlements (Owusu, 2009).

This relationship between an environment (made of different social actors) or a given 'community' helps to analyse the effects of change in an environment, access and control over natural resources which are socially separated, thus understanding communities and environment as heterogeneous and variable (Leach et al., 1999). Therefore, the theory of

environmental entitlement argues that environment or communities cannot be treated as undifferentiated (static) but must be considered and disaggregated into its constituent parts and viewed dynamically (ibid).

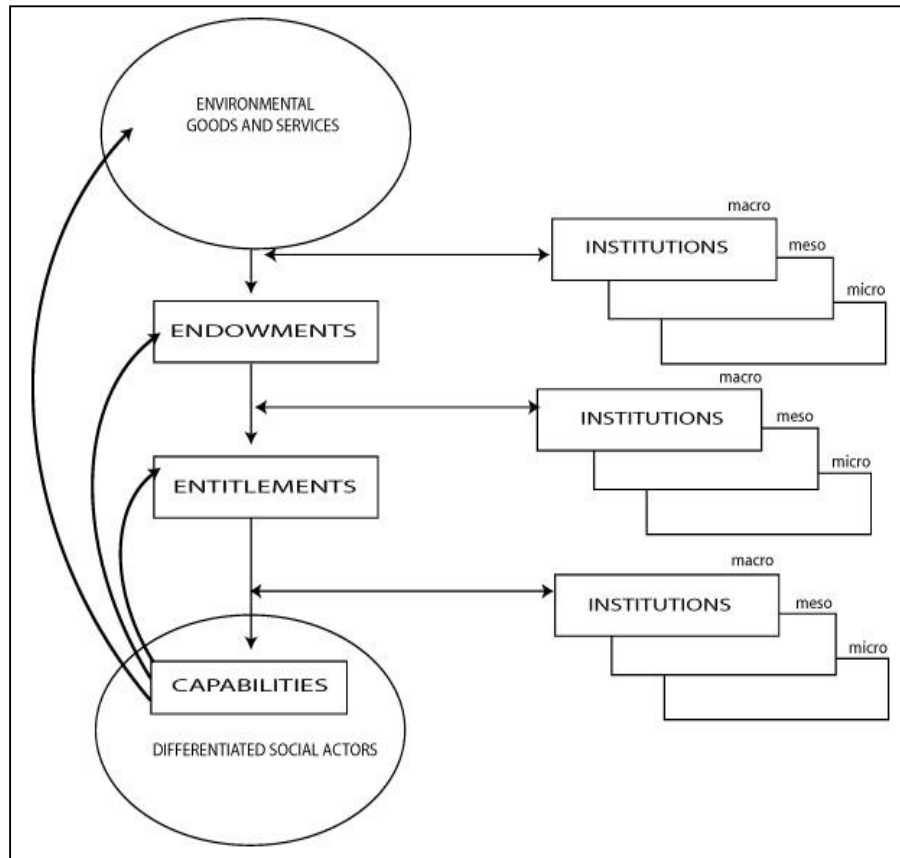


Figure 2.2: Framework on the theory of environmental entitlement

Source: Leach et al., 1999.

The framework on the theory of environmental entitlement links together interactions between institutions with entitlements, endowments and capabilities and environmental resources. This concept shows how the endowments (rights to resource by social actors) from environmental goods and services are acquired and transferred into entitlements (Leach et al., 1999). The role, level and interactions between institutions during the process of entitlement is also analysed. Endowments in this research refers to migrant fishers' rights to the fishery resource in their new environment. Entitlement refers to the utility the migrant fishers gain from their rights to the resource and capabilities refers to what the migrant fishers can do with their rights

i.e. the command over entitlements (Owusu, 2009). The concept of the theory on environmental entitlement therefore helps to answer the research question;

How do migrant fishers gain access to fishing rights in Jamestown and Chorkor (environments) and what are the institutions involved?

Institutions and sustainable CPR management

Institutions, a major component to resource management, have been developed to control the access and use of CPRs. Management and governance approach to fisheries adopt a broad definition of institutions with the need to emphasize their regulatory, normative and cognitive attributes (Kooiman et al., 2005). Institutions are regarded as regularized patterns of behaviour that emerge from set of rules and underlying structures in use that are frequently made or remade through the practices of people (Leach et al., 1999). Thus institutions “regulate the relations of individuals to each other” (Parson, 1990) through “set of rules describing and prescribing human actions” (Agrawal et al., 1999) in order to emphasize their social and cultural underpinnings embedded in a social network (Kooiman et al., 2005). Therefore, institutions at lower level are also contained within institutions at higher level and do not only work at micro, meso and macro levels of society (ibid).

Institutions in CPRs management consist of both informal and informal sectors. Both sectors serve as mediators for social actors and their environmental relations. This brings about trust among each other (social actors) with different people relying on them (institutions) to make claims on environmental goods and services (Leach et al., 1999). Both sectors of institutions also validate knowledge by providing stability, predictability and order that makes systems to work and also makes social actors to operate with less uncertainty in cognition to play their enabling roles (Kooiman et al., 2005).

Informal institutions

Informal institutions are systems of rules and decision-making procedures which evolved from endogenous socio-cultural codes and giving rise to social practises, assign roles to participants, and guide interactions among users (Appiah-Opoku and Mulamoottil, 1997). Informal institutions used in the management of CPRs are established on different grounds and for various reasons (i.e. groups run common economic activities, such as labour sharing during

harvest seasons), religious reasons (i.e. groups have common religions and beliefs such as taboos and sacredness (Bhagwat and Rutte, 2006).

Informal institutions are more embedded in communal structures. Users of a resource in Sub Saharan Africa (SSA) tend to obey institutions that are attached to their historical and cultural lives more than those introduced by external bodies, such as governments. (Degefa et al, 2010). Informal institutions have created a sense of commitment, ownership and responsiveness among CPR users since they evolved internally from the society and enacted to the interest of the community (ibid). A case study by Overå (2001) in Moree indicates the traditional 'political' institutions which comprises of the (1) *omanhene* (chief) and the *mpanyinfo* (lineage elders), 2) the *apofohene* (chief fisherman) and the *konkohene* (leader of women fish traders), and 3) the three *asafo* companies (former military divisions which are still important community organisations in Fante society) formulates access and control over fishing grounds, administer rule enforcements and ensure implementation of sanctions through well-established village structures. Thus equal benefit sharing among CPR users can be achieved by informal institutions since they play a critical role in sustaining the livelihoods of rural folks (Yami et al., 2009). Informal institutions also serve as mechanisms to achieve outcomes of sustainability by regulating access to and control over CPRs, managing user conflicts, and mobilising social capital for sustainable management (ibid).

In summary, the literature analysis indicates how informal institutions contribute to sustainable CPR management by regulating access to CPRs for users; developing and mobilising social capital; acknowledging incorporation of local knowledge and mechanisms of the community in management; and enhancing collective action among CPR users at low transaction costs (Degefa, 2010). These contributions are enhanced mainly under conditions of active community participation in CPR management in the presence of well-established village structures, high social capital and shared beliefs among CPR users (Yami et al., 2009).

Despite the importance, the contribution of informal institutions to sustainable CPR management have been affected by conditions such as high population growth on limited CPRs, poverty, lack of empowerment and policies that do not give specific roles to informal institutions in sustainable management of CPR (ibid).

Formal institutions

Formal institutions refer to the rules that guide access, control and management of CPRs, and which are also backed up and enforced by the state (Leach *et al.* 1997). According to Yami et al., (2009) they play an important role in implementing technologies in sustainable CPR management.

Formal institutions (or the government), with devolution of power, are suitable for the implementation of new CPR management strategies. They allow users of CPRs to participate fully in allocation and maintenance of the resource as well as in shaping the rules of access to the resource because of their ability to build on existing bureaucratic structures and the authority often vested in state organisations (Degefa, 2010). The devolution of power of formal institutions through decentralisation creates an environment for changing the institutional infrastructure for local CPR management (Lund, 2006). Thus creating a structure of opportunities for the negotiation of the distribution of CPRs (*ibid.*). Formal institutions are therefore seen as an institutional basis for the management of CPRs, by enforcing sanctions since it can reach the community at grass root level. This was evident in the studies in northern highlands of Ethiopia where a local government structure at the community level partly built on informal institutions over communal forests and grazing lands were successful in mobilising users through collective arrangements, rule making and conflict resolution (Chisholm, 1998; Girmay, 2006). According to Yami et al., (2009), formal institutions play an important role in implementing technologies in sustainable CPR management despite CPRs scarcity caused by change in a resource, high population growth on limited resources, and inadequate human and financial capacities which reduces the effectiveness to achieve sustainable CPR management.

Despite the importance of formal institutions in CPRs management, successful decentralised formal institutions contributed to sustainable CPR management mainly by restricting access to CPRs (Degefa, 2010). Therefore, enforcing sanctions based on state laws, the willingness and motivation of governments to devolve power at the grass root level were requirements for effective management (*ibid.*).

Table 2.1. Overview of differences between informal and formal institutions

Aspects	Informal Institutions	Formal Institutions
Nature of evolution	Endogenous	Exogenous
Functional and structural Arrangements	Site specific	Common at district or national level
External input and material Support	Low	High
Consideration of social and cultural embeddedness	High	Low
Ownership	Local community	State
Enforcement and monitoring	Based on agreement of community	Legally by state

Source: Degefa, (2010)

Migration of fisher folks

The high mobility (movement) or migration of fishermen has been recognised as a remarkable feature of the West African artisanal fisheries be it inland, coastal or maritime. It is a basic feature as it is seen as an alternative to population pressure and other diverse factors in the fishing industry to provide different and better opportunities (Njock and Westlund,2008; Randall, 2005).

These movements by fishers take a variety of forms and are not stable over time responding rapidly to changing economic, political and ecological contexts (Randall, 2005). Initially most fishing populations originally migrated in response to the movements of fish but motives and patterns are diverse in recent decades with diverging opinions about whether these movements are primarily stimulated by push or pull factors. According to research, there is a general consensus that in most situations, the major incentive for fishers to migrate is due to the more attractive conditions in the destinations rather than ecological and economic crisis in their places of origin (ibid).

Patterns of migration

Coastal countries in the West and Central Africa sub region usually allow entry to migrant fishing communities from their neighbouring countries without any restrictions, thus favouring an increase in migration trends for fishing (Njock and Westlund, 2008). However, due to the non-homogenous nature of migrant fishing communities, a variety of fishing migration patterns can be identified and by looking at the disaggregated group of actors, a better understanding of their movements and factors driving migration can be gained (Randall, 2005; Sall, 2006; Njock and Westlund, 2008).

In the context of marine artisanal fisheries, several forms of migration have been defined, but two scales have been taken into account depending on the magnitude of the movements i.e. internal migrations and of the transboundary migration (international) (Randall, 2005; Njock and Westlund 2010).

Box 1

Definitions of different types of fisheries migration

Internal migration: Migration that takes place between fishing settlements within the same country in order to follow fish stocks or to take advantage of certain facilities or fish prices for during particular periods of the year.

Short-term migration: Migration that lasts for a few weeks but less than a fishing season. **Seasonal migration:** Fishing people, sometimes including family members that stay in foreign fishing settlements for one or two seasons and then return home for a certain amount of time.

Long-term migration: Fishing people that settle abroad for several years (20-40 years or sometimes more) but who always eventually return to their home country, independent of the length of their stay abroad.

Permanent migration: Second or third generation fishing people that end up being assimilated into the local population and in most cases also take the host country's nationality.

Contractual migration: Migration that is motivated by an employment contract that has been formally established in the country of origin. The duration of the contract may be for one or several years and the fisher makes visits to his home country during this period (circular migration).

Source: Adapted from (Atti-Mama, 2006; Njock and Westlund 2008).

Internal migration

Internal migration develops between one fishing settlement and another within the same country with several different forms noted i.e. short-term, long-term, or permanent. The duration of internal migration varies within a country and the dynamic fluctuations characterising its fisheries sector also affects the patterns (Njock and Westlund, 2008).

A short-term or seasonal migration character has been described by Solie (2006): Senegalese-Mauritanian upwelling affects the border area between Guinea and Guinea-Bissau from December to February, thus fishers from both countries are attracted by the then abundant catches of small-pelagic within this period. This migration pattern therefore gives reason to fishers to look for waters rich with fish (Njock and Westlund, 2008).

There is no indication that internal migration normally concerns with women or children as it is generally known that fishers bring their wives to help with cooking or post-harvest activities (such as processing and marketing of fish) and their children to support their work as crew members. However, they are generally noted to move with their families when the migration becomes circular or permanent (ibid). An illustrative example is the migration of fishermen in Mauritania from N'Diogo to Nouakchott, with the development of Nouakchott city and urbanization taking place, fishers changed their migratory patterns and moved to stay longer or permanently or with their families.

Other forms of internal migration that are found is the circular migration which involves fishers who travel or settle in coastal landing sites in order to engage in fishing, although they have no earlier fishing experience. An example is the fishers from Saloum Island who move to the ports of Senegal (Solie, 2006; Njock and Westlund, 2008).

International migration

International migration is usually long-term but not all is permanent or long-term. Once migrant fishers settle in their country of destination, they may combine several different migration strategies by making shorter or longer trips away from their home base (Njock, and Westlund, 2008).

Fishers from Benin, Ghana, and Nigeria moved to other countries in the south of Gulf of Guinea many years ago with some still staying there since several generations, with those working as

crew on Ghanaian purse seiners having usually migrated under contractual terms (Atti-Mama, 2006). According to Randall (2005) international migrant fishers with employment contracts do not necessarily work for the same employer but can change fishing boat and type of fishing from one season to the other.

International migration by some small-scale fishermen, was generally motivated by a wish to avoid management regulations in their home countries or communities and not a strategy for following migrating fish stocks (Njock and Westlund, 2008).

Table 2.2. The synthesis of usual categorizations of fishing migrations in West Africa.

<i>Scale</i>	<i>Pattern</i>	<i>Description</i>
Internal	Short-term	One to several weeks not necessarily set seasons. Usually just men.
	Seasonal	Generally following fish movements or production patterns. Fairly regular pattern each year. Some populations men only, others include women and possibly children.
	Longer term circular migration	One or more years. Usually described as contracts with companies.
	Permanent migration	Often not intentional but an outcome of longer-term circular migration.
International	Seasonal	Generally follow fish movements or market opportunities. Some populations men only, others include women and possibly children.
	Long-term contractual migration	Contracts can be between one and eight years. Usually men alone or groups of men. Sometimes women go separately and join them in the destination area.
	Permanent migration	Not clear whether these were always intended to be permanent. History of long-term migrant communities in many countries. A lot of fishermen have been born there – unclear about when groups cease to be migrant.

Source: Randall (2005), adapted from Kraan (2009)

Reasons and motives for migration

Another way of understanding fisher migrations is to look at the reasons or their motives for leaving ‘home’ i.e. country or community (push factors) and the motives behind going to their new destination (pull factors). These motives to migrate are various and relate to the biological, environmental, social or economic factors and can be divided into two main sections as biological and socio-economic (Kraan, 2009).

Start of migration

The first explanation of a fisher migration based on a biological factor in West Africa especially Ghana and Senegal is the occurrence of upwelling in coastal waters (Koranteng, 2000). Upwelling is cold nutrient water that mixes with surface water, which attracts large schools of sardinella resulting in an abundance of fish, boosting the development of coastal fishing in (Kraan, 2009).

Mobile fish species also induced the fishermen to follow the fish, bringing them to areas where the local fishermen were not active at sea but mostly operated in the in-between areas of estuarine and lagoon systems. The migrant fishers then make use of their already existing migration networks of people connected to the merchant economy, like shopkeepers, boatmen, transporters and workers (Chauveau, 1991). The connection strengthened the position of migrant fishermen in terms of safety, access to credit and markets for their fish and also valuable for other migrants to join.

Continuation of migration

Most small-scale fishermen migrate to places where they already have contacts with people and continue to make use of existing networks to use and create institutions (which are extensive and often ethnically defined (Overå, 2001). The upwelling effect in the ocean and the mobility of fish species form the basis of most fisher migrations in the West African region but a number of other factors also trigger their movement. According to a research by Njock and Westlund (2008) the following motivates Senegalese fishers to migrate: search for high value species and new markets, the possibility to save money when away from everyday obligations, giving the opportunity to invest in productive assets and later on in real estate in the home country, and general severe living conditions such as lack of safe drinking water, no markets for fish coupled with communication difficulties. It is said that having been to abroad strongly enhances your male status in Ghana, therefore fishers like to travel and go to other places. This has therefore made migration a tradition, possibility and an opportunity depending on the social position of the fisherman (as father, son, boat owner or crew member), as well as the economic and social situation in hometown and in the country of destination (Odotei, 2002; Kraan 2009).

In summary, small-scale fishermen who decide to migrate do so for a number of reasons; either their difficult current situation pushes them to leave hoping for a better life elsewhere or there

are factors attracting them to a new place, e.g. the possibility to increase their income or the access to new resources (Njock and Westlund 2008).

Table 2.3 Synthesis of explanatory factors stimulating fisher migration

Factors	Start of migration	Continuation of migration
Biological	<ul style="list-style-type: none"> i. Upwelling – follow the fish (pull) ii. Mobile fish species (pull) 	<ul style="list-style-type: none"> i. Overfishing of the home shores and or lagoons (push) ii. Coastal erosion (push) iii. Land scarcity: population pressure (push)
Socio-economic	Making use of knowledge of the existing migration networks: catches, markets, access to credit, safety.	<ul style="list-style-type: none"> i. Possibilities to earn more money, access to credit, possibility to make savings (pull). ii. Adventure and status (pull). iii. Access to cheaper inputs (pull). iv. Locals value their presence: catching fish, bringing employment, transfer of knowledge.

Source: Kraan (2009).

The Role of women and children

Migratory behaviour varies according to gender and women have a special status in the migration process. During short-term migrations, wives do not usually go with their fisher husbands. In the absence of their spouses, women stay behind to take care of children and the elderly but for long-term migration, many women follow their husbands on their travels (Sall, 2006). In some communities, women migrate with their husbands only under certain conditions, for example a married Imraguen woman (from Senegal) who has not yet had her first child would not be authorised to migrate, moreover, only boat owners or captains are allowed to travel with their wives (Njock and Westlund, 2008).

Children also take part in migration and those who travel, are of all ages and could be fishers or fish workers (processors, canoe builders), training to become fishers or fish workers, of school age or younger (Sall, 2006). In the country of destination, the majority of women work in fish processing and marketing and hence support their husbands' work. They also contribute

to the financing of fishing activities by lending their savings to fishers (ibid). The transfer of fishers generally has considerable influence on children's education as it tends to be a lack of appropriate schools and education facilities in the often remote areas where they settle, there is also often a lack of monitoring and support that makes successful education difficult in urban areas where parents manage to enrol their children (Sall, 2006; Njock and Westlund, 2008).

Moreover, the frequent travelling, the often generally inauspicious fisheries environment and the – implicit or explicit – requirements for extra labour disrupt children's schooling, making them leave school prematurely to engage in fishing (Njock and Westlund, 2008). It is also not uncommon that fishers become polygamous, among those who are not married cohabitation and frequent change of partners is common.

Livelihood space

Literature available on fisheries migration reveals that the integration of migrants into recipient communities is not always easy with several authors explaining that most native and foreign communities live next to each other but do not work together or collaborate (Njock and Westlund, 2008). They do not belong to the same society and hence do not share the same concerns, as a consequence, there are misunderstandings that often lead to conflicts, and marginalisation and exclusion of immigrants (ibid). Despite these challenges the migrant fishermen are able to expand their livelihood space in their new environments, triggered by the opportunities which they pursue.

Livelihood space refers to three elements: spatial, economic and social (or cultural) with the first being space where one can work (fish and market), live and make use of facilities and services. The second refers to the niche creation and the third to the fact that the fishermen also need to find space to position themselves, i.e. somewhere where that they will be accepted (Kraan, 2009). The first two elements of livelihood space form the reasons why fishermen have migrated. They are able to fill in a niche, a means to exploit an unexploited resource, and were often not competitors to local inhabitants given that, in many countries, locals did not fish at sea or not in large numbers. The final element, of being accepted, is also relevant and literature suggests that migrant fishermen are generally welcomed by local communities, and the fishermen manage to maintain good or at least neutral relationships with them (Odotei 2002). They therefore have an important impact on the economic life of the local communities by generating employment for many (in fishing material, ice, fish trade, fish processing, fuel and

related services) and they have an important share of the domestic catch, thereby supplying fish for the local consumers.

However, migrant fishermen have also been confronted with constraints, such as competition for resources such as industrial fleets as well as political conflicts, such as the expulsion of one million Ghanaians from Nigeria in the early 1980s, and the civil wars in Liberia and Sierra Leone in the 1990s and more recently in Côte d'Ivoire (Overå 2001). At times, fisher migrants have been envisioned as uncontrollable and violent, thus creating conflicts with the locals. These negative confrontations affecting migrant fishermen show that the position of migrants is always subject to negotiation and points to the fact that migrant fishermen should not be only active in niche creation but also in niche protection and maintenance (Kraan 2009).

CHAPTER 3

METHODOLOGY

(RESEARCH DESIGN AND ANALYTICAL METHODS)

Introduction

The main method used in the study is qualitative method of research. Qualitative method of research refers to the type of research that produced its findings, not arrived at by statistical procedures or other means of quantification (Strauss and Corbin, 1990). Some of the data may be quantified as with the background information about the subject studied, but the bulk of the analysis is mostly interpretative (ibid). Qualitative method of research was chosen for the study to explore the substantive areas about which little or much is known to gain novel understandings (Stern, 1994).

This chapter therefore looks at the research process, methods (research design and analytical models) used in gathering data, analysis of the data, as well as limitations, reliability, validity and ethical considerations on data collection for the research.

The research process

The research process identifies and explores patterns in data collection in relation to the aims, objectives and research questions asked in the study. An iterative research process was used in the study.

Iterative qualitative research involves three main components according to Strauss and Corbin (1990); first, data which comes from various sources such as observations, interviews, documents, records and films. The first component consists of population and sampling methods, sources of data as well as the method of data collection (or the research instruments).

The second components involve procedures which the researcher can use to interpret and organize the data i.e. methods of data analysis or the analytical approach. Written and verbal reports makes the final and third component of the research process (ibid). This consists of the use of the results to improve policies, programmes and practices (Crabtree and Miller 1999).

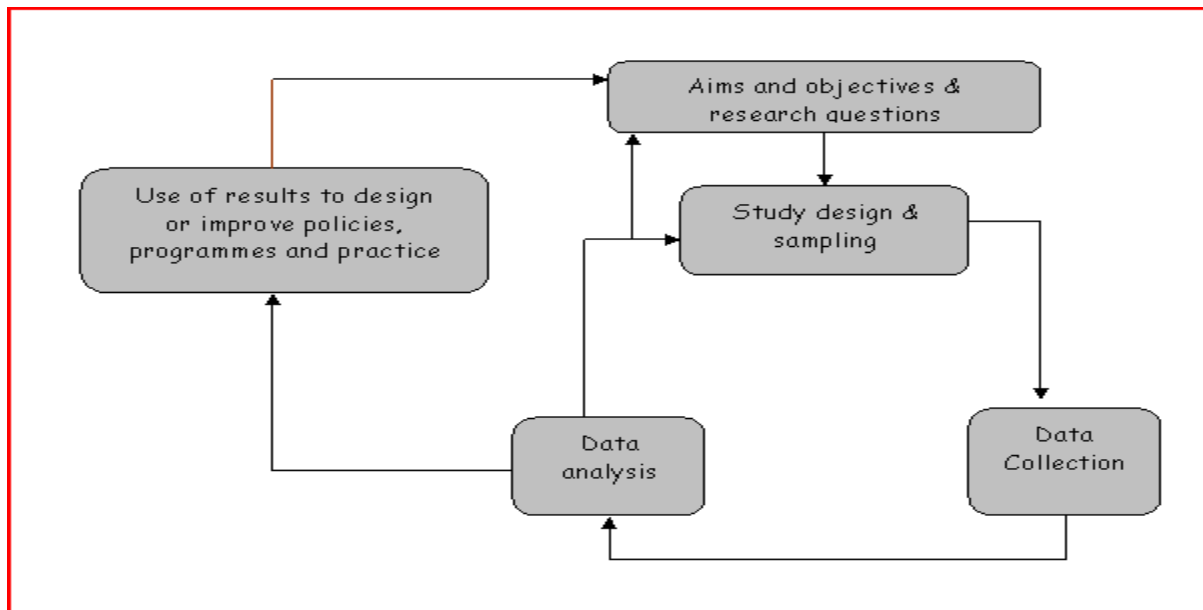


Figure 3.1: Iterative qualitative process.

Source: Crabtree and Miller (1999).

Data sources

Primary and secondary data were both used as the sources of information. Primary data were derived from respondents via questionnaires during the field work. The fieldwork took place in the fishing communities of Jamestown and Chorkor, Ministry of Fisheries and Aquaculture and the Fisheries Commission in the Greater Accra region of Ghana. Primary data were gathered in the form of text written through interviews, records, document analysis and observations (direct and non-participant).

Secondary data sources are data sets that are already in existence that the researcher may select variables from to use in the analysis i.e. one or combine data sources to create new data sets (Harrell and Bradley, 2009). Secondary source of information for the study were collected at the Ministry of Fisheries and Aquaculture, the Fisheries Commission, and from articles, internet, newspapers, and others, such as published and unpublished journals and theses.

The sample (population and sampling methods)

The target population for the study included the fishing inhabitants of the two fishing communities, i.e. Jamestown and Chorkor, and representatives at the Ministry of Fisheries and Aquaculture and the Fisheries Commission. A sample of those relevant in the survey research

was drawn from the fishing populations in the fishing communities. In all, a sample size of forty-eight (48) were interviewed with a gender imbalance in favour of the men. This was a result of women partaking only in the marketing and processing of fishes. The following were the number of respondents interviewed: chief fishermen (2), opinion leaders (2), local fishers (17) which comprises of net owners, local fishers and boat owners, fish mongers and processors (6), migrant fishers (19) and a representative each from the Ministry of Fisheries and Aquaculture and the Fisheries Commission.

Purposive and snowball sampling were used in the study. Purposive sampling is the selection of participants on purpose where the variables to which the sample is drawn are linked to the research questions. This helps the researcher to select his informants and sites for the study demonstrating some relevant features or process (Creswell, 2007; Silverman, 2008). Purposive sampling was used for the selection of key informants such as the chief fishermen, representatives at both the Ministry of Fisheries and Aquaculture and the Fisheries Commission.

Due to the heterogeneous nature of the populations in the two communities under study, the snowball sampling method was used to source data. Snowball sampling, also known as chain referral sampling, is designed to identify people with particular knowledge, skills or characteristics that are needed for a process (Mack et al., 2005). Snowball sampling begins by identifying people who meets the criteria that has been determined useful for inclusion in the study, and uses their recommendations to find people with the same specific range of skills (ibid). This helps the researcher to make use of community knowledge about those who have skills or information on the study. The snowball sampling was used for the selection of informants such as the local and migrant fishers, fish mongers and the fish processors.

Methods of data collection

Qualitative research methods of data collection were used in the study. This can involve three main stages according to Cook (2005): first; getting access to the specific communities of study. Second; to learn and understand the communities' way of life and third; making a reconstruction and understanding of the communities' culture through writing. This was achieved through the role and status of the researcher and research instruments better suited to the study.

Role and status during fieldwork

Status and role of the researcher affects the reliability and validity of the study, as informants sometimes become more concerned with whom the interviewer is, than the nature of the project (Silverman 2006). Status refers to the position of the individual in a society or a group, and role is the expected behaviour of an individual occupying a particular position (Argyle 1952). The roles and status of both the interviewer and interviewees have an impact on the outcome of the study as well as the context and expressions in the course of the interview (Silverman, 2006).

The research instruments

These are the tools for data collection. The validity and reliability of the data depends largely on the instruments chosen since they are the fact finding strategies in the research. The following instruments were used in the study;

Observation

Observation is a systematic data collection approach that a researcher uses all his senses to examine people in natural settings or naturally occurring situations (Cohen and Crabtree, 2006). It is a prolonged engagement in a setting which involves methodical and tactical improvisation in order to develop a full understanding of the study of interest (ibid). Observation is a very important method of obtaining comprehensive data when a composite of oral and visual data become vital for the research (Annum, 2015). This helps the researcher to obtain first-hand information about objects and eventful happenings in the study (ibid). Observation can take the form of photographs, audio and visual recording, art objects etc. and can either be participatory or non-participatory. Participant observation "combines participation in the lives of the people being under study with maintenance of a professional distance that allows adequate observation and recording of data" (Fetterman, 1998:37) while non-participant observation is observation with limited interaction with the people one observes (Cohen and Crabtree, 2006). Non-participant observation was used for the study, i.e. photographs and audio-visuals.

Non participatory observation was used due to the inexperience of the researcher on the skilled job of the informants. This form of observation also helped the researcher to obtain objectivity and neutrality by giving a detached and unbiased view during the study. Respondents willingly

cooperated (informal relationships) with the researcher as a result of the status as non-participant (impartial), thus giving a smooth run of the research. The researcher carefully studied every phenomenon during the non-participatory observation. Observations were made at the landing sites, markets and offices in the communities both on fishing and non-fishing days to help relate to what the informants claimed.



Picture 3.1: A picture showing the chief fisherman of Jamestown solving disputes on light fishing between local and migrant fishers.

Source: Author's observation (2015)

Interview and questionnaire

This method of data collection lies between observation and the survey method. Interview according to Robson (2011), typically involves you, as a researcher, asking questions and hopefully, receiving answers from the people you are interviewing. It is the act of collecting oral data from respondents' usually between an interviewer and an individual or in a group setting to gather information on a specific set of topics (Harrell and Bradley, 2009). Interviews

differ from surveys and studies by the level of structure placed on the interaction. Questionnaires were used to solicit information from respondents during the interview. This could take the form of structured, semi-structured and unstructured interviews.

Due to the nature of the study, structured and semi-structured interview with open-ended questionnaires were used for the interview. The structured interview provided data on demographic characteristics of respondents' and accessibility to the fishing resources. The open ended questions were used to elicit information on disputes between local and migrant fishers, management of the resource in the two communities and the impact of migrant fishers on the new communities. This helped the informants to give their individual responses. Semi-structured interviews provided data on the management set up in the communities. This form of interview helped to solicit information from key informants such as the chief fishermen, opinion leaders, representatives at the Ministry of Fisheries and Aquaculture and the Fisheries Commission.

The combined nature of both structured and semi-structured interviews made way for other questions to follow up. This gave a further understanding of the study, since the respondents were also allowed to ask questions and to contribute their views on the topics of discussion.



Picture 3.2: The author's interview with migrant fishers in Chorkor.

Source: Author (2015).

Extraction and case studies

Extraction is the collection of data from documents, records, or other archival sources such as newspaper and log books, this according to Harrell and Bradley (2009) includes using an abstraction process to cull desired information from the source. Extraction from documents on issues of migration, access to fishing resource were used to gather information for the research. Extraction were done in the communities and the offices of the Fisheries Commission and Ministry of Fisheries and Aquaculture. Examples of documents used in extraction for the study were log books, record books and newspapers.

Case studies were also used to collect data for the study. Case studies according to Creswell (2008:13) “are strategy of inquiry in which the researcher explains in depth a program, event, activity, process, or one or more individuals”. The two case studies were used to understand how migrant fishers get access to fishing grounds in the study, their impacts and how the institutions regulate or control conflicts between them and the local fishers. Despite the case studies providing little basis for scientific generalization of studies (Yin, 2003), it aided in understanding the activities of migrant fishers in the fishing communities.

Analysis of data (Analytical approach)

Analysis of data involves organising the data according to some specific criteria, reducing it to a more manageable form and displaying it in a form to aid analysis and interpretation (Ellsberg and Heise, 2005). Analysis of data for the research was followed by the Miles and Huberman (1994) approach of analysing qualitative data analysis using the flow diagram. According to them qualitative data analysis consists of three concurrent flows of activity: data reduction, data display, and conclusion drawing or verification. The constant play of this concurrent activities begins before the start of data collection and continues once all data are collected to draw final conclusions.

Table 3.1: Components of Data Analysis: Flow Model

	Data collection period		= Analysis
Anticipatory	Data reduction		
	Data displays		
	Conclusion drawing/verifying		

Source: Miles and Huberman, 1994.

Data reduction

Data reduction process of data analysis involves “selecting, focusing, simplifying, abstracting, and transforming the “raw” data of field notes or transcriptions into typed summaries organized around themes or patterns based on the original objectives of the research” (Ellsberg and Heise, 2005:204). This continues until the final report on the study is written with the data reduced in an anticipatory way, as it helped in the choosing of conceptual framework, research questions and instruments for data collection used in the study (Miles and Huberman, 1994). Data reduction was used in analysing access of resource on migrant fishers, institutions involved in the regulation and impacts of migrant fishers on their new communities. This process aided in the research by creating a bigger picture to get a distinction on the objectives of the study.

Data display/presentation

Data display, the next and inevitable step in data analysis of a qualitative research, is defined as an organized assembly of information that allows conclusions to be drawn and actions to be taken (Miles and Huberman, 1994).

Most of the data were displayed as narrative text after data collection and reduction during the research process. Others were displayed in the form of photographs and charts for better understanding of the study.

Interpretation and conclusion drawing

This step together with data reduction begins at the start of the research. Interpretation (verification) and conclusion drawing refers to the process of deciding what things mean, regularities, noting themes, patterns and explanations ((Ellsberg and Heise, 2005).

Conclusions and interpretation of the study began in a draft form throughout the entire data collection process and completed until the end of data collection. Conclusions from the research were then verified to test the plausibility nature of the study data for possible explanations and propositions.

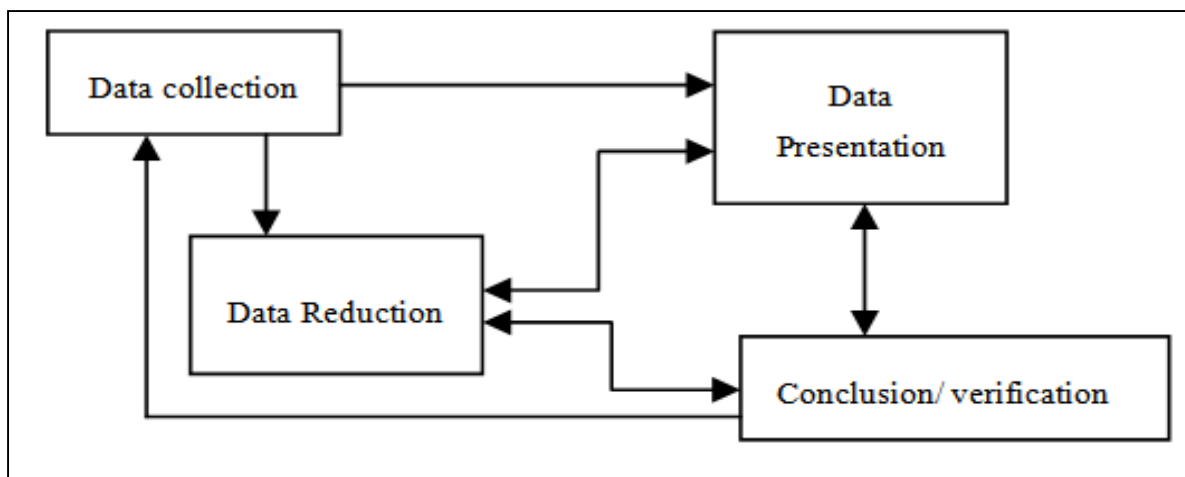


Figure 3.2: The flow model showing the components of data analysis during the study.

Source: Modified from Miles and Huberman (1992)

Limitations of study

The reliability and validity of data

The research process showed some difficulties, thus affecting the reliability and validity of the data. Reliability as proposed by Briggs (1996:23) “refers to the probability that the repetition of the same procedures, either by the same researcher or by another investigator, will produce the same results. Validity is the accuracy of a given technique, that is, the extent to which results conform to the characteristics of the phenomena in question”.

The main problem that affected the reliability and validity of study data was the period of field work. The research field work took place in June to August, a lean season for artisanal fishers in the two communities. This made it difficult to get enough migrant fishers in the area for interview. Extension of the field study in bumper season will aid in getting enough information from migrant fishers. Inadequate time frame for data collection was also a major concern, as this led to general scarcity of information from respondents. Financial constraints also had an effect on the study, as the research could only make generalisations on a small percentage of informants in two communities, possibly leading to bias.

The methods of data collection also have an effect on data reliability. With the snow ball sampling, informants tend to recommend people who are close and think they share same idea on the research topic. Sampling was also biased due to gender imbalance, and this could have an effect on the validity of the data. Introduction to informants as a researcher, by chief fishermen and opinion leaders, also affected data collection. Local and migrant fishers tend to

keep some information to themselves, since they were afraid information given will be given out directly to the leaders in the area.

Despite the above constraints, the research process was successfully organised. Every research, in one way or the other, faces some constraints. It is therefore necessary for a researcher to manage constraints and recognise the limitations.

CHAPTER 4

THE FISHERY SECTOR IN GHANA

The chapter gives an overview of the Ghanaian fishery industry. It outlines the characteristics, structure and resources of the sector as well as the performance, promotion and management of the Ghanaian fishery sector.

Overview of the Ghanaian fishing industry

Brief history, coastal morphology and oceanography

Ghana, located in the central part of the Eastern Central Atlantic along the Gulf of Guinea has a coastline measuring about 538 km long. The coastline comprises long stretches of sandy beach interspersed with rocky shores, estuaries and lagoons (Kwadjosse, 2009). These lagoons, estuaries and the many wetlands dotting the coastline together with average temperatures between 25°C and 35°C form the breeding grounds for many marine fish species and crustaceans with about 198 coastal fishing villages and 310 beach landing sites (Mensah et al., 2006). Fish production in the coastal waters of Ghana is driven by the oceanography of the western Gulf of Guinea, a seasonal coastal upwelling which consists of a yearly major upwelling of about three months' duration (July – September) and a minor upwelling of about three weeks' duration (December – January or February – March) (Kwadjosse, 2009). The country also has other water bodies such as the Lake Volta which serve as an important source for inland fish production and other services such as the generation of electricity, transport and irrigation.

Ghanaian fishing industry which started as an artisanal fishery mainly for subsistence purposes, was practiced by people living along the coast of the country, using very simple, low-efficiency gear and methods in lagoons, lakes, rivers, estuaries and marine waters very close to the shore (ibid). The Ghanaian artisanal fishers were very industrious and adventurous as far as the early 1800s and 1900s, venturing as far as Liberian and Nigerian waters despite the use of simple gears and methods in fishing (Atta-Mills et al., 2004). The Ghanaian fishing industry was strengthened through the formation of a Boatyard Corporation in 1952 to build wooden vessels with in-board engines to enable artisanal fishers to make bigger catches further out at sea.

Demand for fish, associated trade and investment opportunities led to the emergence of the commercial fishery sector in the latter parts of 1900s. This encouraged the formation of fishing companies, many of which had foreign offices directing the operations of semi-industrial

fishing operations in distant waters (Atta-Mills et al., 2004; Kwadjosse, 2009). To further strengthen the industry and also to attract entrepreneurs through the provision of loans, the Commercial tuna fishery and the State Fishing Corporation (SFC) were set up in 1962 to import large fleet of trawlers whose fishing activities occurred outside the shores of Ghana, fishing off Angolan, Senegalese and Mauritanian coastal waters through bilateral agreements (Kwadjosse, 2009). Unfortunately, many fishing companies including SFC collapsed during the 1980s as a result of mismanagement, plunging the industry into financial difficulties (Atta-Mills et al., 2004). Lack of national human resources, supporting infrastructure and political instability of the late 1970s and 1980s, adoption of Exclusive Economic Zones (EEZs) by most coastal West African countries adding to the financial difficulties led to a decline in the Ghanaian fishing industry. The industry gradually recovered through foreign investment in the period of 1970 – 2009 (Fisheries Commission, 2010).

Current state of the Ghanaian fishing industry

The Ghanaian fishing industry can be divided into two main components: the marine sector which consists of the small-scale and the industrial sector and the inland fishery which is mainly small-scale. The marine sector of the industry consists of fishing in the sea and lagoons while the inland comprises of fishing in lakes, rivers and reservoirs (Kwadjosse, 2009).

Marine fisheries

The marine fisheries resource consists of both the industrial and small-scale fishing. The marine capture fisheries land an average of about 325,000 tons annually showing signs of increasing full exploitation or overexploitation. The resource is exploited by a small-scale fleet of 11,213 dugout canoes of which 57% are motorized, operating from 334 landing sites landing about 70% of the total marine fish production (Kwadjosse, 2009).

The fisheries resources on the industrial level is exploited by a semi-industrial fleet of 230 locally constructed wooden vessels which lands 2% of the total marine fish production from seven landing sites. The steel vessels of the industrial fleet lands the remaining 28% of the total fish production from two main landing sites (DoF, 2007). The steel vessels are made of 48 bottom trawlers, 14 pair trawlers, 2 shrimpers, 33 pole-and-line and 10 tuna purse seiners (Kwadjosse, 2009).

The inland fisheries

The inland fisheries comprise of 24,000 planked canoes (4% motorized) with capture occurring mostly on the Lake Volta as well as other lakes, rivers and reservoirs (Kwadjosse, 2009). The fishery lands about 150,000 tons of fish annually with an estimated 80% coming from the Volta Lake. These figures are uncertain and the contribution of inland fisheries to the total production is probably underestimated.

Rivers, lagoons, reservoirs are less heavily exploited compared to the Lake Volta, which shows signs of overexploitation evident in the lesser number of species and predominance of relatively small-sized fish in catches (ibid).

Aquaculture

The aquaculture sector, a developmental stage of the Ghanaian fishing industry has recently been adopted as an assured way of meeting the deficit in Ghana's fish requirements and it is dominated by non-commercial systems mostly using earthen pond (FAO, 2016).

The majority of aquaculture species are mainly tilapia (80%) with catfishes making up the rest. The total production from culture based fisheries and aquaculture is 3.527 tons with a production rate of small-scale operators estimated to be around 1.5 tons/ha/year. (Kwadjosse, 2009).

Lack of feed and provision of fish seed as commercial activities are some of the challenges that affects the development of the aquaculture industry.

Fish output and processing

Total catch increased in the late 1960s from 105,100 to 301,762 tons. The yield also recorded 35,000 tons of freshwater fish from Lake Volta and an average fish catch of 326,000 tons from year 2000 – 2010.

The small-scale fishing sector of the marine fishery and inland fishery consist of a thriving post-harvest sector which involves many fish processors (mostly women), wholesalers and retailers. The post-harvest activities in the industrial sector are associated with the canoe fleet

while fish from the steel vessels are mostly destined for large cannery companies, transshipment or cold stores, despite some selling directly to fish processors and retailers (Kwadjosse, 2009).

Economic impact of the fisheries sector

Fisheries constitutes an important sector in the Ghanaian economic development as it contributes to the national economic objectives relatively to employment, livelihood, foreign exchange earnings, food security and poverty reduction.

Presently it accounts for 4.5% of the country's GDP, with the small-scale fisheries sector is estimated to contribute about 3% to national GDP and generate revenue of \$341 million annually (GSS, 2002). The small-scale fisheries sector employs 80% of fishers in the country (ibid). Fish provides 60% of the animal protein needs of Ghanaians where about 75% of the total domestic production of fish is consumed locally with a national per capita consumption estimated at 23kg (Kwadjosse, 2009). Therefore, fish and its products are critical for food security in Ghana. Exports from fish and its products is the country's most important non-traditional export, fisheries production worth in excess of US\$ 1 billion in revenue each year (GSS, 2002).

Fisheries governance and management setup in Ghana

The general legal framework

Fisheries over the years has been managed and governed by a number of laws and regulations in Ghana. The sector has over the years been regulated through a general legal fisheries governance framework in two distinctive eras i.e. before and after the inception of the United Nation Convention of the Law of the Sea (UNCLOS) (Kwadjosse, 2009). These frameworks consist of institutions in the sector used in the management and governance. Despite these laws and forms of management, the status of Ghanaian Fisheries Sector management cannot be said to be satisfactory.

This section will examine the fisheries governance in Ghana by examining legislation in both the pre-UNCLOS and post-UNCLOS eras and the institutions responsible for the regulation and management of the sector.

Pre-UNCLOS legislation

The period of the pre-UNCLOS legislation (1960s and 1970s) were described as the years of aggressive nationalism and intense struggle for economic opportunity as the country was in the wake of independence. Governments of this period were unwilling to take stands that might attempt to frustrate the economic enterprise because they wanted to consolidate their power base. They also felt under pressure to produce rapid economic results and social improvements (Kwadjosse, 2009).

The fishing sector had its first regulatory law in 1946 which was the Fisheries Ordinance, Cap165, enacted by the colonial government (Antwi-Asare and Abbey, 2013). Other legislation and regulations related to the fishing sector since 1964 before the introduction of UNCLOS include: Wholesale Fish Marketing Act passed in 1963; Fisheries Act 1964; Fisheries Regulations LI 364 of 1964; NRC D 87 of 1972 (Fisheries Decree 1972); Fisheries (Amendment) Regulations 1977; and AFRD 30 of 1979 and the accompanying regulation, Fisheries Regulation 1979 LI 1235.

Major sections on these legislations were mostly dedicated to the building, importation and manning of fishing crafts. The period recorded constant increases in the number of vessels in all sectors of the fishing industry, with 198 motorized vessels in all registered in 1960, of which 193 were in the inshore fleet (Kwadjosse, 2009). The rapid fleet expansion was followed by an increase in fish landings which by far exceeded the numerical growth of registered units. This obviously made the sector one of the most lucrative ventures available for Ghanaians and hence there was lot of investment in the industry from both government and private sectors.

During the pre-UNCLOS era, strategies for fisheries development in Ghana were based on the assumption that the sea will limit the amount of fish caught with the belief that Ghana had an enormous fishing potential (Hernæs, 1991). The then Fisheries Department was not endowed with the necessary powers to enforce regulations with the industry thrown open as a field of investment to anyone who could raise the required capital or have the “right connections”, leading to loss of purpose and direction of the industry in general (Kwadjosse, 2009). This led to an over-optimistic atmosphere, drawing interest from foreign investors as well.

Post-UNCLOS legislation

In 1983, Ghana ratified the United Nations Convention of the Law of the Sea (UNCLOS). The post-UNCLOS legislations showed an increasing awareness for the need for conservation. There have been six fisheries related laws since Ghana ratified UNCLOS in 1983. These are:

Fisheries Regulation 1984 LI 1294; Maritime Zones (Delimitation) Law, 1986; PNDC Law 2560 of 1991; Fisheries Commission Act of 1993; Fisheries Act 625 of 2002; and Fishers Regulation 2010 (L.I. 1968) to give effect to the Fisheries Act 2002 (Act 625) and prescribed measures for conservation, management and development of fisheries and aquaculture in Ghana.

The post-UNCLOS legislation trend began with the passing of Maritime Zones (delimitation) Law which established jurisdiction over the EEZ, making it possible to determine exactly what it is to be conserved and in what areas these measures are needed (Kwadjosse, 2009). The PNDC Law 256 of 1991 was then passed to begin the process of the conservation effort through licensing (which was a widely used and recommended method to control access to the resource), establishment of fishing zones, restrictions on fishing gear to be used within and outside these zones and the industry as a whole, and the establishment of the Monitoring Control and Surveillance unit (MCS). This was followed by a major step in the efforts to manage the fisheries resources, the Fisheries Commission Act of 1993. The main function of the Act was to be responsible for the regulation and management of the utilization of the fisheries resources and co-ordination of policies in relation to them, the Act also give the Commission several duties that include the establishment of systems to manage, protect and effectively use the fisheries resource to achieve the most productive use (ibid).

The Fisheries Act, 2002 (Act 625), was enacted to amend, and consolidate all the previous laws on fisheries; to provide for the regulation and management of fisheries; the development of the fishing industry and the sustainable exploitation of fishery resources as well as deal with any peripheral issues confronting to national and international fishery resource development (Kwadjosse, 2009; Antwi-Asare and Abbey, 2013). The Act sets out to integrate international fisheries agreements into Ghanaian national legislation and also emphasizes the importance of the Fisheries Commission by strengthening the legislation establishing the institution. The Fishers Regulation 2010 (L.I. 1968) is the regulation currently governing the fisheries sector. It was passed to give effect to the Fisheries Act 2002 (Act 625).

Fisheries governance and sector management systems

Governance can be defined as the formulation and stewardship of the formal and informal rules which regulate the public realm and interact to make decisions (Hyden *et al.* 2004).

A typical governance structure focusing on fisheries governance in a Ghanaian setting has been outlined by Kraan (2009) in an ideal sketch. The structure depicts how the governance structure in Ghana functions at village level.

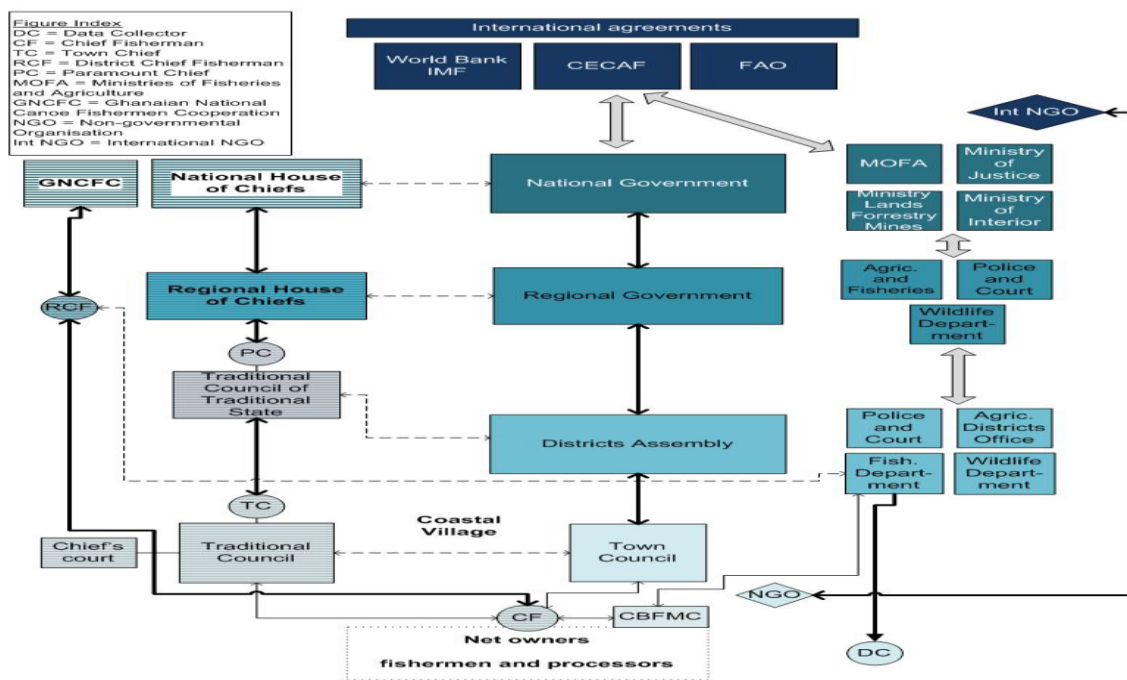


Figure 4.1 Governance structure of an ideal type coastal village in Ghana

Source: Kraan (2009)

The structure according to Kraan (2009) consist of shaded and non-shaded elements; round forms, triangular shapes and square blocks. The shaded figures consist of traditional or hybrid (a mixture of Government of Ghana and traditional) organisations and the non-shaded figures are organisations related to the Government of Ghana – with the exception of the rhombus shapes which represent non-governmental organisations (NGOs). The round figures represent social roles that is agencies comprising an individual such as a chief fisherman. The square blocks are organisations such as councils, departments and ministries. The colour difference shows at which level the organisation operates and the darker the colour, the higher the level. There are seven levels:

- i. Sub-village level – this level consists of the chief fisherman, CBFMC, fishermen, fish processors etc.
- ii. Village level – consists of the Town council, chief’s court and the traditional council
- iii. District level – consists of the District Assemblies.
- iv. Traditional state level – comprises of the traditional council of the traditional state.
- v. Regional level – this comprises of the regional House of Chiefs, regional offices of the Ministry of Fish and Aquaculture Development and the regional government.
- vi. National level – this consist of the Government of Ghana, Fisheries related ministries, National House of Chiefs and finally;
- vii. International level – where the fisheries sector shares a number of agreements with other stakeholders in the field e.g. World Bank, FAO, IMF etc.

Kraan (2009) explained that the arrows show the main connections and lines of contact. There are three levels of thickness used for the arrows in the scheme. The thickest grey arrow is used to show a cluster of connections between levels. The black arrow is used only when organisations at different levels can be connected directly. The thin dashed arrows are used to show relevant horizontal connections. The thin lines are used to connect a certain organisation or role to another, and the thin arrows are used to connect an organisation or role to a relevant other organisation or role.

Government of Ghana (GoG) governance structure

Ghana is administratively subdivided into ten regions and 138 districts, these regions are subdivided into districts and these are in turn subdivided into areas. The coastal regions are (from East to West) the Volta region, the Greater Accra Region, Central Region and Western region (Kraan, 2009). The Regions are run by the Regional Coordinating Councils with the Presiding Member, Regional Minister and his deputies, two chiefs from the regional house of chiefs, and the regional heads of the decentralised ministries. The districts are controlled by District Assemblies (DA), with the District Chief Executives (DCE) who are the main representatives of the Central Government in the district in charge (Mensah et al. 2006). The DA consists of the assemblymen of which two-thirds are directly elected and one third appointed by the President in consultation with the chiefs and interest groups in the district. The DA has deliberative, legislative and executive powers and offers services to the

communities via the de-centralised departments at district level with its own developmental programs organised via collected revenue e.g. market tolls.

The coastal villages and towns are represented in the DA by their assemblymen, who also hold a position in the town council of the villages and towns. The town council is the lowest level governance organisation of the decentralised Ghanaian state. The town council also has chosen unit representatives, government appointees and extra representatives; of the chief (as a link to the traditional governance structure) and of important economic groups such as fishermen (Kraan, 2009).

The traditional governance structure

The indigenous states in Ghana are headed by a paramount chief under whom chiefs and sub-chiefs govern. In some traditional areas, although the chief rules the area by custom, the high priest or the land priest is regarded as the owner of the land. These chiefs come from the chief making clans or royal families living in the communities and are seen as the natural custodian of the customs and traditions of their people. The fact that chiefs in Ghana play governing roles is inherent in the concept of chieftaincy – chiefs also have executive, legislative and judicial powers in their communities according to traditional law (Kraan, 2009).

The chiefs maintain a link between their people and are responsible for the overall welfare of their states, and for maintaining law and order and for protecting their people from neighbours and enemies. The chief's court is the highest in the village and deals with the settlement of disputes between the inhabitants, if they cannot be solved at lower levels. The institution of chieftaincy is built up through a series of hierarchical levels of authority (from household, compound, lineage, village, town, division to paramountcy) with a recognised head at each level, based on kinship with each lineage represented through its head on higher councils with clear procedures for linkage to higher and more powerful levels. The relationship between the chiefs and the state in West Africa have been analysed as interdependent. All traditional states within the Ghanaian state are represented in the Regional Houses of Chiefs and the National House of Chiefs, with the state depending on the chief to implement its policies and to obtain specific information on the local community.

The role of the chief fishermen

The institution of chief fisherman is an important institution in Ghanaian fisheries, they play an important role in relation to the GoG structure and fulfils a liaising role between the fishermen and higher level organisations. The chief fisherman is one of the sub-chiefs of the village chief, and chairs the fisheries committee which advises the chief on fisheries matters (all fisheries matters are first handled by the chief fisherman) (Kraan, 2009). The role of a chief fisherman varies from one ethnic group to the other (i.e. from one region/tribe to the other).

In those coastal villages where fishermen have been fishing for centuries (mostly in Fante and Effutu coastal communities), it is a hereditary function. The chief fisherman assists the chief with the settling of all fisheries matters, and he is elected by the fishermen and must be an exceptionally experienced, wise and respected fisherman who is a net owner (optional) and has the ability to solve problems (Overå 2001). They act as a liaison between government and their people by negotiating with government organizations about benefits, credit and inputs for the fishermen. In the case of the Ewe, the chief fisherman is also involved in religious rituals related to fisheries, they perform rituals to ensure good fishing (Kraan, 2009).

In Winneba, the chief fisherman is a senior divisional chief and replaces the paramount chief of Winneba when he is away. He works with a council of elders and they settle disputes between fishermen, processors, fish traders and between those groups, and advice fishermen. He also coordinates rescue operations in the event of accidents at sea and collects revenue from fines of fishermen breaking rules and receives token fees of fisher migrants who come to fish on his beach (Bannerman, 1998; Kraan 2009).

The chief fisherman is a member of Ghana National Canoe Fishermen's Council with direct lines between the fishermen and governance organisations, such as the fisheries representative in the town council. The role of the chief fisherman cannot be underestimated, in fishing villages where fishing is the major industry, the chief fishermen is more important than the chief in terms of being a link to external sources (ibid).

Implications of migration on fisheries governance

In fisheries literature, shifts have been made from top-down management approaches via co-management or no-management to governance approaches as fisheries crises are sometimes called complicated as there is not only disagreement about solutions but also about the nature of problems (Mason & Mitroff 1981; Wilson et al. 2003). The consequence of this is that traditional methods of dealing with problems (i.e., where complex issues are often considered an intellectual design question and are approached by giving research and science a central role)

no longer suffice and the fisheries sector notably is characterised by uncertainty, diversity, complexity and dynamics (Kooiman & Bavinck, 2005).

The plural governance situation with organizations related to the Government of Ghana and to traditional governance at local level, becomes even more plural in a situation of migration (Kraan, 2009). This is evident in situations of artisanal fishermen migrating from their home areas to other villages in Ghana. They are confronted with another setting of Government of Ghana and traditional organizations, combined with organizations and institutions related to their own (home) traditional government at their migration destination.

The migrant fishermen are apparently never restricted as in Ghana there is a policy that any can come and fish everywhere, but they are forced to operate in a governance setting which is quite different from their home settings. In fact, both migrant fishermen and traditional leaders have to abide by the national laws and this shows how the governance system is mixed.

The fishery sector institutions

Institutions forms an integral part of the governing system. Fisheries sectors institutions involve various government and non-governmental organizations (NGOs) which can be classified into two main categories; formal and informal institutions.

Formal institutions

Formal institutions refer to the rules that guide access, control and management of the fisheries resources, and which are also backed up and enforced by the state.

The Ministry of Fisheries and Aquaculture Development

The Ministry of Fisheries and Aquaculture Development, together with the Fisheries Commission and Directorate of Fisheries forms the executive organisation of the fisheries sector. The Ministry has a mission to promote sustainable and thriving fisheries enterprises through research, technology, development, extension and other support services to fishers, processors and traders to fulfil its role in ensuring food security and poverty reduction (FAO, 2012). The objectives of the Ministry of Fisheries and Aquaculture Development, according to FAO (2007) are to: prepare and keep under continual review plans for the management and development of fisheries in waters under the jurisdiction of Ghana; ensure availability and

adequate supply of fish from captured fisheries for the local and export markets; provide technical support and facilitate financial assistance to fishers, fish processors and marketers; facilitate effective and efficient distribution system; to co-ordinate and collaborate with other Ministries, Departments and Agencies (MDAs) for the enforcement of Fisheries Laws, Regulations and Bye-Laws; promote local, sub-regional and international co-operation in Fisheries Management and Development; ensure that plans are built to improve on the Human Resources capacity of the Ministry to enhance service delivery; ensure the availability of timely, reliable data and information on the fisheries sector; and to co-ordinate and collaborate with MDAs and NGOs on poverty reduction production and value chain in the fishing industry.

In order to achieve the above objectives, the Ministry has to continue to pursue its policies which is aimed at: (i). Increasing fish production consistent with the long term sustainability of the resources, for domestic consumption and for exports; (ii). Reduce harvest losses and the adding values to end products of fisheries for increased income to users and for the generation of foreign exchange to the nation; (iii). Intensifying Monitoring, Control and Surveillance (MCS) activities to ensure responsible fishing; and (iv). Liaising with the Ministry of Trade, Industry, Private Sector Development and President's Special Initiative (PSI) to sensitize businessmen to invest in aquaculture as a business/industry.

The key functions of the Ministry of Fisheries and Aquaculture Development according to FAO (2007) are to: facilitate the formulation and implementation of appropriate policies in support of a sustainable fishing industry; initiate, co-ordinate, monitor and evaluate national programmes/projects in the fishing industry; generate social economic data as basis for improving the human capacity of the fishing industry; ensure the implementation of Fisheries Laws and Regulations; collaborate with HRMD in skill development of fisheries staff and collaborate with sub-regional and international organization in the study and management of shared fisheries resources; play a facilitating role inputs acquisition and marketing of produce to fishers, fish farmers, fish processors and traders; provide a technical support to fishermen, fish farmers, fish processors and traders; and improved fisheries practices, efficient utilization and management of fisheries resources.

Fisheries Commission

The Fisheries Commission was established under the Fisheries Commission Act 457 of 1993, and operates under the Fisheries Law PNDC Law 256 of 1991. The legal framework is embodied in the Fisheries Law of 1991 (PNDCL 256) together with the Fisheries Commission Act 457 of 1993 (Kwadjosse, 2009). The Fisheries Commission has the mandate of regulating and managing fishery resources and co-ordinating fishery policy, specifically ensuring that fisheries resources are exploited on a sustainable basis, settles disputes and conflicts among operators, advises government on all matters related to fisheries, and advocates on issues to protect, promote and develop the fishing industry (FAO, 2004).

Considering the interdependence of the various sections and the role of the fisheries sector in economic growth, the composition of Fishery Commission is such that it includes the most important stakeholders (Kwadjosse, 2009). Section 4 (1) of the Fisheries Commission Act establishes the composition of the Commission as: (1) a chairman (appointed by the President of Ghana in consultation with the council of state; (2) The Director of the Commission; (3) a representative from the Ministry of Transport, to ensure the effective transportation of fish resources both in and outside Ghana; (4) a representative from the Ministry of Defence, to collaborate with the Ghana Marine Fishing Officers to ensure MCS of fishery waters; (5) a representative from the Ministry responsible for Environment; (6) a representative from the Ghana Marine Fishing Officers Association, the role is to ensure MCS activities within the waters of Ghana; (7) a representative from the Water Research Institute to collaborate with the Marine Fishery Research Institute to carry out research and also make survey for the assessment of stock of fishery resources; (8) a representative of the Ghana Irrigation Development Authority to ensure the proper conservation of the fishery resources through the prevention of overfishing and also prepare and keep under continual review plans for the management and development of fisheries in waters under the jurisdiction of Ghana; (9) Two representatives of the National Fisheries Associations of Ghana – one representing artisanal fishermen and other representing industrial fishing vessel owners to promote, protect and develop the fishing industry as well as the interests of their members. They also have the role of collecting and distributing statistics and information of any kind which affect members of the association, and make recommendations to the Minister on granting licenses for fishing and; (10) one other person with requisite knowledge of the fishing industry or natural resources renewal management.

The composition of the Commission ensures full participation of all players in the fisheries sector and also it fulfils the duties of a coastal state as required by the UNCLOS with respect to, *inter alia*, exploring and exploiting (Kwadjosse, 2009).

The Commission is, however, constrained by lack of funding to effectively deliver its mandate.

Department of Fisheries

The Department of Fisheries, now known as the Directorate of Fisheries (DoF) serves as the implementation secretariat of the Fisheries Commission, as stipulated by the Fisheries Act 625 of 2002 (FAO, 2004). It fulfils this role by:

- preparing fishery resource management plans;
- developing regulations for the fishing industry;
- organizing MCS for the national fishery resources and ensuring compliance with national fisheries law; and
- Institutionalizing co-management concepts.

The DoF operates within the Ministry of Fisheries and Aquaculture, with the following sector objectives (FAO, 2004): Increasing domestic food supply, particularly protein sources, through more effective use of available fisheries resource at the regional and local levels as a means of satisfying national protein needs and creating employment opportunities, particularly for the rural population, to address the problem of urban drift. Other objectives include improving the living and working conditions of fisher folk, contributing towards Gross Domestic Product, contributing towards foreign exchange earnings under the Non-Traditional Export Programme and assisting in the alleviation of rural poverty.

The DoF deliver these functions through several mechanisms which includes sea patrols; observer programmes; port and landing inspection; licensing; vessel registration; formation and strengthening of CBFMCs; statistics gathering and analysis; and consensus building. The DoF has a MCS Division which was established under the Fisheries Subsector Capacity Building Project (FSCBP) with the mandate of to enforce the Fisheries Laws. The MCS Division, with the collaboration of the Ghana Navy, conducts sea patrols to exclude industrial fishing vessels from the 30-m IEZ, which is reserved for artisanal fisheries.

District Assemblies

The District Assemblies operate under the PNDC Law 327 of 1993. The District Assemblies function as a well-resourced decentralized system of local government under the Ministry of local Government and Rural Development (MLGRD). The MLGRD is responsible for managing fishers, fish processors and fishery resources at district and sub district levels (FAO, 2004).

The District Assemblies in collaboration with DoF, have been mandated to facilitate fishery resource management by helping in forming and sustaining Community-Based Fisheries Management Committees (CBFMCs); cooperating with the DoF MCS units; providing legal and financial support to the CBFMCs; and approving levies proposed by the CBFMCs.

Informal institutions

Informal institutions are systems of rules and decision-making procedures which evolved from endogenous socio-cultural codes and giving rise to social practises, assign roles to participants, and guide interactions among users (Appiah-Opoku and Mulamoottil, 1997).

Community-Based Fisheries Management Committees

A Community-Based Fisheries Management Committee (CBFMC) is defined as a local committee, formed in a fishing community, based on existing traditional leadership authority and local government structures, which is legally empowered by Common Law, and comprising all stakeholders, to oversee the management and development of the fishing industry (FAO. 2004).

The genesis of the CBFMCs was derived from the DoF interest in ensuring a more sustainable national fishery resources. This was achieved through co-management. The principal responsibility of the CBFMCs is to enforce national fisheries laws at community (or district) level, as well as to enact and enforce their own by-laws to the same end (bid).

Other institutions

Other institutions according to FAO (2004) that contribute to the management of fisheries resources in Ghana include: The Volta River Authority; NGOs, such as Friends of the Earth and the Adventist Development and Relief Agency; Private commercial entities, such as the Agricultural Development Bank, Rural Banks, and Continental Christian Trader (a dealer in fishing nets); and Fisher associations, such as the National Inland Canoe Fishermen's Council (NICFC), Ghana National Canoe Fishermen's Council (GNCFC), Ghana National Association of Farmers and Fishermen, and Ghana Co-operative Fisheries Association.

The Fishery sector management systems

In Ghana, there are two separate management systems which attempt to respond to ecological, socio-economic and institutional issues related to the development of the national fishery. The management systems, for Marine fisheries and for Lake Volta fisheries conform to the global policy environment (FAO, 2004). The national fisheries management plans draw heavily on the:

- Code of conduct for Responsible Fisheries (CCRF) policy matrix;
- Integrated development strategy models; and
- Coastal area management models.

The two management systems have a number of cross-cutting concepts run through them, such as:

- (i). A policy of effective monitoring control and surveillance (MCS) that relies heavily on the collection and analysis of accurate and relevant data and information.
- (ii). Partnerships in pursuit of co-management to increase local investment in resource use decision making so as to engender ownership among stakeholders and commitment in implementing regulatory mechanisms.
- (iii). Institutional capacity strengthening, economic policy related to energy, credit and promotion of measures that ensure efficient exploitation of the fishery resource to meet the nutritional needs of the people and for export.

(iv). Process, concerned mainly with adaptive management in response to fluctuations in the fishery (bio-physical stocks) allowing for adjustment in fishing pressure in the short term while ensuring fishery system sustainability in the long term. Promotion of public awareness of resource conservation and management needs, taking advantage of economic, social and cultural values associated with different resources.

(v). A precautionary approach entailing a combination of multi-disciplinary strategies and effective monitoring systems to respond to the multifaceted concerns related to abundance fluctuation in fish stocks; different interest groups; and trends and variation in gear and technology use. Legislation related to gear type, mesh size, licensing, levies, gear type and close seasons to regulate effort and sustain stocks.

Marine fisheries management systems

In the marine fisheries sector, there are separate management subsystems for both small and large pelagic fishery, demersal, shrimp and lobsters (FAO, 2004). The main elements of the management regime are:

- limiting industrial vessel fishing effort (especially trawlers and shrimpers) by limiting entry into the fishery through a licensing regime; and
- Prescribing the mesh sizes to be used in any particular fishery in order to limit the exploitation of juvenile or immature fishes (including shellfish and molluscs).

For the small pelagic fishery, management rules and regulations are primarily intended to work through input limitation, such as mesh size limits with the intention of protecting juveniles of sardinella. There is also an attempt, to identify and take actions with the support of interested parties to forecast and reduce the often high variability in the recruitment, abundance and availability of small pelagic fish resources, through the enforcement of regulations that ensure the escape and survival of juveniles from nets and the combined use of purse seiners and Fish Aggregation Devices (FADs). The large pelagic management regime is to ensure compliance by all Ghana-based vessels with the standard regulations issued by ICCAT. The demersal fisheries management plan confronts major culprits for stock depletion: shrimpers and trawlers with the aim to allow stocks to recover to a sustainable level, where they could be harvested in

perpetuity. One of the strategies is to prevent trawling activity (by inshore vessels or industrial vessel) within the Inshore Exclusion Zone (IEZ), and prohibition of beach seining. The IEZ is to be amended, from the 30-m depth line to 12 nautical miles and existing mesh size regulations will be vigorously enforced.

There are also few traditional management systems, which tend to regulate access to marine fisheries in Ghana and thereby conserve the fish stocks. These include:

- In every fishing village there a non-fishing day is observed each week (mainly on Tuesday, but sometimes on Wednesday or Sunday), which fishers use to maintain gear and equipment, rest and for social activities.
- In some communities, there is a total ban on fishing activities for various periods (up to two weeks) prior to and during annual festivals.

Volta lake fisheries management system

According to FAO (2004) the lake fisheries management strategy is built around six strategic goals, with a set of actions outlined to achieve each strategic goal.

The first strategic goal for the management of lake fisheries is the regulation of fishing mortality within the framework of an adaptive management approach. The principal actions according to FAO (2004) to accomplish the first strategic goal include:

- Declaring Specially Protected Areas (SPA) as breeding and nursery areas, enforcing fishery regulations on the use of active gear, the exploitation of gravid fish and under-meshed nets;
- Introducing of a licensing system and entry requirement that will reduce the current fleet by 30%, increasing the minimum mesh size to 7.62 cm for all nets; and
- Discouraging subsidies on premix fuel as a way of discouraging the use of the winch (encircling) nets.

The second strategic goal is concerned with harmonization and strengthening of the institutional environment for fisheries management, development and research on Lake Volta. The third goal concerns the establishment of co-management institutions that can sustainably

manage territorial use rights regimes using local community structures and mechanisms. The fourth strategic goal is concerned with improving the socio-economic conditions of lakeside communities. Significant measures aim to influence population patterns as well as to preserve and improve infrastructure, with promotion of alternative livelihoods supported by an effective credit system. The fifth strategic goal addresses the ecological environment that can sustain existing alternative livelihoods such as farming and livestock rearing. The sixth strategic goal concerns the effective implementation of a policy matrix that reflects the Code of Conduct for Responsible Fisheries, coastal area management models and integrated development strategy models.

CHAPTER 5

RESEARCH FINDINGS AND DISCUSSION

This chapter presents the research findings and interpretation of data collected in Jamestown and Chorkor in relation to the theories presented in chapter two and the research objectives using semi-structured interviews, observations, photographs and document analysis. The main concept of analysis discussed in this chapter includes the differentiated social actors and capabilities in the two communities, institutions and management of the resource as well as the motives and reasons for migration by small-scale fishermen.

Differentiated social actors in Jamestown and Chorkor

Different social actors (individual, household, and group) define what, how and when things should be done, and they hold certain degree of power in these communities (Owusu, 2009). It is therefore essential to recognise their importance since communities are not limited but varies and are socially distinguished (Mearns et al., 1998).

The two communities are found in the Accra Metropolitan Assembly which is occupied by different categories of ethnic groups such as the native Gas, Asantes, Ewes, and Fantes among other ethnic groups. The Gas are the custodians of the land and are powerful and influential when it comes to decision making in these communities. The two communities have their traditional chiefs (*mantse*), who rules under the supervision of the Paramount Chief and the chief fisherman of the Ga state. The traditional chiefs who are considered as the landlords of the land rule with their council of elders (The Traditional Council) and other sub chiefs, such as the chief fishermen. The chief fishermen, Nii Kai Okaishie III (Jamestown) and Nii Kukrudu (Chorkor) assists the traditional chiefs of Jamestown and Chorkor respectively, with the settling of all fisheries matters. They are exceptionally experienced, wise and respected fishermen, who have the ability to solve problems and act as a liaison between government and their people by negotiating with government organizations about benefits, credit and inputs for the fishermen. The chief fishermen are influential and powerful in decision making in the community and their decisions are respected and obeyed by the inhabitants. They are also responsible for the enforcement of the institutions regarding the management of the fisheries resources and the settling of disputes among migrant fishers and the inhabitants.

Experienced fishermen, boat owners and beach seine nets owners are also groups of social actors recognised in these communities. They are sometimes consulted by the chief fishermen in decision making as a result of their social status as wealthy and influential people in their communities. These group of social actors were also recognised in Abakam in a research by Owusu (2009). Another group of people are the crew members, who are paid to assist in fishing and are less influential since they depend on the wealthy to survive. Fishmongers, migrant fishers and other local fishers also form groups of social actors in Chorkor and Jamestown.

The Assembly men, who are democratically elected, are another group of social actors who are also influential in decision making process (Owusu, 2009). They represent the government in the communities and they also represent the communities at the District Assemblies. The Assembly men ensure the enforcement of rules and regulations laid down by the government in the management of the resource and are also responsible for the provision of infrastructure.

Access and rights to fisheries resources in Jamestown and Chorkor

To answer the research question on how small-scale migrant fishermen, gain access and rights to fishing grounds, access to fishing grounds by the inhabitants were discussed and analysed. This was compared to that of the migrant fishers.

The fishing grounds

Although fishing grounds are common resources, fisher migrants have different ways of getting rights and access to fishing grounds when they reach their destinations (Anyang, 1996) and according to Béné (2003) indigenous population may deny certain group of people access to fishing grounds based on their ethnicity or culture. Certain arrangements are needed before migrants start to fish at their destination since the inhabitants' claim rights over territory of fishing, therefore the migrants cannot move into these communities without consulting the inhabitants or heads of the land.

Fishers in Jamestown and Chorkor gained access to fishing rights from the chief fishermen, through the Traditional Council of Chiefs. The chief fishermen, under their jurisdiction should be notified before any canoe begins to operate for the first time in the sea of the two communities. According to the chief fisherman of Jamestown, Nii Kai Okaishie III, “before a new canoe begins to operate on our shore, the canoe owner has to inform us about his intention with a bottle of schnapps”. He will then inform the Traditional Council and sometimes inform other influential local fishers before the individual is finally accepted. As a norm, according to Nii Kukrudu (Chief Fisherman of Chorkor), they also collect an undisclosed amount from the

new canoe owner and presents the money to the Traditional Council, and if the money is accepted by the council, then the canoe can begin its operation. This he claims, is done to ensure that all fishers are known and recognised by the Traditional Council and also serve as a mechanism for MCS activities along the coast as well as regulating the number of fishers in the community. These procedures according to the Chief Fishermen are quite similar to that of a migrant fisher. In the case of a migrant fisher, a proper background study of the fisher must be done before he is accepted into the community. Men and women have equal access to fishing rights to go to sea with the canoe in these two communities, but even though both men and women have equal access to fishing rights, women do not go to the sea due to several reasons (traditional belief). According to Nii Kukrudu, it is the idea that traditionally in Ghana fishing is not meant for the women and it is a man's work and that their forefathers who were into fishing did not allow women to go to sea. This was well noted by Overå (2005) and Owusu (2009) in separate research in fishing communities in Ghana, that a man is seen more or less as feminine if he engages himself in fish trade and women are also perceived as "out of place" when they assume the role of canoe owners and begin to manage it.

In an interview with some of the local fishers, this arrangement on how to gain access to the resource seems good, while others also made complaints. According to one fisherman in Jamestown, the chief fishermen sometimes do request about five bottles of schnapps, which he finds quite expensive. He lamented that it is very expensive to purchase five bottles of Schnapps these days because each bottle costs around US\$20 in Ghana. Few also argue on the amount of money paid to the Traditional Council before they are accepted. Even though some fishers do have problem with paying an amount to the custodian of the land, most of them have a different view about the schnapps which are given to the chief fishermen due to the expensive nature to the poor fisher. Others claimed that, the chief fishermen demonstrated bias in giving access to the fishing grounds, where the wealthy and influential actors have easier access due to the high number of boats and nets. Some also believe friends and family of wealthy or influential social actors in the communities tend to get access far more easily than the ordinary fisherman.

The migrant fishermen in these two communities agreed that access to the fisheries resource is quite similar to that of the inhabitants but sometimes very difficult to attain. According to Kwesi Afful, a migrant fisher (from Winneba) in Jamestown, "access to fishing grounds in Jamestown is quite easier when our leader or a known local fisherman leads you to the chief fisherman". Due to this factor, sometimes the fishermen in the area (inhabitants) try to extort some money from 'you' (migrant fisher) before they introduce you to the chief fishermen. This makes it more expensive than the usual procedure. Therefore, it prompted the Fante migrants

to elect a leader who leads them to access the rights to fishing grounds. Other migrant fishers also complained about the number of bottles of Schnapps to present to the chief fisherman, while others see it to be ok (less than what is required of them in their homes), others felt it is expensive due to the number required.

Discussion

Access and rights to fisheries resources, by migrant fishers is quite similar to that of the inhabitants of Jamestown and Chorkor. Migrant fishers have equal access to the resource despite a few complaints such as the amount of money paid to the traditional council, the number of bottles of schnapps and the introduction of an inhabitant or a leader to ease the process.

The above findings from the study areas also indicate the role of informal institutions (traditional chiefs and chief fishermen) in the allocation of fisheries resource and management. This was also noted in the research by Abdulai (2006), who stated that Ghanaian chiefs are actively involved in resource allocation, particularly natural resources of which they are custodians. Therefore, one cannot bypass them before being accepted into a community. This was also similar to the research made by Owusu (2009) on how Anlo-Ewe migrant fishers acquire access to fishing grounds in Abakam, a fishing community in the Central region.

Access to fishing rights in Jamestown and Chorkor through the local chieftaincy arrangement (Traditional Council) affirms Leach et al.'s (1999) theory on environmental entitlement which explains ways of acquiring access to a resource through channels which lie outside a formal legal system, such as marriage, norms, customary laws and kinship. It offers a fundamental change to the ways in which communities (environment) are portrayed in the bid for community-based sustainable development. Both local and migrant fishers obtained rights to fishing grounds through the chief fishermen by paying dues or offering schnapps and abiding the rules and regulations of the informal institutions. The ability of wealthy and influential fishers to gain easier access to the resource (maximum use) also shows their endowments through their capabilities as described by Leach et al. (1999). This shows the idea that, some of the social actors' access or rights to a resource are possible to overcome others, as a result of existing power relations in their communities. This also explains the difference in an endowment mapping between the wealthy fishers, other local fishermen and migrant fishers since it diversifies their livelihoods, decision making and the control of power. The theory also addresses the institutional dynamics in regulating the use of the fishery resources. It shows how access to the resource and its control are mediated by a set of overlapping and interacting

institutions i.e. both formal and informal (Owusu, 2009). This gives a focus on the role of informal institutions which help to map the resource use in dynamic way with the actors (local and migrant fishers) acquiring different legitimate and effective command over the resources. Equal (and easy) access to fishing grounds in the two communities' shows that in practice these fisheries are open access, and therefore to some degree confirm Hardin's theory on the "*The Tragedy of the Commons*". The theory also explains why wealthy and influential fishermen gain better access to the fisheries by assuming that CPRs encourage individuals to maximize their return (even in the face of overexploitation) through the provision of incentives.

According to the research both men and women have equal access to the resource. But women are not actively involved in fishing due to traditional beliefs. This was also noted in research by Overå (2003) and Owusu (2009), apart from the traditional beliefs associated with fishing, the tedious nature of the work prevented active participation from the females. They were of the view that the act of paddling a canoe, pulling the beach seine ashore and the anchoring of a canoe and the net involve a lot of energy. The weather conditions at sea are also not favourable for women since it is the general opinion that they are not brave enough to face storms, strong waves and high tides, therefore they stay at home and become fishmongers, processors or marketers of fish. Though there are equal access rights to fishing grounds, the legitimate access to the fishing resource in these communities are biased with women obstructed by some physical obstacles and gender barriers that are constructed by the society

The role of institutions in the use and management of the resource

Institutions are essential in regulating the use of a resource by guiding interaction of humans and nature through a set of formal and informal rules and norms (Agrawal et al., 1999). The role of institutions such as rules, norms, and regulations address challenges in common resources management (ibid). Institutions in Jamestown and Chorkor helps in regulating the activities of fishers (local and migrant) and managing the resource. Management and conservation of fisheries resources in Ghana involves both the formal institutions (government organisations) and informal institutions/traditional (local communities).

Formal institutions

The formal institutions are the institutions instituted by the government managing the fish resources. They play a key role in the protection of the resource by regulating the behaviour of fishers and providing assistance through the government. Formal institutions that govern access, use and management of the fisheries resource in the communities are the Fisheries Commission, Department of Fisheries, District Assemblies and the CBFMC. The main objective of these formal institutions especially the Fisheries Commission under the jurisdiction of the MoF, according to Mr. Nemorius Peng-Yir (head of the Fisheries Commission) is the sustainability of the fish stocks. This is guided by a general legal framework with the major sections related to the building and importation of motor fishing vessels; licensing of fishing crafts; operation of motor fishing vessels (MoF, 2002; Owusu, 2009). This is done according to Mr. Peng-Yir, in order to protect fish resources from extinction through the enforcement of regulations. This is also to ensure that juveniles escape and survive (Owusu, 2009).

The Fisheries Commission, under the authoritative command of the Ministry of Fisheries and Aquaculture, is to ensure effective management and sustainability of the resource in the communities (MoF, 2002). The commission is responsible for the regulation and management of the resource and coordination of the fishery policy, settling of disputes and conflicts among users, and advise the government on fisheries related matters in these communities i.e. Jamestown and Chorkor. The commission also advocates on issues to protect and develop the fishing industry, with the aim of ensuring fisheries resources are exploited on a sustainable basis (MoF, 2002; Owusu, 2009). The District Assemblies (DA) are also active in the management of the resource, and works under the Ministry of local Government and Rural Development (MLGRD). The DA assist the fishery resource management in the communities by forming and sustaining CBFMCs; and the provision of legal and financing support to the CBFMCs (FAO, 2004; Owusu 2009). The DA also help in approving levies proposed by the CBFMCs and also co-operate with the Department of Fisheries (DoF) and the MSC unit to assist in the fisheries management (ibid).

The Department of Fishery (DoF) according to MoF (2002) serves as the implementation secretariat of the Fishery Commission. The DoF performs its function in these communities through: preparation of fishery resource management plans used by the various organisations, development of regulations for the fishing industry, organization of MCs for the national fishery resources and ensuring compliance with national fisheries law and institutionalizing co-

management (ibid). There is also formation of Community-Based Fisheries Management Committees (CBFMCs) in these communities for planning and enforcement of fisheries regulations. The CBFMC's in Jamestown and Chorkor consist of leaders from the Traditional Council and the local government structures. Power is given to these leaders legally by common law (Owusu, 2009). The CBFMCs manage the fishery resource through co-management i.e. the enforcement of national and traditional fisheries laws at the community level. The CBFMCs through the concept of co-management provides efficient and legitimate management of the resources through active participation of all user groups with an objective of reducing poverty in the communities (ibid). The CBFMC's through co-management also help to gain better access to public services through the decentralization process as well as protection of the environment and natural resources of the water bodies (MoF, 2002; FAO, 2004). Thus the CBFMC's promote improved interaction among small-scale fishermen traditional authorities and government officials of Jamestown and Chorkor.

Informal institutions

Establishment of informal institutions is a common practice in rural Africa, that govern the use of communal resource with operational rules by set of individuals, to organize recurring activity that bring onto being, results which affect those individuals and possibly affecting others as well (Olsson and Folk, 2001; Owusu, 2009). These institutions help to regulate access and manage fisheries resource with 'social taboos' that guide human conduct toward natural environment (Colding and Folke, 2001).

Informal institutions in Jamestown and Chorkor also helps in conserving fish stocks with set of rules, norms and regulations established by the traditional council. The rules, norms and regulations in Jamestown and Chorkor are:

No fishing on special days

Fishers of both communities do not go to fishing on Tuesdays. This is a very common feature in Ghanaian artisanal fishing, seen by many as a tradition handed to them by their ancestors. According to the chief fishermen, it is believed to be a sacred day set aside for the sea god and her children to visit the people of the communities. But according to Hens (2006), some believe there is no traditional belief associated with it, but a day set aside for fishers and the ecosystem to rest. Fishers in the communities tend to seize this opportunity to mend torn nets and repair other fishing gears.

Fishing is also not allowed during traditional festivals and (sometimes) during traditional funerals of people of high position, like the chief fisherman. During their annual *Homowo* festival, among the people in Jamestown and Chorkor, the heads of the land pour libation to the smaller gods and ancestors and ask for long life, prosperity and good catch. Therefore, the traditional authorities expect everyone to be present to receive these blessings. They also set aside certain days as resting periods for the fishers during funerals and the festival, to make it possible to sustain the fish stock (Alhassan, 2006). When disputes arise, the chief fishermen sometimes prevent the fishers involved from fishing until the conflict is resolved.

Ban on the use of explosives, poisonous chemicals and light fishing equipment

There is a ban on the use of explosives such as dynamites, poisonous chemicals such as DDT and light fishing equipment in these communities. The Ministry of Fisheries and Aquaculture through the formal institutions also have strict regulations on the use of light fishing equipment, dynamites and poisonous chemicals. But despite their strict regulations, the chief fishermen and other respondents confirm the use of these methods in fishing in both communities, thus making it necessary for the informal institutions also to formulate rules to ban these methods.

Casting shift system

The Traditional Councils of these communities sometimes regulate the resource through ‘casting shift system’ due to the large number of fishers, as result of migration and the fact that all the canoes cannot go to the sea at the same time. The Traditional Council set aside a day or time for fishers to operate. This measure helps to regulate the quantity of fish catch, prevents overcrowding and competition among fishers at a particular time of fishing (Lindqvist and Molsa, 1990). This system also brings conflicts among fishers and the Traditional Council, with fishers complaining it prevents them from fishing every day despite Tuesday being an official day for rest.

The use of standard mesh size

The informal institutions in Jamestown and Chorkor have a regulation that strictly enforce the use of a standard mesh size proposed by Ministry of Fisheries and Aquaculture. This is to prevent capture of juvenile fishes and protect fish stocks. Despite efforts from the traditional authorities, some fishers have been reported to use different mesh sizes in fishing.

Sanctions on violation of rules by informal institutions

The Traditional Council in both Jamestown and Chorkor have laid down sanctions to enforce the regulation of the use of fisheries resources, and intervene when fishers violate the institutions.

The major sanction recognised in the communities according to the respondents is the payment of fines. According to a respondent in Chorkor “those who break the regulations are summoned before the chief fisherman (Nii Kukrudu), to explain to him their reasons for their action”. To serve as a deterrent to other fishers, they are made to pay a fine not less than 100 Ghana cedi (about US \$27) to the chief fishermen (and the Traditional Council). The payment of fines is seen as a measure to maintain the resource. This was also evident in a research by Alhassan (2006; 534), where he stated that the payment of fines to chiefs and the traditional council is to “check improper resource management”. The chief fishermen also confirmed the prohibition from fishing in the community, if a fisher fails to abide by the rules and regulations after several attempts of advising him and non-payment of fines. However, no fisher is yet to be expelled from these communities during their tenure. Others who violate the rules, especially fishing on the special days, are also made to pacify the gods, to ask for forgiveness and protection through the pouring of libation and offer sacrifices by slaughtering of a lamb, according to Nii Kai Okaishie III (chief fisherman of Jamestown), since they regard the sea as a god. This was also evident in a research by Odotei (2002), according to her, the Gas (major tribe of the people of Jamestown and Chorkor) regards the sea as a god and the third son of God (creature) after the sky and earth, thus the pouring of libation and sacrifices cleanses a fisher from ungodliness and curses. It also confirms Tvedten and Hersoug (1992) assertion that magic and rituals forms an integral part of fishers in Sub Sahara Africa.

Discussion

Despite the rights to fishing grounds being an open access, both formal and informal institutions in Jamestown and Chorkor regulate and maintain the fisheries resource, through co-management. Co-management is defined as ‘*an arrangement where the government and the various user groups share the responsibility for resource management*’ (Sen and Nielsen 1996).

Both institutions mediate and regulate the access and use of the resource, but the informal institutions are the major determinant in the regulation and management of the resource in both communities. This shows the importance and role of the traditional authorities in the effective management of the resource in the communities through their laid down regulations and

sanctions. The informal institutions also regulate and maintain the resource by following some of the rules proposed by the formal institutions e.g. ban on explosives, the use of standard mesh size. Thus the informal institutions are therefore seen as an institutional basis for the management of CPRs at the grass root level by devolving power and enforcing sanctions based on the state laws for effective management (Degefa, 2010). The theory on environmental entitlement by Leach et al., (1999) also explains how both formal and informal institutions regulate the resources from going extinct in these communities through their laid down rules, norms and regulations. The informal institutions, which comprises of the Traditional Council mediates on the inhabitants (both local and migrant) endowments i.e. their actions on how to gain access and when to gain access to the resource. It also meditates on the capabilities of the users i.e. the users' behaviour on how to maintain and use the resource to achieve their well-being.

The informal institutions in Jamestown and Chorkor are also able to control fishers' behaviour and maintain the resource for sustainable use. The institutional capacity provided by the informal institutions regulate the use of the resource through the use of a standard mesh size, ban on explosives, poisonous chemicals and light fishing equipment, 'casting shift system' and ban on fishing on special days. These measures also serve as mechanism for conservation of the resource. The informal institutions also have sanctions such as payment of fines, pacifying the gods with a lamb and sometimes the disposing of fish caught, serve as a mechanism to regulate the use of the resource.

Conflicts among fishers

Conflicts usually arise among the fishers in Jamestown and Chorkor. This affirms Ostrom's (1990) theory on the characteristics of CPR. According to her, one of characteristic of a CPR is 'subtractability' i.e. the resource creates rivalry between different users, in that the resource units that one user extract from the CPR are not available to others. Thus, each user of the resource is therefore capable of subtracting from the benefits that others derive from the resource. The other characteristic is excludability i.e. difficulty of exclusion of the resource which arises from several factors such as enforcing property rights to control access to the resource.

The main groups of people engaged in conflicts are the local artisanal fishermen, migrant fishers, semi-industrial fleet and sometimes the fishmongers. The major source of conflicts in the communities are diverse and the main forms of conflicts that arise among the fishers were fights, insults, arguments, curses, and physical injuries, among others. According to the chief

fishermen, a major source of conflict is between the small-scale migrant fishermen and the local fishermen in the two communities. The main cause is the competition for the fish species (the migratory species) and this as a result leads to high mobility of migrant fishermen to the communities. This normally leads to misunderstanding. Conflicts involving migrants in these communities are also associated with casting across nets, and shared exploitation strategies and techniques. According to the chief fisherman of Jamestown, Nii kai Okaishie III, conflicts normally occur when the 'casting shift' system is violated by either group and there is competition for access to the same resource. According to a migrant fisher, conflicts also arise as a result of blame put on them by the local inhabitants. Sometimes the inhabitants tend to blame them (the migrant fishers) for using destructive fishing practices, and also their presence deprives local fish processors of their production.

Conflicts also arise between boat owners and their crew members. These conflicts arise as a result of failure of boat owners to pay their crew members. Another form of conflict that arises is between the fishermen and the chief fishermen. This is a result of the fishermen (both local and migrant) failure to pay their dues (*lampoon*) to the Traditional Council. Another source of conflict is between fishmongers and crew members (fishers). According to a respondent, a crew member sometimes tries to favour a fishmonger when it comes to the sharing of fish among them. He stated "*if a fishmonger gets a smaller fish in her pan than the other, she begins to quarrel with the crew member*". This sometimes leads to arguments and insults. The determination of price of fish also creates conflicts between the fisher mongers and the crew members.

Negotiation of conflicts

Negotiation of conflicts required an enforcement of the informal institutions in Jamestown and Chorkor. According to the respondents most conflicts such as insults and quarrels are settled amicably by themselves at the beach. They only refer to boat owners, net owners or other influential people in the community in situation where they are unable to negotiate as a result of the complex nature of the conflict. The chief fishermen (and Traditional Council) are only involved when the boat and net owners fail to resolve the issue. They settle various forms of conflicts, which are frequent and multifaceted by playing a significant unifying role through intervention in conflict management and maintaining domestic harmony in their new communities (Abdulai et al., 2009; Abotchie et al., 2006).

The chief fishermen rule on fisheries matters on behalf of the Traditional Chief of the land, therefore it is their duty to protect and enforce institutions to regulate the use of the resource in

their communities. The chief fishermen therefore impose sanctions through the payment of fines, pouring of libations, and others.

Conflict resolution thus requires a multi-level framework and better understanding of the dynamic relationships among the users for crucial governance and sustainability of the resource as proposed by Oakerson (1990).

Reasons and motives for migration

Movements or mobility of fishers to Jamestown and Chorkor are not new and the reasons why they tend to migrate to these communities are various. The migrant communities (new communities) are not homogenous to migrant fishers as well. According to the respondents (migrant fishers), their movements are often seasonal and originally they mainly migrated in response to the movements of their migrating prey stocks (fish) but their motives for migrating to these communities have changed in recent times. The research shed some light on some of the reasons why the fishermen migrated to Jamestown and Chorkor as opposed to staying at their respective home towns.

According to the respondents the availability or the movements of fish still plays an important role, but the possibility to earn more money, save money from everyday family obligations and improving their lives by investing in productive assets were the most common reasons of migration given by the migrant fishers. Some of the respondents migrated to these communities to search for better fishing conditions and better marketing outlets (more traders and better price for the fish). One migrant fisher explained that he gets better value for his money in Chorkor than back home in Cape Coast. He said *‘back home, I’m forced to give my fish to the fish mongers at lower prices as a result of my relations with them’*. Another reasons for migration is that the migrant fishermen feel they get less competition from other fishers, thus have access to more and abundant fishing resources as compared to their communities of origin such as Elmina, Moree and Cape Coast which are also made up of by international as well as internal migrants. The search for new fishing experiences and better social services (amenities) were some of the reasons that pulled the migrant fishers to their new communities. The experience of travelling and living in their new communities is seen by most fishermen as a way to gain life experience, respect in their communities of origin and a way to move away from social pressures. A significant number of fishers also cited lack of inputs, poverty and lack of access to the resource as reasons that push them to migrate. They claimed to have access to the resource, able to buy inputs such as fishing gears and premix fuel at lower prices in

Jamestown and Chorkor, since these communities are located close to the capital city. Other fishers also migrated because they feel it's a tradition to follow a family or friend who have already migrated to these communities, thus maintaining social networks.

In summary, most migrant fishers found in Jamestown and Chorkor appear to be motivated mainly by the desire to have access to the resource, access to inputs at cheaper prices, improve their livelihoods through better earnings, savings and higher fish catches. Some migrant fishers also have other compelling reasons, such as lack of fish or access to the resource, conflicts among fishermen, environmental degradation (coastal erosion), and lack of livelihood opportunities to support fishing in their communities of origin, as reasons for them to migrate.

Table 5.1 Reasons for migration in Jamestown and Chorkor

Factors	'Push' factors	'Pull' factors
Biological or environmental	<ol style="list-style-type: none"> 1. Reduction in fish stock abundancy (Overfishing of the home shores) 2. Environmental degradation such as coastal erosion and population pressure (land scarcity) 	<ol style="list-style-type: none"> 1. upwelling – follow the prey – fish 2. Mobile fish species
Socio-economic	<ol style="list-style-type: none"> 1. Lack of socio-economic infrastructures, poverty 2. Conflicts 3. Avoid social obligations/ pressures 	<ol style="list-style-type: none"> 1. Access to cheaper inputs, better prices and stronger markets 2. Better livelihoods and easy social integration (social and cultural network) 3. Other instrumental reasons e.g. earn money to invest, build a house, marry, etc.

Source: Authors own computation, 2016

Impacts of migrant fishers in Jamestown and Chorkor

The integration of migrant fishers into their new communities is not always easy, as most native and foreign communities do not work together, share the same concerns despite living next to each other (Njock and Westlund, 2008). Consequently, this often lead to misunderstandings that lead to conflicts, marginalisation and exclusion of immigrants. But in spite of these general difficulties associated with migration, there is evidence of positive developments that migrations bring into a community (ibid).

The impacts of migrant fishers on Jamestown and Chorkor vary widely. The research explores the impacts of migrant fishers on these communities from the perceptive of local fishermen, fishmongers and the chief fishermen, who believed migrants had both positive and negative impacts on them. The impacts were of social, institutional, ecological and economic nature.

Positive impacts

Positive impacts of migrant fishers on Jamestown and Chorkor included both economic and social benefits. According to the chief fishermen, migration has boosted the communities' economy by benefiting both fishing business and non-fishing business opportunities such as housing, transport and 'food joints'. The presence of migrant fishers has also increased the provision of job opportunities for local fishers (crew members for migrants) and increased the annual levies collected for developmental infrastructure in the communities. There is also evidence of increase in fish landings, thus providing food security for the inhabitants and transfer of knowledge and skills from migrant fishermen to the local fishermen. An example of such technology transfer is the use of a sail to propel a canoe without an outboard motor.

According to some fishmongers, the presence of migrant fishers has improved the price and sales of fish by increasing the availability of fish for consumers. Migrants have also fostered unity among the different tribes of people living in Jamestown and Chorkor through marriage, neighbourhood relations and friendships.

Negative impacts

Most of the negative impacts of migrant fishermen, according to the respondents, were mostly social. The chief fishermen cited lack of respect for their culture (traditions and customs) and non-compliance with rules and regulations (use of illegal gears, light fishing equipment) as one of the negative impacts they usually get from some migrant fishers. Some migrant fishers are also involved in social vices, such as drug abuse, alcoholism and sexual activities with minors, which leads to teenage pregnancies. Some of the economic impacts from the respondents

include lower price of fish as a result of high availability of fish on the market, thus generating lower income to inhabitants. Migrant fishermen in these communities are perceived to deprive fishmongers and local processors of their production. They are accused of giving priority to their own dealers or foreign wives when it comes to fish trade.

According to some local fishermen, the presence of migrant fishermen in the communities has led to the overexploitation of the resource and competition for access to the resource. There is also competition for social amenities such schools, clinics and water.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This research followed objectives to examine the challenges that influence access to fishing grounds by migrant fishermen in the fishing communities of Jamestown and Chorkor in the Greater Accra Region of Ghana. The objectives were to assess how the fisheries resource are accessed by migrant fishermen and how they maintain the access, and to determine the factors that tends to push or pull fishers to operate as migrant fishers in these communities. Furthermore, the goal was to describe the institutions involved in the management, regulation and use of the resource, and the impacts of migrant fishermen on the communities.

Conclusion

Access to fishing grounds by migrant fishermen in both communities is similar to that of the local fishermen and is also linked to the principle of differentiated social actors. Despite the fact that access to fishing grounds is open to men and women, the men are generally into fishing while the women engage in fish processing and marketing. The wealthy (boat owners, and net owners) are able to acquire access to the resource much easier and faster, thus enabling them to enhance their well-being at the expense of the poor. Both informal and formal institutions were pivotal in giving access to rights to fishing grounds.

The formal and informal institutions in Jamestown and Chorkor through co-management help in regulating the use of the resource by migrant fishers as well as the management of the resource. The role of the informal institutions, i.e. chief fishermen (and Traditional Council) in resource management is crucial as they form a liaison between the government and the fishermen and also shape, regulate and manage the use and access of the resource through various mechanisms. Some of the mechanisms include sanctions, such as the payment of fines and the killing of a lamb to pacify the gods. The majority of decision making in the communities lies on the informal institutions, thus demonstrating a certain lack of interaction between government and the fishermen.

Migration of fishers to Jamestown and Chorkor forms an integral part of fishing activities in the communities. The main reason why fishermen migrate to these communities is to search for new and better fishing opportunities, have access to fishing inputs such as premix fuel, fishing gears and outboard motors and higher fish catches.

The effects of migration of fishermen on Jamestown and Chorkor varies widely. Migrant fishermen have contributed to the economic development of the communities through the transfer of technology, creating additional employment and high fish landings. Despite migration playing a vital role, it also confronts the inhabitants with several problems, which hinder their development and welfare.

Recommendations

From the above findings of the research, the following recommendations are suggested:

Fishing communities are complex, thus the relations between local and migrant fishers need to be addressed for better integration of the two groups. In order to avoid conflicts both external and internal factors must be addressed through the establishment of a fisheries management system that will incorporate the concerns of both local and migrant fishers. The fisheries management should also make them participate in decision-making processes to create an opportunity for local co-management mechanisms. Informal institutions, laws, regulations, sanctions and norms regarding access to fishing rights and the use of the fishing grounds should be strengthened and revised to enhance sustainability of the fisheries resource in Ghana and ensure harmonious living among fishermen in fishing communities. Portions of the inshore waters as its done in Thailand and Japan could also be considered for demarcation to avoid conflicts among the small-scale fishermen.

In crafting institutional policies, understanding of the existing institutional arrangements that govern the resource is key. Focus must not only be on endogenous attributes, but possibly mechanisms and drivers outside the fisheries that have a bearing on the institutions. Fisheries governance, as argued by Hersoug et al. (2004), must relate to civil society and crafted to relate to policies determined at supra national level e.g. by multinational corporations and global institutions such as World Trade Organization. The governance structure must not only work from the top down but from the bottom up also, adhering to democratic principles of transparency and accountability. Alternative livelihood activities for the artisanal fishermen should be provided to help address their vulnerability, curb migration as well as maintain the fisheries resource.

Most of the fishing regulations by the informal institutions is focused on the regulation of fishers' behaviour. A national Total Allowable Catch (TAC) for the fish stock of the artisanal fleets should be implemented. The TAC allocation among the artisanal fleets should be consistent with the government's interests and policies.

For future studies, it is very important to increase the sample size to enhance better generalization of findings pertaining to access, impacts and the reasons and motives of migration of the fisher folks. It is also recommended that future studies should support a research on the generation of data and information on migrant fishers.

REFERENCES

- Abotchie, C., Awedoba, A., Odotei, I.K. (2006). Perceptions on Chieftaincy. In Odotei, I.K. and Awedoba, A.K. (Eds.). *Chieftaincy in Ghana: Culture, Governance and Development*. Accra, Ghana. Sub-Saharan Publishers.
- Abdulai, I.A. (2006). The Ghanaian chief as a manager: Between Tradition and Modernity in Odotei, I.K. and Awedoba, Albert K. (Eds.). *Chieftaincy in Ghana: Culture, Governance and Development*. Accra, Ghana, Sub-Saharan Publishers.
- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World development*, 29(10), 1649-1672
- Alhassan, O. (2006). Traditional Authorities and Sustainable Development: Chiefs and Resource Management in Ghana. In Odotei, I.K. and Awedoba, Albert K. (Eds.). *chieftaincy in Ghana: Culture, Governance and Development*. Accra, Ghana. Sub-Saharan Publishers.
- Annum, G., (2015). Research Instruments for Data Collection (online). Available at: (<http://campus.Educadium.com/newmediart/file.php/1/giilmadstore/UgradResearch/ThesisWrit4all/files/notes/resInstr.pdf>). Accessed on 20th February, 2016.
- Antwi-Asare, T.O. & E.N. Abbey (2011). Fishery Value Chain Analysis Ghana. Available at (http://www.fao.org/fileadmin/user_upload/fisheries/docs/Ghana_edited.doc). Accessed on 10th February, 2016.
- Anyang, K.S. (1996). The survey of the Fishing Industry in Old Ningo. Unpublished Bachelor dissertation, Department of Geography and Resource Development, University of Ghana, Legon.
- Appiah-Opoku, S., & Mulamootil, G. (1997). PROFILE: Indigenous Institutions and Environmental Management: The Case of Ghana. *Environmental Management* 21(2), 159-171.
- Argyle, M. (1952). The Concepts of Role and Status 12. *The Sociological Review*, a44(1), 39–52.
- Atta-Mills, J., Alder, J., & Rashid S.U. (2004). The decline of a regional fishing nation: the case of Ghana and West Africa. In *Natural Resources Forum* (Vol. 28, No. 1, pp. 13-21). Oxford, Blackwell Publishing Ltd.
- Atti-Mama, C. (1991). Fishermen's migrations in Togo and Benin. Fishermen's migration in West Africa, pp. 243-254. Cotonou, IDAF, FAO, ed. Haakonsen, J. and Chiemiere D.
- Atti-Mama, C. (2006). Les migrations des pêcheurs au Bénin. Rapport de consultation. PMEDP/PP2: 56p.
- Baland, J. M., & Platteau, J. P. (1996). *Halting degradation of natural resources: is there a role for rural communities?* Oxford: Clarendon Press.
- Bannerman, P. (1998). Management of conflicts in tropical fisheries: Ghana full report. Accra: MFRD.
- Bene, C. (2003). When Fisheries Rhymes with Poverty: A First Step Beyond the Old Paradigm on Poverty in Small-Scale Fisheries. *World Development* Vol. 31. No. 6, pp. 949-975
- Bhagwat, S. A., & Rutte, C. (2006). Sacred groves: potential for biodiversity management. *Frontiers in Ecology and the Environment*, 4(10), 519-524.
- Briggs, C.L. (1986). *Learning how to ask: A sociolinguistic appraisal of the role the interview in social science research* (No.1). Cambridge, England: Cambridge University Press
- Chauveau, J. (1991). The historical geography of fisheries migrations in the CEECA region (end of the 19th century-1980s). Fishermen's migrations in West Africa. FAO/DANIDA/NORWAY: IDAF/WP/36.
- Chilsom, N. (1998). Community-based natural resource management in Tigray, Northern Ethiopia. *The World Bank/WBI's CBNRM Initiative*, Washington, DC, 10.

- Cohen, D., & Crabtree, B. (2006). Qualitative research guidelines project. Available at (<http://www.qualres.org/HomeInte-3516.html>). Accessed on 5th February, 2016.
- Colding, J. and Folke, C, (2001). Social Taboos: Invisible system of local resource Management and Biological Conservation. *Ecological Society of America* 11(2)pp. 584-600.
- Cook, I. (2005). Participant observation. In Flowerdew R. & D. Martin (Eds.), *Methods in human geography: A guide for students doing a research project* (2nd ed., pp. 167-188). Essex. UK: Pearson Education.
- Crabtree, B.F., and Miller, W.L. (1999). *Doing Qualitative Research in Primary Care: Multiple Strategies* (2nd Edition). Newbury Park, CA: Sage Publications.
- Crabtree, B. F., & Miller, W. L. (Eds.). (1999). *Doing qualitative research*. London, Sage Publications.
- Creswell, J. W. (2007). *Qualitative inquiry and research design*. London, SAGE Publications
- Creswell, J. W. (2008). *Research design: Qualitative, Quantitative and Mixed Methods Approaches* (3rd ed.), London, SAGE publications.
- De Haan, L., & Zoomers, A. (2005). Exploring the frontier of livelihoods research. *Development and change*, 36 (1), 27-47.
- Degefa, M. Y. (2010). How Informal Institutions Strengthen Sustainable Management of Common Pool Resources in Tigray, Ethiopia? (Doctoral dissertation, University of Natural Resources).
- Devereux, S. (2001). Livelihood insecurity and social protection: a re-emerging issue in rural development. *Development policy review*, 19(4), 507-519
- DoF (2007): A Summary of Fisheries Statistics in Ghana (mimeograph). Accra, Directorate of Fisheries.
- De Haan, L., & Zoomers, A. (2005). Exploring the frontier of livelihoods research. *Development and change*, 36 (1), 27-47.
- Ellsberg, M., & Heise, L. (2005) *Researching Violence Against Women: A Practical Guide for Researchers and Activists*. Washington DC, United States: World Health Organization, PATH; 2005
- FAO, (2004). Information on fisheries management in the Republic of Ghana. Available online at (http://www.fao.org/fishery/countrysector/FI-CP_GH/3/en/). Accessed on 21st February, 2016.
- FAO, (2012). Ghana: fishery and aquatic country profile. Available online at (http://www.fao.org/fishery/countrysector/FI-CP_GH/3/en/). accessed on 21st February 2016.
- Feeny, D., Berkes, F., McCay, B. J., & Acheson, J. M. (1990). The tragedy of the commons: twenty-two years later. *Human ecology*, 18(1), 1-19.
- Fetterman, DM. (1998). *Ethnography Step by Step* (2nd Edition). Thousand Oaks, CA: Sage Publications.
- Fisheries Act, 2002 (Act 625), Accra, Government of Ghana Publisher.
- Fregene, B.T. (2007). Profile of Fishermen Migration in Nigeraia and Implications for a Sustainale Livelihood. Department of Wildlife and Fisheries Management, University of Ibadan, Nigeria. 20pp.
- GAMADA Factsheet, (2008). Background Information of Ga Mashie (Old Accra) Development Project, Accra, Ghana.
- Girmay, T. (2006). Agriculture, resource management and institutions: a socioeconomic analysis of households in Tigray, Ethiopia (No. 88). Wageningen University and Research Centre.
- Gordon, H. S. (1954). *The economic theory of a common-property resource: the fishery* (pp. 178-203) Palgrave, UK. Macmillan.

- Gordon H.S. (1991). *The economic theory of a common property resource: The fishery*. *Bulletin of Mathematical Biology* 53: 231- 252.
- GSS (2002): 2000 population and housing census of Ghana 16pp. Summary report of final results. Accra, Ghana statistical service.
- GSS (2010), Greater Accra Regional Report, 2010 Population and Housing Census Report, Accra, Ghana Statistical Service.
- GSS (2012). 2010 Population and Housing Census. Summary report of final results, Accra, Ghana Statistical Service.
- GSS (2012), *2010 Population and Housing Census. National Analytical Report*. Accra, Ghana Statistical Service.
- Hall, R. H. (1968). Professionalization and Bureaucratization. *American Sociological Review*, 33(1), 92.
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162: 1243-1248
- Harrell, M. C., & Bradley, M. A. (2009). Data Collection Methods. *Semi-structured interviews and focus groups*. RAND National Defense Research Inst. Santa Monica CA.
- Hernaes, P. O. (1991). Modernizing Ghanaian fisheries: the need for 'social carriers' of technology. Oslo, Ad Notam.
- Hersoug, B., Jentoft, S., & Degnbol, P. (2004). *Fisheries development: The institutional challenge*. Delft, Eburon.
- Hyden, G., Court, J. and Mease K. (2004) *Making Sense of Governance: Empirical Evidence from 16 Developing Countries*. London, Lynne Rienner, Boulder Publishing.
- Johnson, C. (2004). Uncommon ground: the 'poverty of history' in common property discourse. *Development and change*, 35(3), 407-434.
- Kooiman, J. & M. Bavinck (2005), the governance perspective. In: Kooiman, J., Bavinck, M., Jentoft, S., Pullin, R. (eds.), *Fish for life. Interactive governance for fisheries*. Amsterdam: AUP.
- Koranteng, K.A. (2000). *Small scale fisheries in Africa: Demographic dynamics and local resource management. Biophysical study of marine and fishery resources at Moree, Ghana*. Accra: MFRD
- Kraan, M. (2009). Creating space for fishermen's livelihoods: Anlo-Ewe beach seine fishermen's negotiations for livelihood space within multiple governance structures in Ghana. Leiden, African Studies Centre.
- Kwadjosse, T. (2009). The law of the sea: impacts on the conservation and management of fisheries resources of developing coastal states—the Ghana case study. Division for Ocean Affairs and the Law of the Sea. Office of Legal Affairs, the United Nations, New York.
- Lane, C., & Moorehead, R. (1995). New directions in rangeland and resource tenure and policy. *Living with uncertainty*. London, IT Publications.
- Leach, M., Mearns, R., & Scoones, I. (1999). Environmental entitlements: dynamics and institutions in community-based natural resource management. *World development*, 27(2), 225-247.
- Lindqvist, O. V., & Mölsä, H. (1992). Management of small-scale fisheries: is it possible. *Fishing for Development*. The Scandinavian Institute of African Studies, 191-207.
- Lund, C. 2006. Twilight Institutions: An Introduction. *Development and Change* 37 (4): 673-684.
- Mack, N., Woodsong, C., MacQueen, K.M., Guest, G., Namey, E. (2005): *Qualitative Research Methods: A Data Collector's Field Guide*. Research Triangle Park, North Carolina: Family Health International.

- Mahama, A., Acheampong, A., Peprah, O. & Boafo, Y. (2011). Preliminary Report for Ga Mashie Urban Design Lab. University of Ghana. Available online at <http://mci.ei.columbia.edu/files/2013/03/MCI-Ga-Mashie-report-UDL.pdf>). Accessed on 1st March, 2016.
- Marquette, C. M., Koranteng, K. A., Overå, R., & Aryeetey, E. B. D. (2002). Small-scale fisheries, population dynamics, and resource use in Africa: the case of Moree, Ghana. *AMBIO: A Journal of the Human Environment*, 31(4), 324-336.
- Marshall, B. L. 1994. *Engendering modernity. Feminism, social theory and social change*. Oxford, UK: Polity Press.
- Mearns, R., Leach, M., & Scoones, I. (1998). The institutional dynamics of community-based natural resource management: an entitlement approach. Paper Presented at “Crossing 100 Boundaries”, the seventh annual conference of the International Association for the Study of Community Property, Vancouver, British Columbia, Canada, June 10-14.
- Mehta, L., Leach, M., Newell, P., Scoones I., Sivaramakrishnan, K., & Way, S.A. (1999). *Exploring understandings of institutions and uncertainty: new directions in natural resource management*. Institute of Development Studies.
- Mensah, M. A., Korateng, K. A., Bortey, A., & Yeboah, D.A. (2006). The state of world fisheries from a fish worker's perspective: The Ghanaian situation. Samundra Monograph, International Collective in Support of Fishworkers, Chennai, India. pp: 88.
- Miles, M. B. & Huberman, A. M. (1992). *Qualitative data analysis - An Expanded Source Book*, (2nd ed.) London: Sage Publications.
- Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An Expanded Source Book* (2nd ed.) Beverly Hills, CA: Sage Publications.
- Ministry of Fisheries (2002). Ministry of Fisheries Annual Report. MoFA Technical Report. Accra-Ghana.
- Mitroff, I. I., & Mason, R. O. (1981). The metaphysics of policy and planning: A reply to Cosier. *Academy of Management*, 6(4), 649-651.
- Nickler, P.A. (1999). Tragedy of the Commons in Coastal Fisheries: Contending Prescriptions for Conservation, and the Case of the Atlantic Bluefin Tuna, *ABC Env'tl. Aff.L.Rev.*, 26, 549.
- Njock J.C., & Westlund L. (2008). Understanding the mobility of fishing people and the challenge of migration to devolved fisheries management. In: Westlund L, Holvoet K, Ke'be' M. (ed.). Achieving poverty reduction through responsible fisheries. Lessons from West and Central Africa. p. . 85–97 [chapter 6]. *FAO Fisheries and Aquaculture Technical Paper*. No. 513, FAO, Rome; 2008.
- Njock, J. C., & Westlund, L. (2010). Migration, resource management and global change: experiences from fishng communities in West and Central Africa. *Marine Policy*, 34(4), 752-760.
- Oakerson, R. J. (1992). Analyzing the commons: A framework. *Making the commons work: Theory, practice and policy*, 41-59.
- Odotei, I. (1995), Migration of Ghanaian fishermen within the ECOWAS sub-region. In: Twum-Baah, K. (ed.), *Migration research study in Ghana, Vol. II*. Accra: Ghana Statistical Service.
- Odotei, I. (2002), *The artisanal marine fishing industry in Ghana. A historical overview*. Legon: University of Ghana, Institute of African Studies.
- Olsson, Per and Folke, Carl (2001). Local Ecological Knowledge and Institutional Dynamics for Ecosystem Management: A Study of Lake Racken Watershed, Sweden. *Ecosystems*, Vol. 4, No. 2 (Mar., 2001), pp. 85 - 104
- O'Riordan, T. (1976). Environmentalism. In *Environmentalism*. London, Pinon.

- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- Overå, R. (2001) Institutions, Mobility and Resilience in the Fante Migration Fisheries in West Africa. Working Paper No. 2. Christian Michelsen Institute, Bergen, Norway.
- Overå, R. (2005) Institutions, Mobility and Resilience in the Fante Migration Fisheries in West Africa. (20) *In Transactions of the Historical Society of Ghana, New Series*, No 9.
- Owusu, P.K. (2009). Resource management in the Anlo-Ewe migrant fishing community Abakam in the central region, Ghana. Available online at (<http://hdl.handle.net/1956/7424>). Accessed on 5th January, 2016.
- Parsons, T. (1990). Prolegomena to a theory of social institutions. *American Sociological Review*, 55 (3), 319-333.
- Pauly, D., Silvestre, G., & Smith, I. R. (1989). On development, fisheries and dynamite: a brief review of tropical fisheries management. *Natural Resource Modelling*, 3(3), 307-329.
- Puthy, E. M., & Kristofersson, D. M. (2007). Marine fisheries resource management potential for mackerel fisheries of Cambodia. Phnom Penh, Cambodia: Ministry of Agriculture, Forestry and Fisheries/Reykjavik, Iceland: University of Iceland, Department of Economics.
- Quartey-Papafio J.J. (2006): "Changing Livelihoods in Ga Mashie, A Coastal Settlement in Southern Ghana from 191957-2004," Ph.D. Thesis, Department of Geography and Resource Development, University of Ghana, 2006, Legon, Accra.
- Qudrat-I Elahi, K. (2006). Entitlement failure and deprivation: a critique of Sen's famine philosophy 1. *The Journal of Development Studies*, 42(4), 541-558.
- Rajan, J. B. (2002). *Labour Mobility in the Small-scale Fisheries Sector of Kerala*. Centre for Development Studies. Discussion Paper No. 44. Kerala Research Programme on Local Level Development.
- Randall, S. (2005). Review of literature on fishing migrations in West Africa - from a demographic perspective. Department of International Development, UK (DFID). London, Sustainable Fisheries Livelihoods Programme.
- Robson, C. (2011). *Real world research: a resource for users of social research methods in applied settings* (3rd ed., Vol.2). Chichester: John Wiley & Sons, Inc.
- Sall, A. (2006). Etude des migrations des communautés de pêche sur la côte mauritanienne. Pilot Project 2 report. Sustainable Fisheries Livelihoods Programme (SFLP) (Unpublished working document). 38pp
- Sen, A. (1981). *Poverty and famines: an essay on entitlement and deprivation*. Oxford: Oxford University Press.
- Sen, S. and Nielsen J.R.(1996), "Fisheries co-management: a comparative: a comparative analysis." *Marine Policy* 20(5): 405-418.
- Schelling, T. C. (1971). On the Ecology of Micromotives. *Public Interest*, 25 (1971: Fall) p.59
- Sharma, S. (2001). Managing environment: A critique of 'the Tragedy of Commons'. *Journal of Human Ecology*, 12(1), p.1-9.
- Silverman, D. (2006). *Interpreting qualitative data: Methods for analyzing talk, text and interaction*. London: Sage Publications.
- Silverman, D. (2008) *Doing Qualitative Research*. (2nd Edition). London: SAGE Publications
- Solie, K. (2006). Les migrations de pêcheurs artisans marins étrangers en Guinée. Pilot Project 2 report. Sustainable Fisheries Livelihoods Programme (SFLP) (Unpublished working document). 50pp
- Stern, P. N. (1994). Eroding grounded theory. In J.M. Morse (ed.) *Critical issues in qualitative research methods*. Thousand oaks, CA. Sage Publications, 212-233.
- Stern, P.C., Dietz, T., Dolsak, N., Ostrom, E., & Stonich, S. (2002). Knowledge and questions after 15 years of research. The drama of the commons. National Academy Press, 445-489.

- Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research* (Vol. 15). Grounded theory and procedures and techniques. London, Sage Publications.
- Wade, R. (1988). The management of irrigation systems: How to evoke trust and avoid prisoner's dilemma. *World Development*, 16(4), 489-500.
- Williams, T. O. (1998). Multiple uses of common pool resources in semi-arid West Africa: A survey of existing practices and options for sustainable resource management. *Natural Resource Perspectives*, 38, 1-8.
- Wilson, D. (2003). Conflict and scale: A defence of community approaches in fisheries management. In: Wilson, D.C., Nielsen, J.R., Degnbol, P., *The fisheries co-management experience. Accomplishments, challenges and prospects*. Dordrecht: Kluwer Academic Publishers.
- World Bank (1984). *World development report 1984*. World Bank, Washington D.C
- Yami, M., Vogl, C., & Hauser, M. (2009). Comparing the effectiveness of informal and formal institutions in sustainable common pool resources management in Sub-Saharan Africa. *Conservation and Society*, 7(3), 153.
- Yin, R. K. (2013). *Case study research: Design and methods*. Beverly Hills, CA: Sage Publications.
- Young, O. R. (2007). Rights, rules, and common pools: solving problems arising in human/environment relations. *Nat. Resources J.*, 47, No. 1: 1-16.

APPENDIX

INTERVIEW GUIDE

For some selected migrant and local fishers

PART I

SECTION A: PERSONAL DATA

1. Age.....
2. Sex: a. Male [] b. Female []
3. Marital Status a. single [] b. married [] c. divorced [] d. widow(er) []
4. Number of children, if any.....
5. Educational background
 - a. Basic [] b. Secondary [] c. Tertiary [] d. others [], specify.....

SECTION B: MIGRATION PATTERN

6. (i). How did you come to A. Jamestown/B. Chorkor?
 - a. myself [] b. through a relative [] c. friends [] d. others [], specify.....
- (ii). Do you have any connection to middlemen in the area? a. Yes [] b. No []
- (iii) Do you own the boat? a. Yes [] b. No []
7. Is it easy to allow new people (migrants) to come to A. Jamestown/B. Chorkor?
 - a. Yes [] b. No []
8. Do you sometimes go to your hometown or community?
 - a. Yes [] b. No [], if yes then,
9. when do you often come to Jamestown/Chorkor
 - a. glut season [] b. market days [] c. others [], specify.....

10. Why did u settle in A. Jamestown/B. Chorkor?

a. fishing [] b. fish trade [] c. others [], specify.....

11. What are some of the factors that made you choose A. Jamestown/B. Chorkor?

i.

ii.....

iii.

SECTION C: ACCESS TO RESOURCE

12. How did you gain access to fishing grounds or lands?

a. marriage [] b. inheritance [] c. institution [] d. others [], specify.....

13. (i). Are the resources easily accessible to migrant fishers or new people?

a. Yes [] b. No []

13. (ii). If no, mention some of the mechanism in place that prevents migrants from accessing the fishing resource:

i.

ii.....

iii.

14. (i). Do you have equal access to the resources compared to local fishers?

a. Yes [] b. No []

14. (ii). If yes, then how do you maintain this access, if no why?

i.

ii.

15. (i). Are you sometimes restricted on the use of the resource?

a. Yes [] b. No []

15. (ii). If yes, in what ways are u restricted

i.

ii.

iii.

16. (i) Do sometimes conflicts/disputes emerge between you and local fishers?

a. Yes [] b. No []

16. (ii). What are the main causes of conflicts/disputes?

i.

ii.

iii.

17. What kind of institutions is being activated when the conflicts emerge? Tick as many as possible

a. chief fisherman (informal) [] b. village headman [] c. government official [] d. others[], specify.....

18. What are some of the challenges faced as a migrant fisher?

i.

ii.

iii.

Factors that cause Migration

i.

ii.

iii.

PART II

Interview guide for chief fisherman/traditional chief of Jamestown/Chorkor community and the Fishery Directorate

SECTION A: INFORMAL INSTITUTION

CHIEF FISHERMAN/TRADITIONAL CHIEF OF JAMESTOWN/CHORKOR COMMUNITY

1. What are some of the factors that tend to pull or attract migrant fishers to your community?
2. Are there rules or norms governing the access and use of the resources by migrant fishers, if yes, what are some of these rules or norms and how are they enforced?
3. Do conflicts/disputes sometimes emerge among migrant and local fishers, if yes can you
 - a. Identify the causes of these conflicts.
 - b. What role do you (informal institution) play to resolve/prevent these conflicts?
4. Is there any form of MCS activities in your community?
5. Can you explain to us some of the impacts/ challenges of migrants' fishers on your community?

Section B: FORMAL INSTITUTION

FISHERY DIRECTORATE/MINISTRY OF FISHERIES

1. Are there any government rules/regulations/norms regarding access to fishing grounds by small-scale migrant fishermen in Ghana?
2. What are the rules/norms governing the access and use of the fisheries resource in Jamestown and Chorkor, are they similar to that of the informal institutions?
3. What are the roles and objectives of the formal institutions in the access, use and management of the fishery resource in Jamestown and Chorkor?
4. How does the government resolve conflicts among migrants and local fishers?
5. What do you think are the impacts of fishing migration on a community?