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Fisheries Scientific Survey Division

# **REPORT ON THE 2013**

# GHANA MARINE CANOE FRAME SURVEY

BY

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# **TABLE OF CONTENTS**

| TABLE OF   | CONTENTS   | 2   |
|--|--|---|
| LIST of  | Table and Figures  | 3   |
| Table  | S  | 3   |
| Figure   | es   | 3   |
| 1.0 INTF   | RODUCTION  | 4   |
| 1.1 AIM  | OF SURVEY  | 5   |
| 2.0 DIST   | RICT PROFILES  | 6   |
| 2.1  | VOLTA REGION   | 6   |
| 2.2  | GREATER ACCRA REGION   | 7   |
| 2.3  | CENTRAL REGION   | 9   |
| 2.4  | WESTERN REGION   | 12  |
| 3.0 MET  | FHODOLOGY  | 15  |
| 3.1 S <sup>-</sup>   | TUDY AREA  | 15  |
| 4.0 RES  | ULTS   | 17  |
| 4.1 T  | YPES OF CANOES   | 17  |
|  |  |   |
| 4.2 N  | UMBER OF CANOES Brookmark not det  | ined.   |
| 4.2 N<br>4.3 N   | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears  | <b>ined.</b><br>19  |
| 4.2 N<br>4.3 N<br>4.4 N  | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors  | <b>ined.</b><br>19<br>19                                    |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N   | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches   | <b>ined.</b><br>19<br>19<br>19                              |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N  | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen   | <b>ined.</b><br>19<br>19<br>19<br>19                        |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C   | UMBER OF CANOES Error! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen<br>ost of Fishing Inputs   | ined.<br>19<br>19<br>19<br>19<br>20                         |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F  | UMBER OF CANOES Error! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen<br>ost of Fishing Inputs<br>ish Sharing Systems  | ined.<br>19<br>19<br>19<br>19<br>20<br>20                   |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F  | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen<br>ost of Fishing Inputs<br>ish Sharing Systems<br>ishing Holidays  | ined.<br>19<br>19<br>19<br>19<br>20<br>20<br>20             |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F<br>4.10   | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen<br>ost of Fishing Inputs<br>ish Sharing Systems<br>ishing Holidays<br>Migration Patterns  | <b>ined.</b><br>19<br>19<br>19<br>20<br>20<br>20<br>21      |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F<br>4.10<br>4.11  | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors<br>umber of Fishing Villages and Landing Beaches<br>umber of Fishermen<br>ost of Fishing Inputs<br>ish Sharing Systems<br>ishing Holidays<br>Migration Patterns<br>Comparison of Results with Previous Surveys | <b>ined.</b><br>19<br>19<br>19<br>20<br>20<br>21<br>21      |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F<br>4.10<br>4.11<br>5.0 DISC                                     | UMBER OF CANOESError! Bookmark not def<br>umber and Type of Fishing Gears<br>umber and Types of Outboard Motors  | ined.<br>19<br>19<br>19<br>20<br>20<br>21<br>21<br>21<br>22 |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F<br>4.10<br>4.11<br>5.0 DISC<br>6.0 SOC                          | UMBER OF CANOES  | ined.            19   |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 C<br>4.8 F<br>4.9 F<br>4.10<br>4.11<br>5.0 DISC<br>6.0 SOC<br>ACKNOWL               | UMBER OF CANOES  | ined.            19 <tr td=""></tr>                         |
|  |  |   |
| 4.2 N<br>4.3 N<br>4.4 N<br>4.5 N<br>4.6 N<br>4.7 Cd<br>4.8 F<br>4.9 F<br>4.10<br>4.11<br>5.0 DISC<br>6.0 SOC<br>ACKNOWL<br>Reference | UMBER OF CANOES  | ined.   |

# LIST of Table and Figures

## Tables

| Table 1.1a -1z Results of Frame Survey showing number of fishing units by gear for all districts 37 |
|---|
| Table 2 Fishing villages and landing sites  |
| Table 3 Regional Summaries    55  |
| Table 4 Mean rangeof price/cost of Canoes, Fishing gear and Outboard motors in the Regions 56       |
| Table 5 Summary of Results of Canoe Frame Survey conducted between 1972 - 2013         57           |
| able 6 Regional Summaries 1997, 2001, 2004, 201358  |
| Table 7 Brand and Size of Outboard Motors    59   |
| Table 8 Mean Dimensions/Ranges of Canoes along the Coast in Ghana                                   |
| Table 9 Fish Sharing System within the Region61   |

## **Figures**

| Figure 1 | Map of coastline of Ghana showing majority of districts (2011)      | 6  |
|----------|---|----|
| Figure 2 | Fishing villages and landing sites                                  | 62 |
| Figure 3 | Total number of canoes 1969 - 2013                                  | 64 |
| Figure 4 | Fishermen and Motors  | 65 |
| Figure 5 | Comparison of Fishing villages to landing sites between 1969 - 2013 | 66 |
| Figure 6 | Canoes and Fishermen in the Regions 2013                            | 67 |
| Figure 7 | Relative importance of Fishing gear in each coastal districts       | 70 |

#### **1.0 INTRODUCTION**

The Ministry of Fisheries and Aquaculture Development has the primary responsibility of ensuring the availability and affordability of fish and fisheries products within the country. Through research, it also ensures the promotion of sustainable and thriving fisheries enterprises as well as providing extension and other support services to fishers.

Fish is the preferred source of protein and it accounts for about 60% of animal protein in most Ghanaian diets. About 75% of the total domestic production of fish is consumed locally with an average per capita consumption of 23.7 kg per annum (Anon; 2011).

Fishery products constitute the most important non-traditional export of Ghana, contributing 254.4 million dollars in 2011 (Ghana Export Promotion Authority). The sector contributes about 5 percent to Agricultural Gross Domestic Product (GDP) and employs about 10% of the nation's economically active population.

According to FAO (1991) assessment, out of 1.9 million people who engaged in either full time, part time and seasonal fishing, about 98% belongs to the artisanal sector. The artisanal sector is the most important sector in the categories of the fisheries sector in Ghana. Artisanal fishing is the main type of fishing carried out in all the twenty three coastal districts of Ghana. The sector contributes about 70 to 80% of the total marine fish production (Anon; 2011).

Due to the diversity of fish caught and the multiplicity of gears and fishing crafts used as well as the increasing prices of premix fuel and gears they employ in their fishing activities, artisanal fishing is considered complex. Hence the Fisheries Scientific Survey Division (FSSD) of the Ministry of Fisheries and Aquaculture Development also known as the Research Division conducts frame surveys of canoes and artisanal gears and also collects socio-economic information regularly in all canoe landing sites and the results are used as basis for catch assessment surveys and also to determine the strength of the sector and its needs.

A frame survey of canoes and fishing gears as well as the collection of socio-economic information on the artisanal fisheries was conducted in May 2013 to update the existing data on the sector. The last survey was conducted in 2004.

## **1.1 AIM OF SURVEY**

- To assess the size, structure and distribution of canoes in the marine artisanal sector
- To collect the basic data and information necessary for the processing of the marine annual artisanal fish production
- To collect socio-economic information on the marine artisanal sector.
- To collect other information on the canoe fleet.

The frame survey focused on detailed count and measurement of canoes and fishing gears, number of outboard motors, number of fishing villages and landing beaches, number of fishermen. Other parameters that were also considered included the cost of fishing inputs, fish sharing system, migration patterns and other socio-economic information for the month of May 2013 in all landing sites when there was less migration of canoe and fishermen between landing centers.

## **2.0 DISTRICT PROFILES**

There are a total of 26 coastal districts in the four regions along the coast line in Ghana; (2) two in the Volta region, (9) nine in the Greater Accra region, (9) nine in the Central Region and (6) six in the Western region.



Figure 1Map of coastline of Ghana showing majority of districts (2011)

#### 2.1 VOLTA REGION

Volta region is at the eastern coast of Ghana and has two coastal districts namely Ketu South Municipality and Keta district.

## 2.1.1 KETU SOUTH MUNICIPALITY

The Ketu South Municipality has its capital at Denu and it is bordered to the North by the Akatsi District, to the South by the Gulf of Guinea and to the East by the Republic of Togo, and to the West by the Keta Municipality. The district shares a border with the republic of Togo where continuous cross-border trading activities occur. The main occupation of the people in this district is salt mining and fishing although some people engage in subsistence agriculture. Fish production in the district over the past five years has averaged 6336 mt over the period. The main fish species caught are; Anchovy (*Engraulis encrasicolus*), Burrito

(Brachydeuterus auritus), Bumper (chlroscombrus chyrsurus), Flat sardinella, (Sardinella maderensis), Round sardinella (Sardinella aurita) and Horse Mackerel (Caranx hippos).

#### 2.1.2 KETA DISTRICT

The district was carved out of the former Anlo District and it is located east of the Volta estuary with Keta as its district capital. It lies within Longitudes 0.30E and 1.05E and Latitudes 5.45N and 6.005N. It is found within a total surface area of 1,086km<sup>2</sup>, with approximately 362km<sup>2</sup> (about 30 per cent) covered by water bodies, the largest of which is Keta Lagoon. Fishing and water transportation potentials exist in the district. The main occupation of the people in this district is salt mining and fishing. Fish production in the district over the past five years has averaged approximately 4800mt. However declining trends have been observed in recent years. The main fish species caught are: Anchovy (*Engraulis encrasicolus*), Burrito (*Brachydeuterus auritus*), Bumper (*chlroscombrus chyrsurus*), Flat sardinella, (*Sardinella maderensis*), Round sardinella (*Sardinella aurita*) and Horse Mackerel (*Caranx hippos*).

#### 2.2 GREATER ACCRA REGION

Districts in the greater Accra region, the regional capital of Ghana include Ada West, Dangme East, Dangme West, Kpone katamanso, tema Municipal Assembly, Ledzokuku-Krowor Municipal, La Dadekotopon Municipal, Accra Metropolitan Assembly and Ga South.

#### 2.2.1 ADA WEST

Ada West District is one of the new 46 districts created in 2012 under the Executive Instrument (E.I) with Sege as its capital. It was carved from Dangme East district. Majority of the populace engage in fish farming and agriculture as a source of income for their families. The main occupation of the people in this district is salt mining and fishing.

#### 2.2.2 DANGME EAST

The Dangme East District is one of the seventeen (17) districts in the Greater Accra Region of Ghana, and covers a surface of about 909 km<sup>2</sup>. It is located at the estuary where the Volta

River meets the sea with Ada Foah as the district capital. The main occupation of the local people is fishing and others also work in the salt mining sector. The mean fish production in the district over the past 5 years has been 54500mt one of the highest among the districts. Anchovy (*Engraulis encrasicolus*), Round Sardinella (Sardinella aurita), Frigate Mackerel (*Caranx hippos*) and Chub Mackerel (*Scomber japonicus*) are the main fish species caught in this district.

#### 2.5 DANGME WEST

The Dangme West District lies between latitude 5° 45' south and 6° 05' North and Longitude 0° 05' East and 0° 20' West in the South eastern part of Ghana. The District is the largest in the Greater Accra Region with a coastline stretching over 37 kilometers and a total land area of 1,442 square kilometers. The main occupation of the people in this district is salt mining and fishing. Fish production in the district over the past five years has averaged approximately 1023 mt .Anchovy (*Engraulis encrasicolus*), Sardines (*Sardinella spp*) and mackerels (*Caranx spp*) are the major fish species caught in this district.

#### 2.6 KPONE-KATAMANSO

This new district was carved oit of the Tema Municipal assembly. Majority of the populace are mainly fishermen specialising in the hook and line method of harvesting large demersals. Others are farmers on subsistence levels.

## 2.7 TEMA MUNICIPAL ASSEMBLY

Tema serves as the administrative capital of the Tema Metropolitan Assembly. It is a coastal city situated 25 kilometres east of Accra, the national capital. The Greenwich Meridian (00 Longitude) passes through the city of Tema. The metropolis shares common boundaries with the Accra Metropolis on the west, the Ga Municipality on the North West and the Dangme West District on the northern and eastern borders respectively.

The main occupation of inhabitants varies from commerce, tourism, hoteliers and fishing. Within the district the Tema fishing port lands over including the artisanal canoe fishermen producing an average of 4100mt in the past 5 years. Over 40 fish species of fish belonging to various families such as the Anchovy (*Engraulis encrasicolus*), Sardinellas (*Sardinella spp*), Bumper (*Chlroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos*), and Chub Mackerel (*Scomber japonicus*) are landed in Tema due to its major infrastructure and proximity to the capital.

#### 2.2.3 LEDZOKUKU-KROWOR MUNICIPAL

Nungua is the district capital with an estimated population of 261,571 people in the Municipality. Fishing is one of the occupations of the people. Fish production in the district over the past five years is shown below showing an average of 2,500 mt over the period. The main fish species caught are the Round Sardinella (*Sardinella aurita*), Bumper (*Chlroscombrus chrysurus*) and Frigate Mackerel (*Caranx hippos*).

#### 2.2.4 LA DADEKOTOPON MUNICIPAL

This new district was carved out of the AMA in 2011 with a large majority of its inhabitants into commercial ventures and tourism. Fishing is on the low ebb with a handful of canoes

#### 2.2.5 ACCRA METROPOLITAN ASSEMBLY

AMA has a total land size of 200 square kilometres and is made up of six sub metros namely Okaikoi, Ashiedu Keteke, Ayawaso, Kpeshie, Osu Klotey and Ablekuma. The total population of AMA is about 1,695,136 people (2000 National Population Census).Commerce, tourism, hoteliers and fishing are the main occupation of inhabitants in the district. The district has quite a number of landing sites producing over 52901.52 mt in the past 5 years. Round Sardinella (*Sardinella aurita*), Bumper (*Chlroscombrus chrysurus*), Frigate Mackerel (*Caranx hippos*) and Flat Sardine (*Sardinella maderensis*) are the major species landed in this district.

#### 2.2.6 GA SOUTH

The Ga district is one of the districts in the Greater Accra Region. Fishing villages in this district includes Bortianor, Oshie, Kokrobite, Lanma and Faanaa.

Fishing is one of the occupations of the people. Fish production in the district in the past five years is 6627mt. Some of the most important fish species caught are Moon Fish (*Selene dorsalis*), Cassava fish (*Pseudotolithus senegalensis*), Burrito (*Brachydeuterus auritus*), sea breams (*Sparus and Dentex spp*) and Round Sardinella (*Sardinella aurita*).

#### 2.3 CENTRAL REGION

Central region is one of the ten administrative regions in Ghana and it is sandwiched by two coastal regions to the south, Western and Greater Accra regions. The region has nine coastal districts out of the seventeen districts.

#### 2.3.1 AWUTU SENYA

This is one of the major districts in the Central region with the district capital being Senya-Beraku. The main occupation of the people in this district is agriculture and fishing. Fish production in the district over the past five years has averaged 3500 mt over the period. Main species caught are the Sardines (*Sardinella spp*), Threadfin (*Galeoides decadactylus*), and Burrito (*Brachydeuterus auritus*) among others.

#### 2.3.2 GOMOA EAST

This district was carved from the Gomoa West district with Afransi as its district capital in 2012. The Districts is bounded by Gomoa West to the South, to the North by Agona West Municipal, Assikuma-Odoben-Brakwa District to the West and to the East by Awutu-Senya East District. The population of the district is 102,449 and it is estimated to be 6.4% of the regional population.

The main occupation of the people in this district is subsistence agriculture and fishing. The sardinellas are the major fish species landed.

#### 2.3.3 GOMOA WEST

Covering a land area of 1,022.0  $\text{km}^2$  with a total population of 194,792 (i.e. 12.23% of regional population), the Gomoa District has Apam as its administrative capital. The District lies within latitude 5° 14 north and 5°35 north and longitude °22 west and °54 west on the eastern part of the Central Region of Ghana.

The main occupations of the people in this district are subsistence agriculture and fishing. Mean Fish production in the district over the past five years was 6308. A lot of fish species of commercial importance are caught in the district with thesardinellas being the dominant pelagic species. Others are the Threadfin (*Galeoides decadactylus*), and Burrito (*Brachydeuterus auritus*).

#### 2.3.4 EFFUTU MUNICIPAL

The Municipality covers an area of  $417.3 \text{ km}^2$  (163 sq miles) with Winneba as its administrative capital. It is bordered to the north by Agona Municipal, east by Gomoa District, on the west by the Gomoa West District and the south the Gulf of Guinea. The municipal had a population of 169,972, which represent 10.7% of the population of the Central region (According to Population and Housing Census of 2000) with 168 settlements.

The main occupation of the people in this district is agriculture and fishing. The small pelagics (*Sarinellas*) are dominantly caught and landed but occasionally the billfishes are also landed by the drift gill operators.

#### 2.3.5 EKUMFI DISTRICT

This new district was carved out of the Mfantseman distinct from Otuam to Srafa with a population of less than 50,000 people with fishing as their predominant occupation. Sardinellas are the dominant species landed more especially during the peak fishing season.

## 2.3.6 MFANTSEMAN MUNICIPAL

The Municipal capital is Saltpond. It occupies a total land area of approximately 612 km<sup>2</sup> stretching for about 21 km along the coastline and for about 13 kilometers inland. The municipality has a total of 152,264 people (2000 population and housing census) constituting almost 7% of the Central Region population.

The main occupation of the people in this district is subsistence agriculture and fishing. Mean fish production in the district over the past five years averaged 10,000 mt over the period. Major fish species caught are the Anchovy (*Engraulis encrasicolus*), Atlantic little tuna, and (Euthynnus alleratus, Scad Mackerel (Caranx rhoncus), Threadfin (Galeoides decadactylus), Chub Mackerel (Scomber japonicus) and Burrito (Brachydeuterus auritus)

#### 2.3.7 ABURA ASEBU KWAMANKESE

Abura-Dunkwa is the administrative capital of the Abura-Asebu-Kwamankese District. It is bordered by Cape Coast Municipality and Lower Denkyira District to the west, Assin South District to the north, Mfantseman Municipal to the south and the east. Abura-Asebu-Kwamankese District has a population size of 90,093 representing 5.6% share of the Regional Population and 0.47% of the National Population figure (2000 population census). The population density is consequently 277.2 per sq. km.

The main occupation of the people in this district is agriculture and fishing. Fish production in the district over the past five years has been 74162 mt over the period. The main fish species caught are: Anchovy (*Engraulis encrasicolus*), Atlantic little tuna (*Euthynnus alleratus*, Scad Mackerel (*Caranx rhoncus*), Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber japonicus*) and Burrito (*Brachydeuterus auritus*).

#### 2.3.8 CAPE COAST MUNICIPAL

Cape Coast is the administrative capital of Cape Coast Metropolitan Assembly and also the regional capital of the Central Region. The metropolis occupies an area of 122km<sup>2</sup>. It's boundary to the West is Komenda/Edina/Eguafo/Abrem District, to the East is Abura-/Asebu/Kwamankese District and to the North the Twifo Hemang Lower Denkyira District.

The main occupation of the people in this district is fishing. Fish production in the district over the past five years has on the average been 6160mt over the period. The main fish species caught are the Threadfin (*Galeoides decadactylus*), Chub Mackerel (*Scomber japonicus*) and Burrito (*Brachydeuterus auritus*).

## 2.3.9 KOMENDA-EDINA EGUAFO-ABREM

Elmina is its administrative capital. It is situated between longitude 1° 20' West and 1° 40' West and latitude 5° 05' North and 5° North 15' North. The district covers an area of 1'372.45 km<sup>2</sup> The estimated population for the district is 112,435 people which is 7.1% of the regional population.

The main occupation of the people in this district is subsistence agriculture and fishing. Fish production in the district over the past five years accounted for 10571 mt annually over the period. The main fish species caught are: Atlantic little tuna (*Euthynnus alleteratus*)Frigate mackerel (*Auxis thazard*) and Burrito (*Brachydeuterus auritus*).

#### 2.4 WESTERN REGION

Western region is located in the south western part of Ghana and has six coastal regions.

#### 2.4.1 SHAMA

The Shama District was carved out of the former Shama Ahanta East Metropolitan Assembly. It is bordered to the North by the Mpohor Wassa East District, to the South by the Gulf of Guinea, Sekondi-Takoradi Metropolitan Assembly to the West (all in the Western Region) and Komenda Edina Eguafo-Abirem District to the East in Central Region. The District Capital is Shama. The District covers a land area of 215 km<sup>2</sup> and has a total of sixty seven (67) settlements with 366,579 population size. The predominant occupation of the people in the District is mainly farming, minning, commerce and fishing. Fish production in the district over the past five years has averaged 43488mt over the period. The main fish species caught are the Sardinellas, Frigate Mackerel (*Auxis thazard*) and Long -finned Herring (*Ilisha africana*).

#### 2.4.2 SEKONDI TAKORADI METROPOLITAN

Sekondi is the administrative capital of the twin city comprising Sekondi and Takoradi. It lies within longitudes 4.9167°N, and latitude 1.7667°W. Sekondi-Takoradi is the Western Region's largest city and an industrial and commercial center, with a population of 445,205 people (2012). The chief industries in Sekondi-Takoradi are timber, plywood, shipbuilding and railroad repair and recently, Sweet crude oil as well as fishing

The main fish species caught are: Sardines (*Sardinella aurita and Sardinella maderensis*), frigate Mackerel, (*Auxis thazard*) and long-finned Herring (*Ilisha africana*).

#### 2.4.3 AHANTA WEST

The Ahanta West District has a total land area of 591 km<sup>2</sup> and according to the 2000 Population and Housing Census report it is occupied by 95,140 people. Agona Nkwanta is the district capital. The District lies between latitude 4°.45"N and longitude 1°.58"W and it is located at the southern most part of the country. The district is bounded on the East by the Sekondi Takoradi Metropolitan, on the West by the Nzema East Municipal, and the North by Mpohor Wassa East and Wassa Amenfi West Districts.

The main occupation of the people in this district includes subsistence agriculture which employs about 60% of the total population, the remaining engage in fishing, trading and the formal sectors. Mean annual Fish production in the district over the past five years has been is 16977mt. The main fish species caught are the Sardines (*Sardinella aurita and Sardinella maderensis*).

#### 2.4.4 NZEMA EAST

The Nzema East district is located on the southern end of the western region between longitude  $2^{0}05$ " and  $2^{0}35$ " West and latitude  $4^{0}40$  and  $5^{0}20$  North. The Nzema East Municipal covers 9.8 % of the total area of the Western Region, thus an area of about 2194 km<sup>2</sup>. It is bound on the west by Jomoro, north by Wassa Amenfi East, and the east by Wassa Amenfi West and Ahanta West District. On the south, it is bounded by the Gulf of Guinea with 70 kilometres stretch of sandy beaches

It is estimated that over 65% of the economically active population are engaged in fishing and farming. Mean annual fish production in the district over the past five years has been 6191 mt over the period. Main species caught are the sardinellas.

#### 2.4.5 ELEMBELE

The Elembelle District was carved out of the Nzema East District in 2007 with Nkroful as its administrative capital. The Ellembelle District is located on the southern end of the region between longitudes 2°05' and 2°35' West and latitude 4°40 and 5°20 N. It covers a total area of about 1,468 km<sup>2</sup> which constitute about 6.8% (Percent) of the total land mass of the Western Region with a total population of 107,673 for the district (Ghana Statistical Service, 2010).

Fishing and Cocoa growing is the main occupation of the people in the district. However, small scale mining, and trading is carried out in the middle and the northern zones. Processing and sale of copra oil is also carried out in certain parts of the district. Major fish species caught are Sardinellas.

#### 2.4.6 JOMORO DISTRICT

Created by a Legislative Instrument 1394 in 1988, the Jomoro District used to be part of the then Nzema East Municipal. The size of the district is 1344 km<sup>2</sup> and Half Assini is District Capital. It lies between Latitudes  $04^{\circ} 55' - 05^{\circ} 15'$  N and Longitudes  $02^{\circ} 15' - 02^{\circ} 45'$  W and is bordered on the North by Wassa Amenfi West and Aowin Suaman districts, Nzema East Municipal on the East, La Cote d'ivoire to the West and the gulf of Guinea to the South. It is located in the Southwestern corner of the Western Region of Ghana. The population of the district is 111,348 with a density of 83 persons per km2 and an annual growth rate of 3%. (2000 PHC Census). The population of the district is 5.8% of that of the region.

The main occupation of the people in this district is subsistence agriculture and fishing. Mean Fish production in the district annually has been approximately 825mt over the period. Main species caught are the Atlantic little tuna (*Euthynnus alleteratus*) and the Round and Flat Sardines (*Sardinella aurita & Sardinella madernsis*).

## **3.0 METHODOLOGY**

#### **3.1 STUDY AREA**

The survey covered the entire marine coastline with approximately 550 km from Aflao in the Eastern border in the republic of Togo side to Half-Assini (Newtown) in the western border with Cote d'Ivoire.

The method of full coverage was used (Banerji, 1974) with the entire coastline of Ghana divided into four sectors corresponding to the four administrative regions bordering the sea (Fig.1). These are Volta, Greater-Accra, Central and Western regions. The Regions were subdivided into districts numbering 26 in total. These were Ketu south and Keta districts in the Volta region, Dangme East, Ada West, Dangme West, Kpone-Katamanso, Tema, Ledzokuku-Krowor, La-Dadekotopon, AMA and Ga-South districts in the Greater Accra region, Awutu-Senya, Effutu Municipality, Gomoa East, Gomoa West, Ekumfi, Mfantseman, Cape Coast, Abura-Asebu-Kwamankese, Komenda-Edina-Eguafo-Abrew districts and Shama, Sekondi-Takoradi, Ahanta West, Nzema East, Ellembelle, Jomoro districts in the Central and Western Regions... Within each district enumerators covered the full length of the coastline listing all fishing villages and associated landing beaches.

For the purpose of this survey, a fishing village is a village (town or city) where fishermen reside and have a chief fisherman. The chief fisherman is generally the head of the fishing community. A landing beach on the other hand, is the stretch of coastline on which fish is typically landed and canoes are beached. Similarly, a number of villages that are governed by one chief fisherman are considered as landing beaches under the fishing village where the chief fisherman resides. Thus villages or beaches as used here may have been reassigned under newly created administrative areas/districts recently but however cover the sites and areas along the coastline.

The Survey team consisted of Fisheries Officers, Technical Officers, and Technical Assistants from the coastal regions/districts who all acted as enumerators during the period under review. The team numbering approximately 80 (grouped according to districts) went through a three day pre-survey training in March 2013 highlighting on the methodology to be used, identification of types of fishing gears, fishing crafts as well as administering of questionnaires.

At the fishing village, the enumerators enquire and establish the number of landing beaches. The number and type of canoes at each landing beach were physically counted. A sample of each type of canoe was measured with a tape measure. The type of canoe is determined, generally by the kind of fishing method carried out on it. The canoes were also examined for motorisation. A canoe is considered motorized if it carries a bracket or cradle on which an outboard motor can be mounted.

All other information requested are indicated in the questionnaires (Appendices A & B). The findings of most questionnaire have not been put in this report but only summaries because they were put in to help design and monitor catch assessment surveys. However these results can be incorporated in a detailed register with detailed information on ownership, names of canoes, symbols, crew size per individual canoes etc.

Canoes in estuaries, rivers and lagoons no matter how close they were to the open sea, were excluded in the count. New canoes which were being prepared to go to sea and old ones undergoing repairs were all counted and included in the database. Canoes that were seen broken beyond repairs or abandoned were not counted. In each canoe, the number of fishermen were also sought.

The chief fisherman in each village was the first point of contact before the enumeration was done and they often delegated some trustworthy and experienced subordinates to help the enumerators do their job.

The rest of the survey was conducted by interviewing either the chief fisherman or other fishermen in the village. Some of the information demanded from them are on non-fishing days, range of fishing operations, main species fished or sought, migration of fishermen within and out of the country etc.

All the information obtained were crosschecked and later entered into a database for further scrutiny.

The entire programme lasted for a month starting on the 2<sup>nd</sup> March and endeing on the 29<sup>th</sup> March 2013 and was undertaken by - technical assistants n some districts due to the lack of field staff a few retired officers were recruited to join the existing numbers of enumerators. Most of them had taken part in previous surveys with the content of recording schedules not substantially changed.

A post census check was organized in the first week of April 2013 where four officers from the Fisheries Scientific Survey Division (also known as Research) were tasked to visit some landing sites to ascertain the true numbers of canoes there, ascertain boundaries of newly created districts and recommend sampling sites for catch assessment surveys among others.

Besides counting the numbers and types of canoes and gears associated, some aspects of the livelihoods of fisher folks were sought. The aim was to find out some socio-economic conditions of the fisher folks along the coastal districts of Ghana such as their family size, educational backgrounds, and livelihoods among others. The respondents were mainly fishermen and fishmongers in the various fishing communities. A sample size of 500 per region of fishers/fishmongers (respondents) were used though low in relation to the total number of respondents in the fishery. Results using the Statistical Package for Social Sciences (SPSS v-16) was conducted to give us a fair idea of the social importance of fishers within our coastal communities. Results however should be taken as tentative and used with much caution.

## **4.0 RESULTS**

#### 4.1 Number anf Types of Canoes

Classification of canoes in the artisanal sector is based on the type of gear the canoes operate. The major gears operated by the canoes during the survey were Purse seine, Hook & Line, Drifting Gill Net (Nifa-Nifa was also categorize as Drifting Gill Net ), Beach Seine, Ali, Lobster Set Net and One Man Canoe. As one canoe can be used to operate more than one type of fishing gear, each canoe was put in the category of gear for which it is most often used. Doyi 1984 describes the various gears used in the artisanal fishery in Ghana.

*Triplochiton scleroxylon* and *Ceiba petandra* locally called Wawa and Onyina respectively are the main materials used for the manufacturing of these canoes.

#### 4.1.1 Ali/Poli/Watsa

A total of 3085 pursing nets (Poli/Watsa) and 1873 Ali net canoes were counted. These are large wooden canoes in the size range of 12.0 - 19.5m long x 1.2 - 2.4m wide that are used to operate the ali/poli/watsa nets. They are mainly propelled by 25 - 40 hp Outboard Motors with some also using electronic devices like the fish finders and echo sounders.

#### 4.1.2 Beach Seine

During the survey 1074 beach seines were recorded. In this category, old "Ali/Poli/Watsa" canoes are converted for beach seining. Normally, the bow is raised to avoid taking water when crossing through the surf. Beach seine canoes are mostly propelled by paddles nevertheless outboard motors may be used as well. Their sizes range between 8.5-11.5m.

#### 4.1.3 Setnet

Setnet canoes are those that are used to operate small nets rigged to fish at bottoms or in midwaters depending on the strength of the floats and leadlines. They are used mainly on daily basis using paddles and sails or outboard motors. Their size ranges from about 7.0 - 9.5m long.

#### 4.1.4 Line

The number of line canoes recorded were 1142. Line canoes in Ghana also termed "Lagas" canoes (French word for ice, "la glace"), are canoes that specialize in hook and line fishing. Ice is used at sea to preserve high value demersal fish at sea in insulated containers. They stay out at sea for 2 to 4 days targeting large demersals such as sparids, snappers and groupers within rocky bottoms. The size range is approximately 12.0 - 18.5m long.

#### 4.1.5 Drift Gill Net

During the count, a total of 976 drifting net canoes were recorded. Their size range is the same as that of "Ali/Poli/Watsa" and can only be identified with the gear on board. These are used to operate a drifting gillnet for large pelagic species such as the skipjack tuna, swordfish and sailfishes.

#### 4.1.6 One Man Canoes

481 canoes were counted. These are small canoes measuring up to 6 m. They are operated by one person either using a set net or small handline. They are usually too small to be operated by outboard engines.

#### 4.1.7 Service canoes

Service canoes measure about 6.0 - 18m long and do not operate any fishing gear. They are mainly used to transport fish often termed as discards from industrial trawlers (system known as 'seiko') at Apam, Mumford, Elmina and Sekondi.

During the survey a total of 12,728 canoes were recorded of which 3,085 of the number was pursing net canoes, 1,074 beach seine canoes, 1142 line canoes, 1,236 lobster set net canoes, 2861 other set net canoes, 1,873 ali net canoes, 976 drifting net canoes and 481 one man canoes. The number of canoes for the different categories of gears operated at the landing beaches in each district is presented in table 1.1 to table 1.26

Table 2 contains the summary of the various numbers of canoes for each district and region .

#### 4.2 Number and Type of Fishing Gears

were The seven different gears widely in use during the survey were the Pursing Nets, Beach Seines, Line, Lobster Set Net, Ali, Other Set Nets and Drifting Gill Net.

Except for canoes that operated line, lobster net and other set net gears, every other canoe operated one unit of fishing gear. On the average, a lobster net or set net canoe operated up to18 units of fishing gear.

#### 4.3 Number and Types of Outboard Motors

A total of 9,313 outboard engines of various brands and capacity were recorded. Seven brands of various capacities ranging from 4hp to 40hp were identified during the survey. The Yamaha brand of 40hp dominated the motor types by 66%. Other brands were Johnson, Suzuki, Marina, Tohatsu, Mercury and Towakyo which had capacities between 4 and 9hp.

Engines with such small capacities were common in the Central and Western regions, where they are used to propel small set net canoes which are common in these areas.

The regional distribution of outboard motors is presented in tables 2 and 3. The level of motorization for each region is also presented in table 3.

#### 4.4 Number of Fishing Villages and Landing Beaches

A total of 186 fishing villages and 302 landing beaches were recorded during the survey. Names of the various fishing villages and landing beaches are in Tables 1.1 to Ttable 1.26

At the regional level, there were 26, 44, 44 and 76 fishing villages in the Volta, Greater Accra, Central and Western regions respectively. The highest number of landing beaches (106) was recorded in the Central Region with the lowest number (44) in the Volta Region. In table 2 shows the breakdown of numbers of fishing villages and landing beaches by districts and regions.

#### **4.5 Number of Fishermen**

The number of fishermen recorded during the survey was 139,155 (Table 3). The total number for each landing beach is presented in table 1.1 to 1.26. Presented also in table 3 are the number of fishermen in each district and region. Percentage of fishermen in the Volta region is less 13.4% compared to that of the Greater Accra, Central and Western regions. The total numbers in each region is presented below;

Table 1 Number of Fishermen in the Regions

| Region        | Number of Fishermen | Percentage (%) |
|---------------|---------------------|----------------|
| Volta         | 18,150              | 13.4           |
| Greater Accra | 39,737              | 28.56          |
| Central       | 40,563              | 29.15          |
| Western       | 40,705              | 29.25          |

## 4.6 Cost of Fishing Inputs

It was realized that a 40hp Yamaha outboard engine which is the most popular sold between  $Gh\phi7,200$  and  $Gh\phi8,500$  depending on the location of the coast it was bought. Engines of lower capacities sold between  $GH\phi3,200$  and  $GH\phi6,000$ . The very small motors like the 4 hp and 9 hp also cost between  $GH\phi1,500$  and  $Gh\phi3,000$ .

The large size nets for Watsa, Drift Gill nets and Beach Seines sold between Gh¢15,000 and Gh¢40,000. Medium size set nets cost GH¢800 and Gh¢3,000 and small set nets for One Man canoes also sold between Gh¢500 and Gh¢1,500.

Canoes for large heavy gears such as the big Beach Seines, Watsa and Drift Gill nets cost between  $Gh \notin 10,000$  and  $Gh \notin 26,000$  whilst canoes for lighter gears like the Set nets sold between  $Gh \notin 500$  and  $Gh \notin 8,000$ . One Man Canoes were also sold between  $GH \notin 500$  and  $GH \notin 1,500$ .

Table 5 shows mean ranges of price of canoes, fishing gears and outboard motors.

## 4.7 Fish Sharing Systems

In the marine artisanal fisheries in Ghana, the daily catches by each fishing unit are usually shared according to laid down ratios. A percentage of the catch goes to the crew on one side and the owner of the craft, gear (net) and outboard motor. The sharing system from village to village is more or less similar within the regions and does not differ much from year to year. Table 10 shows the various sharing systems within the regions.

## 4.8 Fishing Holidays

Along the coast of Ghana, at least one day in a week is observed as a fishing holiday by the various fishing communities. The day usually varies in the various communities along the coast. However, a few communities in the Volta Region were noted of not having any fishing holiday. A summary of the various days observed as fishing holidays by different regions are presented below:

| Region               | Fishing Holiday                         |
|----------------------|---|
| Volta Region         | Tuesday, Wednesday, Thursday and Sunday |
| Greater Accra Region | Tuesday                                 |
| Central Region       | Tuesday                                 |
| Western Region       | Tuesday, Thursday and Sunday            |

#### **4.9 Migration Patterns**

Based on information collected during the survey, two types of migration patterns were detected. These were migrations within or outside the country.

Often, the Ghanaian fisherman migrates beyond Ghana's territorial waters and can be found as far as Mauritania to the north and Angola to the south. They could stay away for a few months to several years. There were a few reported cases of canoes coming from neighbouring countries around the eastern border especially from the Republic of Togo and Republic of Benin. Immigrant fishers pay a token fee "drink" to the chief fisherman of the landing village they take sojourn. They normally stay for a few months and get back to their home countries.

## 4.10 Comparison of Results with Previous Surveys

## 4.10.1 Canoes

Table 5 shows comparison of the 2013 survey with the previous surveys. There is seen an increase in the number of canoes since the 1997 survey. A 13.5% increment is seen from the 2004 numbers of 11,213 to the current 12,728 canoes registered.

## 4.10.2 Outboard Motors

With regards to outboard motors since 1981 there has been increasing trends in the numbers until in 1992 when there was an 8 percent decrease. The current survey registered 9,313 motors giving a high motorization level of 73.2 percent.

## 4.10.3 Fishermen

Historically the number of fishermen population have increased over the years except between 1986 and 1989 when there was a 12.7 percent decrease. However in 2013 survey, 139,155 fishermen were recorded giving a 12 percentage increase from the previous survey.

#### **5.0 DISCUSSIONS**

#### 5.1 Number and type of canoes

Total enumeration of canoes, gears and fishing inputs in all the fishing districts along the coast to evaluate the status of the marine artisanal fisheries sector has being a periodic exercise. This present survey incorporated some socio-economic aspects of the artisanal fishery and where livelihoods are changing rapidly due to varying factors such as access to the resources and changes in socio-economic trends within the environment.

The total number of active canoes in comparison to that of 2004 recorded an increment of 13.5% nationally. It is consistent with the results from Koranteng et al 1987, 1992 who also recorded an increase in the number of canoes during those surveys. This increase is not equally distributed among the regions; Central Region shows a decrease of 12.5% opposite to the Volta, Greater Accra and western regions that had an increase in the number of canoes.

#### 5.2 Number of Types of Fishing Gear

In the canoe categories, of the five types of canoes that increased in numbers, the Drifting Gill Net canoe is 87.7 percent up on 2004. Other Set nets and One Man canoes have however decreased in numbers by 143 and 49 respectively since the last survey in 2004. This is because Set nets are becoming less profitably to operate and the use of One Man canoes also of less significance.

## 5.3 Number of Types of Outboard Motors

9,313 outboard engines were recorded in the survey depicting a high percentage of 73.2 percent level of motorization. There has been an increment of 45.4 percent level of motorization since the 2004 survey. Over 80 percent of these motors were of the Yamaha brand because it is a dominant brand in the market and mostly preferred by fisher folks. Other brands encountered were of lower capacities of Yamaha, Johnson, and Suzuki etc.

On regional basis the Western Region had the highest number of motors of 3,454 which constitutes some 37 percent of the national total. This could possibly be due to the dominance of Drift Gill net canoes in the region whose operations fishing offshore require the use of motors. Investment in motors in this fishery is worthwhile and it is therefore not uncommon to see some of these canoes using two motors for a trip.

Number of motors recorded in the Central, Greater Accra and Volta regions were 3016, 2449 and 426 respectively. The highest percentage of crafts with engines comes from the Greater Region. 83.5 percent of crafts in this region were motorized. Central region follows with 77.4 percent, Western Region comes next with 68.9 percent and Volta Region comes last with the least level of motorization (47.3 percent).

There have been increases in sizes of canoes in recent times. Large canoes like those that operate the Pursing nets and Drifting Gill nets were planked up to increase height and width to carry heavier gears. Without powerful motors to propel them, operations would be difficult if not impossible.

The increases in the number of canoes and gears over the years could possibly be due to open access in the artisanal sector, subsidy packages and tax wavers on imported fishing inputs and also because there are few alternative source of employment in the coastal areas.

## 5.4 Number of Fishing Villages and Landing Beaches

Compared with the previous survey in 2004, the number of fishing villages throughout the four regions had decreased by 9 during the count. These were noticed especially in the Volta and Greater Accra regions. The number of landing beaches also decreased by 32 in the current enumeration, as only 302 landing sites were recorded as against 334 in the 2004 survey.

Although the construction of a sea defense wall at Keta in 2004 effectively stopped the erosion and reclaimed land that were submerged the numbers nevertheless of landing beaches decreased again because of the resurgence of the coastal erosion in the area over the period 2004-2013. Beside Keta, the coastal erosion is taking its toll in other coastal areas of the country especially the sand beaches in the Greater Accra region Glefe and some parts of Central region. Migrations of canoes to nearby fishing countries have led to some fishing villages and landing beaches in the Greater Accra Region and the Western Region to be inactive.

## 5.5 Number of Fishermen

The total number of fishermen enumerated in the survey was 139,155. This showed a 12 percent increase from the 2004 survey which recorded 124,219 fishermen. From the regional breakdown, 13 percent of all the fishermen were in the Volta Region, 28.6 percent in the

Greater Accra Region, 29.1 percent in the Central Region and 29.3 percent of fishermen or were recorded in the Western Region.

## 5.6 Cost of Fishing Input

The cost of fishing input depends on location, sizes and ages of equipment. The most expensive artisanal fishing net is the Poli/Watsa net which costs between Gh¢15,000 and Gh¢30,000 This was followed by large beach seine nets between Gh¢7,000 and Gh¢30,000 Drift Gill Net is also sold between Gh¢7,000 and Gh¢15,000. The gear for line fishing was the cheapest and they cost between Gh¢750 and Gh¢1, 500. With respect to canoes, those for Drift Gill nets, Pursing nets and Beach Seine operations were the most expensive; costing between Gh¢10, 000 and Gh¢20, 000.

The artisanal fishing fleet is self-financing as canoe fishermen virtually have no access to institutionalized form of credit. They depend on local money lenders and traders when it becomes necessary to raise funds to replace their fishing gear.

## 5.7 Fishing Sharing System

The sharing system from village to village are more or less similar with in the regions and according to laid down rations. These do not diferr from year to year (Koranteng and Nmashie, 1987).

## 5.8 Fishing Holidays

Fishinh holidays or non-fishing days are usually on Tuesdays however in some villages especially in the volta and western regions they differ. These days are usually used to repaur nets .

## 5.9 Migration Patterns

Fishermen still migrate to other villabes or out of the country for several reasons. Usually within the country its mainly due to rough beaches and chasing fish which are more abundant in a particular locality. Others migrate to seek greener pastures all along the western African coast and beyond.

## **6.0 SOCIO-ECONOMIC STUDIES**

Fisheries development aims at improving the socio-economic conditions of the fisher folks. Their social systems can play an important role in the local ecosystem hence these systems must be studied and understood clearly to help policy makers to bring to the fishers acceptable and beneficial innovations to improve their living standards.

In order to have an idea of the socio economic conditions of the fisher folks along the coastal districts of Ghana, a primary data was collected as part of the canoe frame survey. Socioeconomic parameters such as family size, age structure, education etc. was collected from various sample centres in the Volta, Greater Accra, Central regions and the Western region.

This study aimed at presenting a semblance of the socio-economic situation of the fisher folk. 110 fishers; 70 fishermen and 40 fish mongers were interviewed using the semi-structured interview method. A more in depth study is required to confirm or reject the findings presented here.

## The fishing workforce

In fishing communities family sizes are large, ranging from 6-20 per household. This is largely informed by the high demands for labour for the key stages of pre and post-harvest activities. A typical fish-family comprises of a canoe owner and his immediate family members, made up of one or several wives and children. This core family is in turn supported by external relations such as nieces, nephew and cousins, who may constitute the crew members of a canoe, or help in fish processing. Such an arrangement has provided the needed workforce and employment in the artisanal fishery industry over the years.

Children are not left out of the fishing business as they form an integral part of the community structure. They learn on the job and through that gain experience and knowledge in fishing and other management practices.

## Gender in marine artisanal fisheries

Gender roles in the artisanal marine fishery sector have been clearly defined for years. The marine canoe fishery involves intensive labour. Fishermen can be as young as 7 years or as old as 70 years. The male youths perform the hard tasks ranging from pushing the canoe to and from the beach, casting, setting, dragging nets and often carrying fish. The elderly are usually involved in the management and supervisory roles, providing logistics for crew member's net mending and facilitating arrangements for fishing expeditions.

The intrinsic role played by women is well defined. Women contribute significantly in activities such as processing and distribution of fish landed. Most women lack the needed

capital to engage in fish processing and access to loans from financial and non-financial institutions are hard to come by.

## Socioeconomic issues concerning fishers

## **FISHERMEN**

Seventy fishermen were interviewed on various issues and the results are presented below.

## **Age Distribution**

With respect to the age structure of the fishermen, results revealed that a greater number of the fishermen (40%) were in the age distribution of 40-50 years as shown in Table 10.1. The 18-28 age-group indicated the least number of fishermen (3%).

| Respondents' Age-<br>Group/years | Frequency | Percentage |
|----------------------------------|-----------|------------|
| 18-28                            | 2         | 2.9        |
| 29-39                            | 15        | 21.4       |
| 40-50                            | 28        | 40.0       |
| 51+                              | 25        | 35.7       |

Table 10. 1 Frequency table showing age distribution of fishermen

The 51-and-above age group constituted about 36%. This suggests a gradual reduction in the entry of the youth into fishing activities. Various reasons may be attributed to this trend, and one main reason may be because a lot more children are going to school, because of the Free Compulsory Universal Basic Education policy. Hence they are exposed to a lot more professions/vocations to choose from, and have varied aspirations other than to labour as fishermen in this era of declining fish catches and exorbitantly high input cost of fishing.

## **Other Economic Activities**

The fishermen were asked if they engaged in other income generating activities. 56% engaged in other activities and 44% did not; they were solely fishermen.

Table 10.2 shows that majority (60%) of those who engaged in other ventures preferred to farm, while only a few (10%) were involved in vocations such as masonry, carpentry, basket weaving, etc.

| Other Economic Activities | Frequency | Percentage (%) |
|---------------------------|-----------|----------------|
| Farming                   | 42        | 60             |
| Trading                   | 10        | 14.3           |
| Others                    | 7         | 10             |
| No Response               | 11        | 15.7           |

| Table 10. 2 Other | economic activities | of fishermen |
|-------------------|---------------------|--------------|
|-------------------|---------------------|--------------|

It is interesting to note that quite a number of the fishers would not tell what other jobs they were into.

The interview also revealed that most of the fishermen's wives are involved in some income earning activity. Majority (66%) of the wives of the fishermen are fish mongers as shown in Table 10.3.

| Profession  | Frequency | Percentage (%) |
|-------------|-----------|----------------|
| Fish Monger | 46        | 66             |
| Trader      | 10        | 14             |
| Farmer      | 6         | 9              |
| No Response | 4         | 6              |
| Unemployed  | 4         | 6              |

## Table 10. 3 Fishermen's Wives Major Professions

Only a few (6%) were not employed. Here again some would not tell whether they were employed, or what they were into. Reasons were not given for their non-response, though.

## **Marital Status**

| Marital Status of Fishermen | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Married                     | 67        | 95.7       |
| Single                      | 2         | 2.8        |
| Widowed                     | 1         | 0.7        |

In response to their marital status, about 96% of the fishermen said they are married, 2% were single. Widowers constituted about 1% of the respondents, as shown in Table 10.4.

## Table 10.4 Marital status of fishermen

Out of the married, most (70%) percent of them have one wife, about one in five have two wives and less than 10% married to three or more women.

The average family size is seven.

| Number Of Wives | Frequency | Percentage (%) |
|-----------------|-----------|----------------|
| 1               | 49        | 70.0           |
| 2               | 13        | 19.0           |
| 3               | 4         | 6.0            |
| 4               | 1         | 1.0            |
| NO RESPONSE     | 3         | 4.0            |

Table 10. 5 No. of wives of fishermen

## **Educational Background**

The educational background of fishers was ascertained during the interview. Table 10.6 shows that 40% of the respondents had attained primary level of education. Less than one in 20 fishermen had attained the Junior High School certificate, 2% of the respondents having Senior High School certificate. 2% of the respondents had tertiary education

| Educational Level | Frequency | Percentage (%) |
|-------------------|-----------|----------------|
| None              | 36        | 52             |

| Primary         | 28 | 40 |
|-----------------|----|----|
| JHS/Middle Sch. | 3  | 4  |
| SHS./Diploma    | 1  | 2  |
| Tertiary        | 1  | 2  |

## Table 10.6 Educational level of fishermen

It is disheartening to note that majority of the fishermen (52%) had no education; and a large number (40%) also do not have complete basic education, i.e. JHS or Middle School. The high number of primary school leavers, but very few JHS graduates also suggests a high school dropout rate among the respondents.

## RELIGION

Table 10.6 points out that majority of the respondents are Christians, 16% are traditional believers, 2% of the respondents are Muslims and the remaining 6% of the respondents are believers of other religions such as Buddhism, Hare Krishna and so on.

| <b>Religion of Fishermen</b> | Frequency | Percentage |
|------------------------------|-----------|------------|
| Christian                    | 53        | 76.0       |
| Islam                        | 1         | 2.0        |
| Traditional                  | 11        | 16.0       |
| Others                       | 4         | 6.0        |

**Table 10.7 Religion of Fishermen** 

## **FISH MONGERS**

Forty fish mongers were interviewed on issues such as how long they had been in their business, the type of processing and/or preservation they are engaged in, other post-harvest issues and what avenues they perceive as sources for enhancing their business.

## **Marital Status**

Four-fifths of the women interviewed were married, as depicted in table 10.7

| Marital status | Frequency | Percentage |
|----------------|-----------|------------|
| Married        | 32        | 80         |
| Not married    | 8         | 20         |

## Table 10.7 Marital status of respondents (Fishmongers)

When asked who offered child support to their children, majority (52%) of the fishmongers said that they were solely responsible for their children's upkeep as shown in Table 10.8. This is interesting and yet discouraging, granted that an overwhelming majority of these women are married. However no further probing was done to find out the reason for this trend.

| Provider of child support | Frequency | Percentage(%) |
|---------------------------|-----------|---------------|
| Self                      | 21        | 52            |
| Husband                   | 17        | 42            |
| Extended Family           | 2         | 6             |

Table 10.8 Provider of fishmongers' children support

## Length of time as a fishmonger

Although the ages of the respondents were not ascertained, fish mongers with over 40 years in the business can be fairly said to be in the older age group and from Table 10.9 it can be seen that that fishmongers in this group were more, concluding that more of the older generation are in the business.

| Length of time as a fish<br>monger/years | Frequency | Percentage(%) |
|--|-----------|---------------|
| 40 +                                     | 12        | 30            |
| 21-30                                    | 11        | 28            |
| 11-20                                    | 7         | 18            |
| 1-10                                     | 5         | 12            |
| 31-40                                    | 5         | 12            |

10.9 Length of time as a fishmonger

This assertion notwithstanding, it is evident that fish mongers who have been in the business from 31 to 40 years are the least. Reasons were not found out, and it is believed that an extensive survey with a representative sample size might give a clearer trend. Five respondents each have been in business for up to 10 years and from 31 to 40 years.

## Fish processing/preservation

The main method of processing fish in Ghana is smoking (Kegan, 2001). Most of the respondents confirmed this, as 76% of them said they smoke their fish before they sell. 4% salt their fish, 4% fry their fish and 16% of the respondents either dry or salt their fish before they sell, presented in Table 10.10.

| Fish processing method | Frequency | percentage |
|------------------------|-----------|------------|
| Smoked                 | 30        | 76.0       |
| Salted                 | 2         | 4.0        |
| Fried                  | 2         | 4.0        |
| Salted & dried         | 6         | 16.0       |

Table 10.10 Fish processing methods among fish mongers

## **Post-harvest loss**

Majority of the respondents (70%) acknowledged that they experience fish spoilage at times. Such situations are a source of income loss to them. Table 10.11 shows that more than half (58%) of them attributed the fish spoilage they experience to the presence of moulds.

| Perceived causes of post-harvest losses | Frequency | Percentage |
|---|-----------|------------|
| Moulds                                  | 23        | 58.0       |
| Insect Infestation                      | 12        | 30.0       |

## Table 10.11 Fishmongers' perceived causes of post-harvest losses

Thirty percent (30%) blamed insect infestation while others said the absence of, and improper storage facilities results in poor humidity/ventilation, which in turn caused their fish to spoil.

## Finance

Financing fishing ventures comes from their own initial savings and contributions from family members. Women agents serve as a major source of interest free loans for the fishermen to ensure that when fish are landed, they would be the first to receive their supply.

Table 10.12 shows how much fishmongers spend in their various processing methods.

| Oil (for frying)   | 70.00 - 90.00    |
|--------------------|------------------|
| Salt (salting)     | 10.00 - 30.00    |
| Charcoal (smoking) | 100.00 and above |
| Chorkor smoker     | 100.00 and above |
| Firewood           | 100.00 and above |

Table 10.12 Costs associated with various fish processing methods

Income derived from fishing is shared among the household and the crew at the end of each fishing trip or season, after some amount has been set aside for daily operational costs. Other expenses such as the repayment of loans for purchasing canoes, out-board motor and gears to their respective owners are also set aside.

Operational costs fishermen incur are as shown in Table 10.13

| Input   | Price range (GH¢) |  |
|---|-------------------|--|
| Premix  |                   |  |
| Food  | 100.00 - 200.00   |  |
| Communication   | 5.00              |  |
| Trip maintenance i.e. carting fish, minor net mending, carburetor servicing, etc. | 200.00 - 300.00   |  |
| Table 10.12 Operational costs in gunned by fighterman                             |                   |  |

 Table 10.13 Operational costs incurred by fishermen

Costs of purchasing canoes and gear are presented in Table 4

Fishmongers were asked where they obtain funds for their business. From Table 10.14 summarises their sources of funding. 2% of the respondents fund their business from associations, 46% of the respondents admitted that they borrow money from the bank, 16% of the respondents get some help from government and 34% finance their business from their own money.

| Source of funds       | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| Associations Funds    | 2         | 4.0            |
| Microfinance loan     | 18        | 46.0           |
| Government assistance | 6         | 16.0           |
| Self                  | 14        | 34.0           |

Table 10.14 Sources of funding of fishmongers' business

## Fishers' Suggestions on Ways of Enhancing their Work

On suggestions for the improvement and enhancement of the fisheries sector, the fisher folks, both fishermen and fishmongers, made very important inputs.

## Fishmongers

A large majority of the fishmongers (76%) wanted loans from government to improve their business. About a tenth of them wanted financial assistance in the provision of Chorkor smokers.

| Improvement of the fisheries sector            | Frequency | Percentage |
|--|-----------|------------|
| Loans from gov't                               | 30        | 76         |
| Assistance in the provision of Chorkor smokers | 5         | 12         |
| Infrastructure                                 | 2         | 4          |
| Transportation                                 | 3         | 8          |

Table 10.15 Fishmongers' suggestions on improvement of the fisheries sector

## Fishermen

42% of the fishermen were of the view that loans from Government will go a long way to enhance their work. 24% suggested the regular supply of premix fuel since unavailability of the fuel delays their fishing (Table 10.16).

| Fishers' suggestions on ways to improve the fisheries sector | Frequency | Percentage |
|--|-----------|------------|
| Loans from government  | 29        | 42.0       |
| Regular supply of inputs especially premix fuel              | 17        | 24.0       |
| Free education of children                                   | 4         | 5.0        |
| Infrastructural development e.g. cold stores                 | 3         | 4.0        |
| Education on fisheries laws                                  | 1         | 2.0        |
| Others   | 16        | 23.0       |

## Table 10.16 Suggestions on way to improve the fisheries sector

In the 'Others' category, suggestions made included free education of their children and transportation (motorized tricycles from government).

## 7.0 CONCLUSION AND RECOMMENDATIONS

Overall, the results of the survey indicate that the number of canoes increased by 13.1% from the previous survey of 2004. Over 73.17% of canoes were motorized about 16.1% up from the 2004 survey. Number of fishermen in the sector has increase by 14936 people from 124219 in 2004 to 139155 in 2013. Increase in the number of gears was in mainly the Drift Gill Nets (87.7%) and not other Set Nets which had the highest increase in numbers in 2004 but has decreased by 143 in the current survey. From the last survey, a total of five fishing villages

and twenty landing beaches have been lost with the majority from the Volta region followed by Greater Accra region.

Given the changes observed in the numbers of canoes, fishermen, gears, new landing sites etc. and also of the socio-economic status of the fisher folks over period during the survey, it is necessary to monitor the effect these changes have on the status of the artisanal marine sector by updating the canoe frame surveys periodically.

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## Appendices

Tables 1-26

Figures 1-7

Questionaires
| TABLES 1.  | 1a FISHING      | UNIT B          | BY GE           | AR -      | KETU           | SOUT                   | H DIST        | RICT (        | VOLT                  | A REG        | ION                     |                      |
|------------|-----------------|-----------------|-----------------|-----------|----------------|------------------------|---------------|---------------|-----------------------|--------------|-------------------------|----------------------|
| FISHING VI | ILANIDING BE    | PURSI<br>AMEHTS | NBCEAC<br>SEINI | 'H<br>LIN | LOBST<br>ENETS | <b>ØR</b> HEI<br>SET N | R<br>FATISI N | DRIFT<br>ENET | <b>NN</b> E M<br>CANO | IAN<br>ICANC | TOTAI<br><b>Exs</b> oto | ,<br><b>RS</b> SHER) |
| AFLAO      | ABELIAKOPE      |                 | 2               | 18        |                | 20                     |               |               |                       | 40           | 2                       | 329                  |
| AFLAO      | SAPENUKOPI      | <b>F</b>        | 1               |           |                |                        |               |               |                       | 1            | 1                       | 30                   |
| AFLAO      | AKLIGOKOPI      | E1              | 5               |           |                |                        |               |               |                       | 6            |                         | 170                  |
| DENU       | DENU            | 11              | 2               |           |                | 3                      |               |               |                       | 16           | 16                      | 332                  |
| HEDRANAV   | <b>WEDRANAW</b> | 010             | 7               |           |                |                        |               |               |                       | 17           | 17                      | 456                  |
| ADAFIENU   | DZEGAKOPE       | 2               | 4               |           |                |                        |               |               |                       | 6            | 4                       | 115                  |
| ADAFIENU   | ABGADZIKOI      | Æ               | 2               |           |                | 1                      |               |               |                       | 7            | 6                       | 103                  |
| ADAFIENU   | DAVORKOPE       |                 | 2               |           |                |                        |               |               |                       | 2            | 2                       | 41                   |
| AGORKO     | TETEKOPE        |                 | 1               |           |                | 2                      |               |               |                       | 3            |                         | 16                   |
| AGORKO     | DAVIDKOPE       | 1               | 4               |           |                |                        |               |               |                       | 5            | 3                       | 142                  |
| AGORKO     | AGORKO          |                 | 13              |           |                | 2                      |               |               |                       | 15           | 11                      | 389                  |
| ADINA      | ADINA           | 41              | 16              |           |                | 26                     |               |               |                       | 83           | 53                      | 1328                 |
| AMUTINU    | AMUTINU         | 3               | 17              |           |                | 1                      | 1             |               |                       | 22           | 15                      | 467                  |
| SALAKOPE   | SALAKOPE        | 5               | 3               |           |                | 3                      |               |               |                       | 11           | 7                       | 212                  |
| AGAVEDZI   | AGAVEDZI        | 21              | 16              |           |                |                        |               |               |                       | 37           | 29                      | 967                  |
| BLEKUSU    | BLEKUSU         |                 | 28              |           |                | 4                      |               |               |                       | 32           | 12                      | 664                  |
| HORVIE     | HORVIE          |                 | 8               |           |                |                        |               |               |                       | 8            | 8                       | 380                  |
|            | TOTAL           | 99              | 131             | 18        | 0              | 62                     | 1             | 0             | 0                     | 311          | 186                     | 6141                 |

 Table 2.1a -1z Results of Frame Survey showing number of fishing units by gear for all districts

| TABLES 1.1b FISH | IING UNIT BY GEAR - KI | ETA DISTRIC     | CT (VOLTA      | A REGI | ON)             |                   |         |                 |                  | •      | •               |           |
|------------------|------------------------|-----------------|----------------|--------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE  | LANDING BEACH          | PURSING<br>NETS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | drifting<br>Net | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| KEDZI            | AGORTA                 |                 | 11             | 2      |                 |                   | 16      |                 |                  | 29     |                 | 440       |
| KEDZI            | HORVI                  |                 | 8              |        |                 |                   |         |                 |                  | 8      | 8               | 380       |
| VODZA            | VODZA                  | 13              | 12             |        |                 |                   |         |                 | 4                | 29     | 10              | 500       |
| ADZIDO           | ADZIDO                 | 8               | 14             | 5      |                 | 5                 |         |                 | 1                | 33     | 8               | 200       |
| KEDZIKOPE        | KEDZIKOPE              | 1               | 5              | 3      |                 |                   |         |                 |                  | 9      | 5               | 118       |
| ABUTIAKOPE       | ABUTIAKOPE             | 2               | 21             | 1      |                 | 70                |         | 12              |                  | 106    | 32              | 860       |
| DZELUKPE         | DZELUKOPE              |                 | 17             |        |                 | 21                |         |                 | 1                | 39     | 3               | 450       |
| VUI              | NUKPESEKOPE            |                 | 8              |        |                 | 9                 |         |                 |                  | 17     | 2               | 157       |
| VUI              | TETEVIKOPE             |                 | 26             |        |                 | 24                |         |                 |                  | 50     | 14              | 644       |
| TEGBI            | НЕКРА                  |                 | 12             |        |                 | 1                 |         |                 |                  | 13     | 5               | 433       |
| TEGBI            | ADZIAKPOR              |                 | 4              |        |                 |                   |         |                 |                  | 4      | 2               | 170       |
| TEGBI            | DEKPORKOPE             |                 | 10             |        |                 | 4                 |         |                 |                  | 14     | 5               | 410       |
| TEGBI            | AMERIKOPE              |                 | 4              |        |                 |                   |         |                 |                  | 4      | 2               | 115       |
| TEGBI            | KLAMATSI               |                 | 6              |        |                 | 1                 |         |                 |                  | 7      | 5               | 275       |
| TEGBI            | HELOGLOKOPE            |                 | 3              |        |                 | 6                 |         |                 |                  | 9      | 1               | 95        |
| TEGBI            | WOYANA                 |                 | 5              |        |                 | 3                 |         |                 |                  | 8      | 4               | 230       |
| TEGBI            | ASHIATA                |                 | 4              |        |                 | 1                 |         |                 |                  | 5      | 3               | 195       |
| WOE              | LIGHTHOUSE             |                 | 7              |        |                 |                   |         |                 |                  | 7      | 6               | 320       |
| WOE              | DEKPEKOPE              |                 | 5              |        |                 |                   |         |                 |                  | 5      | 2               | 140       |
| WOE              | AKLUBORORDZI           |                 | 6              |        |                 |                   |         |                 |                  | 6      | 5               | 205       |
| WOE              | AKROBODZI              |                 |                |        |                 | 10                |         |                 |                  | 10     | 3               | 69        |
| ANLOGA           | ATIEFE                 |                 | 16             |        |                 |                   |         |                 |                  | 16     | 8               | 880       |
| ANLOGA           | CAPECOAST              |                 | 11             |        |                 |                   |         |                 |                  | 11     | 2               | 440       |
| ATORKOR          | WHUTI                  |                 | 13             |        |                 |                   |         |                 |                  | 13     | 4               | 550       |
| SROGBE           | SROGBE                 |                 | 7              |        |                 | 1                 |         |                 |                  | 8      | 2               | 330       |
| ATORKOR          | ATORKOR                |                 | 8              |        |                 | 6                 |         |                 |                  | 14     | 5               | 432       |
| ATORKOR          | DAKORDZI               |                 | 2              |        |                 |                   |         |                 |                  | 2      |                 | 100       |
| AKPLORTORKOR     | AKPLORTORKOR           |                 | 3              |        |                 |                   |         |                 |                  | 3      |                 | 150       |
| DZITA            | DZITA                  |                 | 16             |        |                 |                   |         | 1               |                  | 17     | 3               | 776       |
| DZITA            | AGBEDOME               |                 | 16             | 1      |                 |                   |         |                 |                  | 17     | 4               | 855       |
| ATITETI          | ATITETI                |                 | 8              |        |                 | 13                |         |                 |                  | 21     | 13              | 571       |
| ATITETI          | FUVEME                 |                 | 4              |        |                 | 37                | 1       |                 |                  | 42     | 42              | 519       |
|                  | TOTAL                  | 24              | 292            | 12     | 0               | 212               | 17      | 13              | 6                | 576    | 208             | 12009     |

|                 |               | PURSING | BEACH |      | LOBSTER | OTHER    |         | DRIFTING | ONE MAN |        | TOTAL  |          |
|-----------------|---------------|---------|-------|------|---------|----------|---------|----------|---------|--------|--------|----------|
| FISHING VILLAGI | LANDING BEACH | NETS    | SEINE | LINE | NETS    | SET NETS | ALI NET | NET      | CANOE   | CANOES | MOTORS | FISHERME |
| AZIZANYA        | MATAHEKO      | 24      | 1     |      |         | 1        |         |          |         | 26     | 23     | 636      |
| AZIZANYA        | ADJIVONPANYA  | 12      | 2     |      |         |          |         | 1        |         | 15     | 10     | 371      |
| KEWUNOR         | KEWUNOR       | 5       | 8     |      |         |          |         |          |         | 13     | 6      | 405      |
| LOLONYAKOPE     | LOLONYAKOPE   | 2       | 3     |      |         | 1        |         |          |         | 6      | 2      | 183      |
| OTROKPE         | KPONKPO       | 13      |       |      |         |          | 2       |          |         | 15     | 15     | 474      |
| OTROKPE         | MANKPETI      | 10      | 3     |      |         | 1        |         | 1        |         | 15     | 14     | 175      |
| OTROKPE         | DOEMEKOPE     | 5       | 3     |      |         |          |         | 2        |         | 10     | 10     | 349      |
| TOTIMEKOPE      | TOTIMEKOPE    | 1       |       |      |         |          |         |          |         | 1      | 1      | 25       |
| OCANSEYKOPE     | OCANSEYKOPE   | 1       | 4     |      |         | 1        |         |          |         | 6      | 3      | 139      |
| ANYAKPOR        | ANYAKPOR      | 5       | 5     |      |         | 16       | 15      |          |         | 41     | 38     | 549      |
| SONGNTSOKPA     | SONGNTSOKPA   | 11      |       |      |         |          | 2       |          |         | 13     | 13     | 271      |
| PATUKOPE        | PATUKOPE      | 7       | 2     |      |         |          |         |          |         | 9      | 7      | 240      |
| ELAVANYO        | ELAVANYO      | 1       | 11    |      |         |          |         |          |         | 12     | 8      | 688      |
| PUTE            | PUTE          | 35      | 8     |      |         |          |         |          |         | 43     | 43     | 1170     |
| TOTOPE          | TOTOPE        | 14      |       |      |         |          |         |          |         | 14     | 8      | 269      |
|                 | TOTAL         | 146     | 50    | 0    | 0       | 20       | 19      | 4        | 0       | 239    | 201    | 5944     |

| Table 1.1d FISHIN | G UNIT BY GEAR - AD | A WEST DI       | STRICT –       | GREA | TERA(ACC        | RA REGIO          | N)      |                 |                  |        |                 |           |
|-------------------|---------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE   | LANDING BEACH       | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| KABLEVU           | KABLEVU             | 1               | 5              |      |                 |                   |         |                 |                  | 6      | 6               | 265       |
| KABLEVU           | KPOTITSEKOPE        |                 | 4              |      |                 |                   |         |                 |                  | 4      | 4               | 200       |
| LOLONYA           | LOLONYA             | 19              | 5              |      |                 | 1                 |         | 1               |                  | 26     | 26              | 748       |
| GOI               | GOI                 | 10              | 4              |      | 6               | 12                |         |                 |                  | 32     | 32              | 516       |
| ANYAMAM           | ANYAMAM             | 66              | 42             |      |                 | 1                 |         | 1               |                  | 110    | 110             | 3678      |
| AKPLABANYA        | AKPLABANYA          | 161             | 4              |      |                 |                   |         |                 |                  | 165    | 165             | 4199      |
| WEKUMAGBE         | WEKUMAGBE           | 15              | 5              | 1    | 3               |                   |         |                 |                  | 24     | 24              | 598       |
|                   | TOTAL               | 272             | 69             | 1    | 9               | 14                | 0       | 2               | 0                | 367    | 367             | 10204     |

|         |                   | r                    | Table      | e 1. | 5 D   | ANG  | MBE   | WEST | Г DIS | TRIC         | 'T - G       | REAT          | ER-    |
|---------|-------------------|----------------------|------------|------|-------|------|-------|------|-------|--------------|--------------|---------------|--------|
|         | ACCRA R           | E <b>GIO</b><br>PURS | N<br>BNBØA | СН   | LOBS  | OER. | ER    | DRIF | DNE   | MAN          | ΤΟΤΑ         | <b>N</b> L    | ľ      |
| FISHING | VANDANG           | BEAG                 | SÆIN       | JEIN | MEETS | SET  | VÆTIS | TEHA | CAN   | <b>QE</b> AN | <b>ØHS</b> T | <b>ØRSH</b> E | RME    |
| LEKPON  | <b>XONORO</b> /AI | <b>I</b> ∕€SI        |            |      |       |      |       | 5    |       | 21           | 15           | 318           |        |
| LEKPON  | NUMENTSOK         | <b>09</b> PE         | 4          | 3    |       | 4    |       |      |       | 30           | 3            | 567           |        |
| LEWEM   | LEWEM             | 7                    | 3          | 3    | 4     |      | 1     | 1    |       | 19           | 12           | 328           | 0      |
| KPONGU  | MORYONY           | N                    | 4          | 6    |       |      |       |      |       | 11           | 5            | 168           | ĺ      |
| AYETEPA | MAYETEPA          | Η                    | 1          | 1    |       | 6    |       |      |       | 8            | 1            | 67            |        |
| MANGOT  | MSNNGAOT (        | X€NY                 | A          |      |       | 5    |       | 6    |       | 15           | 12           | 141           |        |
| AHWIAM  | AHWIAM            | 7                    |            | 70   |       | 48   |       |      |       | 125          | 113          | 881           |        |
| OLD NIN | GOLD NING         | <b>0</b> 4           |            | 2    | 3     | 1    |       |      |       | 20           |              | 538           |        |
| NEW NIN | <b>GO</b> ZAH     | 1                    |            | 37   |       | 3    |       |      |       | 41           | 38           | 434           | )<br>  |
| ABIA    | ABIA              |                      |            | 9    |       |      |       |      |       | 9            | 9            | 135           |        |
| U/PRAMI | RIAMUDOR          | NYA                  |            | 24   |       |      |       |      |       | 25           | 23           | 325           | r<br>I |
| L/PRAMP | RACMETHOU         | 4 <b>58</b> E        |            | 1    |       | 4    |       | 2    |       | 55           | 55           | 787           |        |
|         | TOTAL             | 118                  | 12         | 156  | 7     | 71   | 1     | 14   | 0     | 379          | 286          | 4689          |        |

| Table 1.6 KPONE  |                   | ICT - GREA      | ATER-ACO       | CRA R  | EGION           |                   |         |                 |                  | •      | *               |           |
|------------------|-------------------|-----------------|----------------|--------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE  | LANDINGBEACH      | PURSING<br>NETS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| KPONE            | LAA LOI NAA       | 8               |                | 19     |                 |                   | 7       | 6               |                  | 40     | 37              | 487       |
| KPONE            | ODUNYAONMA        |                 |                | 56     |                 | 14                | 6       | 10              |                  | 86     | 51              | 658       |
| KPONE            | SEGA              | 3               |                | 114    |                 | 8                 | 4       | 10              |                  | 139    | 76              | 1151      |
|                  | TOTAL             | 11              | 0              | 189    | 0               | 22                | 17      | 26              | 0                | 265    | 164             | 2296      |
| Table 1.7 TEMA 1 | MINICIPAL ASSEMLY | . GRFATE        | R-ACCRA        | REGIO  | ON              |                   |         |                 |                  |        |                 |           |
| FISHING VILLAGE  | LANDING BEACH     | PURSING<br>NETS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| TEMA             | ASHAMANG          |                 |                | 53     |                 | 49                | 18      | 66              |                  | 186    | 137             | 870       |
| TEMA             | AWUDUN            | 308             |                |        | 4               |                   |         |                 |                  | 312    | 308             | 6789      |
| SAKUMONO         | SAKUMONO          |                 | 5              | 15     |                 | 3                 |         |                 |                  | 23     | 2               | 254       |
|                  | TOTAL             | 308             | 5              | 68     | 4               | 52                | 18      | 66              | 0                | 521    | 447             | 7913      |
|                  |                   |                 |                |        |                 |                   |         |                 |                  |        |                 |           |
| TABLE 1.8 LEDZ   | OKUKU - KROWOR M  | UNICIPAL        | ASSEMBI        | LY DIS | TRICT - GI      | REATER-AC         | CRA REG | ION             |                  |        |                 |           |
| FISHING VILLAGE  | LANDING BEACH     | PURSING<br>NETS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| NUNGUA           | TSIENAA           | 21              |                | 1      |                 | 22                | 18      |                 |                  | 62     | 42              | 579       |
| TESHIE           | SANGONAA          | 54              | 3              | 7      |                 | 9                 | 83      |                 |                  | 156    | 149             | 1264      |
|                  | TOTAL             | 75              | 3              | 8      | 0               | 31                | 101     | 0               | 0                | 218    | 191             | 1843      |

| TABLE 1.9 LA-D  | ADEKOTOPON MUNI  | CIPAL DIST      | RICT -GI       | REATE  | R-ACCRA I       | REGION            |        |                 |                  |        |                 |           |
|-----------------|------------------|-----------------|----------------|--------|-----------------|-------------------|--------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH    | PURSING<br>NEIS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALINET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| LA              | PLEASURE BEACH   |                 | 4              |        |                 |                   |        |                 |                  | 4      |                 | 26        |
| LA              | ABESE            | 2               | 1              | 2      |                 | 16                |        |                 |                  | 21     | 12              | 86        |
|                 | TOTAL            | 2               | 5              | 2      | 0               | 16                | 0      | 0               | 0                | 25     | 12              | 112       |
|                 |                  |                 |                |        |                 |                   |        |                 |                  |        |                 |           |
|                 |                  |                 |                |        |                 |                   |        |                 |                  |        |                 |           |
| TABLE 1.10 ACC  | CRA METROPOLITAN | ASSEMBL         | Y DISTRIC      | CT -GE | REATER-AC       | CRA REGIO         | )N     |                 |                  |        |                 |           |
| FISHING VILLAGE | LANDING BEACH    | PURSING<br>NEIS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALINET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| OSU             | ALATA            | 2               |                | 97     |                 |                   |        |                 |                  | 99     | 78              | 735       |
| ACCRA           | GA MASHIE        | 122             |                | 32     | 7               | 40                | 45     |                 |                  | 246    | 237             | 1375      |
| ACCRA           | KORLEYNAA        |                 | 5              |        |                 |                   |        |                 |                  | 5      |                 | 28        |
| ACCRA           | MENSAH GUINEA    |                 | 5              |        |                 |                   |        |                 |                  | 5      |                 | 27        |
| CHORKOR         | WOLEI AMLI       | 105             | 7              |        |                 |                   | 14     |                 |                  | 126    | 119             | 1065      |
| CHORKOR         | MANTSURU         | 72              |                |        |                 |                   | 5      |                 |                  | 77     | 77              | 634       |
| CHORKOR         | LANTEMAN         | 49              |                |        |                 |                   | 4      |                 |                  | 53     | 53              | 448       |
| CHORKOR         | CHEMU NAA        | 34              |                |        |                 |                   | 12     |                 |                  | 46     | 46              | 336       |
| GBEGBEYISEE     | GBEGBEYISEE      | 40              | 11             |        |                 | 19                | 3      |                 |                  | 73     | 61              | 470       |
|                 | TOTAL            | 424             | 28             | 129    | 7               | 59                | 83     | 0               | 0                | 730    | 671             | 5118      |

| TABLE 1.11 GA   | SOUTH DISTRICT - G | REATER-A(       | CCRA REC       | GION | •               |                   | •      |                 | •                | •      | •               |           |
|-----------------|--------------------|-----------------|----------------|------|-----------------|-------------------|--------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH      | PURSING<br>NEIS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALINET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| BORTIANOR       | TSOKOME            | 5               | 3              |      |                 |                   |        |                 |                  | 8      | 3               | 163       |
| BORTIANOR       | BORTIANOR          | 28              |                | 47   | 2               | 2                 | 4      |                 |                  | 83     | 65              | 571       |
| OSHIE           | OSHIE              | 7               | 1              |      | 11              | 16                |        |                 |                  | 35     | 15              | 218       |
| KOKROBITE       | KOKROBITE          | 12              | 4              |      | 2               | 27                | 1      |                 |                  | 46     | 22              | 392       |
| LANMA           | LANMA              | 2               | 7              |      |                 |                   |        |                 |                  | 9      | 1               | 178       |
| FAANAA          | FAANAA             |                 | 7              |      |                 |                   |        |                 |                  | 7      | 4               | 96        |
|                 | TOTAL              | 54              | 22             | 47   | 15              | 45                | 5      | 0               | 0                | 188    | 110             | 1618      |
|                 |                    |                 |                |      |                 |                   |        |                 |                  |        |                 |           |
|                 |                    |                 |                |      |                 |                   |        |                 |                  |        |                 |           |
| TABLE 1.12 AW   | UTU-SENYA DISTRICT | - CENTRA        | L REGION       | N    |                 | 1                 |        | 1               |                  |        |                 |           |
| FISHING VILLACE | LANDING BEACH      | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALINET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| SENYA BERAKU    | MBANYINMPOANO      | 28              | 1              | 59   | 9               | 21                | 2      |                 |                  | 120    | 79              | 1067      |
| SENYA BERAKU    | ODUMSANO           | 20              | 3              |      |                 |                   |        |                 |                  | 23     | 18              | 484       |
| SENYA BERAKU    | AHWIASO            |                 | 5              |      |                 |                   |        |                 |                  | 5      | 5               | 180       |
|                 | TOTAL              | 48              | 9              | 59   | 9               | 21                | 2      | 0               | 0                | 148    | 102             | 1731      |

| TABLE 1.13 GOMC | A EAST DISTRICT CE | NTRAL RE        | GION           | •    | •               |                   | ,       |                 |                  | •      |                 |           |
|-----------------|--------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH      | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| NYANYANO        | NYANYANO           | 106             |                |      | 3               | 14                | 7       | 2               |                  | 132    | 129             | 2165      |
| FETTEH          | MBANYINMPOANO      |                 | 2              |      |                 | 27                | 74      |                 |                  | 103    | 87              | 565       |
| FETTEH          | MBAA MPOANO        | 1               |                | 4    |                 | 3                 | 3       |                 |                  | 11     | 5               | 47        |
| FETTEH          | AKYIRESUADZE       |                 |                |      | 5               |                   | 5       |                 |                  | 10     | 4               | 25        |
| MANKOADZE       | ETSEWADA           | 5               |                | 2    |                 | 23                | 1       |                 |                  | 31     | 11              | 158       |
| MANKOADZE       | EWURABA NTEM       | 2               |                |      |                 | 12                | 5       |                 |                  | 19     | 12              | 66        |
| MANKOADZE       | KOFIKROM           | 2               | 4              |      |                 | 29                |         |                 |                  | 35     | 21              | 262       |
| DAMPAASE        | DAMPAASE           | 1               | 7              |      |                 |                   |         |                 |                  | 8      | 1               | 230       |
|                 | TOTAL              | 117             | 13             | 6    | 8               | 108               | 95      | 2               |                  | 349    | 270             | 3518      |
|                 |                    |                 |                |      |                 |                   |         |                 |                  |        |                 |           |
| TABLE1.14 GOM   | OA WEST DISTRICT - | CENTRAL         | REGION         |      |                 |                   |         |                 |                  |        |                 |           |
| FISHING VILLAGE | LANDING BEACH      | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| ABREKUM         | ABREKUM            |                 | 7              |      |                 | 53                |         |                 |                  | 60     | 0               | 123       |
| APAM            | APAM MAIN          | 38              |                | 3    |                 | 66                | 10      | 10              |                  | 127    | 125             | 796       |
| APAM            | ALATA              | 23              |                | 40   |                 | 34                | 5       | 15              |                  | 117    | 109             | 914       |
| APAM            | ABURA              |                 |                | 10   |                 | 4                 | 1       | 3               |                  | 18     | 14              | 63        |
| APAM            | AKWABIREM          | 2               |                | 5    |                 | 4                 |         | 2               |                  | 13     | 11              | 73        |
| MUMFORD         | AYESEWANO          |                 | 15             |      |                 |                   |         |                 |                  | 15     | 3               | 300       |
| MUMFORD         | AKYENFOMPOANO      |                 |                | 70   |                 | 9                 |         |                 |                  | 79     | 0               | 316       |
| MUMFORD         | MUMFORD MAIN       |                 |                | 24   |                 |                   |         |                 |                  | 24     | 0               | 96        |
| DAGO            | AKOBERIAM          | 2               |                | 12   |                 | 13                | 23      |                 |                  | 50     | 39              | 438       |
| DAGO            | DAGO MAIN          | 1               |                | 1    |                 | 38                | 14      |                 |                  | 54     | 43              | 355       |
|                 |                    |                 |                |      |                 |                   |         |                 |                  |        |                 |           |
|                 | TOTAL              | 66              | 22             | 165  |                 | 221               | 53      | 30              |                  | 557    | 344             | 3474      |

| TABLE1.15 EFFU  | TU MUNICIPAL – CEN   | FRAL REGI       | ON             |      |                 | ,                 |         |                 |                  |        |                 |           |
|-----------------|----------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH        | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| WINNEBA         | A YIPEY              | 56              |                | 35   |                 | 25                | 27      |                 |                  | 143    | 108             | 1539      |
| WINNEBA         | ABOADZE              | 24              |                | 5    |                 |                   | 19      |                 |                  | 48     | 43              | 498       |
| WINNEBA         | PENKYI               | 12              |                |      |                 | 16                | 33      |                 |                  | 61     | 61              | 494       |
| WINNEBA         | AKOSUA VILLAGE       |                 | 10             |      |                 |                   |         |                 |                  | 10     | 5               | 212       |
| WINNEBA         | WARABEBA             |                 | 5              |      |                 |                   |         |                 |                  | 5      | 5               | 198       |
|                 | TOTAL                | 92              | 15             | 40   | 0               | 41                | 79      | 0               | 0                | 267    | 222             | 2941      |
| TARIE116 FKIN   | IFT DISTRICT - CENTI | AL RECIO        | N              |      |                 |                   |         |                 |                  |        |                 |           |
| FISHING VILLAGE | LANDINGBEACH         | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| OTUAM           | SASANO/NTSE          |                 |                |      |                 |                   |         |                 |                  | 0      |                 |           |
| OTUAM           | ASESEM               | 11              |                |      |                 | 22                | 13      |                 |                  | 46     | 42              | 378       |
| OTUAM           | OBOM/ETUEI           |                 | 16             |      |                 | 52                | 7       |                 |                  | 75     | 69              | 600       |
| KOTANKORE       | KOTANKORE            |                 | 10             |      |                 |                   |         |                 |                  | 10     | 1               | 134       |
| SRAFA           | SRAFA MPOANO         |                 | 2              |      |                 |                   |         |                 |                  | 2      | 0               | 50        |
| SRAFA           | ABO ANO              |                 | 2              |      |                 |                   |         |                 |                  | 2      | 2               | 80        |
|                 | TOTAL                | 11              | 30             | 0    | 0               | 74                | 20      | 0               | 0                | 135    | 114             | 1242      |

| TABLE 1.17 MFAN | TSEMAN DISTRICT – ( | CENTRAL I | REGION |      |         |          |         |          |         |        |        |           |
|-----------------|---------------------|-----------|--------|------|---------|----------|---------|----------|---------|--------|--------|-----------|
|                 |                     | PURSING   | BEACH  |      | LOBSTER | OTHER    |         | DRIFTING | ONE MAN |        | TOTAL  |           |
| FISHING VILLAGE | LANDING BEACH       | NETS      | SEINE  | LINE | NETS    | SET NETS | ALI NET | NET      | CANOE   | CANOES | MOTORS | FISHERMEN |
| IMMUNA          | AMANSAFO            |           | 4      |      |         |          |         |          |         | 4      | 4      | 90        |
| AKRA            | AKRA MPOANO         |           | 5      |      |         | 10       |         |          |         | 15     | 4      | 233       |
| EKUMPOANO       | EKUMPOANO           |           | 5      |      |         | 7        |         |          |         | 12     | 11     | 201       |
| NARKWA          | NARKWA MPOANO       | 32        | 2      |      |         | 3        |         |          |         | 37     | 37     | 838       |
| ASAAFA          | EKUMFI ASAAFA       |           | 9      |      | 3       | 33       |         |          |         | 45     | 5      | 701       |
| HINYI           | HINIYI              | 11        |        |      |         |          |         |          |         | 11     | 11     | 330       |
| KUNTU           | PEBI                | 7         |        |      |         |          |         |          |         | 7      | 7      | 110       |
| ANKAFUL         | ANKAFUL             | 70        |        |      |         | 4        |         |          |         | 74     | 74     | 1840      |
| NANKESEDO       | NANKESEDO           | 15        | 4      |      |         | 1        |         |          |         | 20     | 20     | 284       |
| SALTPOND        | SALTPOND            |           | 7      |      |         |          |         |          |         | 7      | 7      | 81        |
| KROMANTSE 1     | KROMANTSE 1         | 45        |        |      |         | 6        |         |          |         | 51     | 47     | 1110      |
| KROMANTSE 2     | KROMANTSE 2         | 8         | 2      |      |         | 1        |         |          |         | 11     | 10     | 178       |
| ABANDZE         | ABANDZE             | 23        |        | 2    |         | 69       |         |          |         | 94     | 94     | 736       |
| EGYA            | EGYA NO. 1 BEACH    |           |        |      | 29      | 6        | 2       |          |         | 37     | 31     | 131       |
| EGYA            | EGYA NO. 2 BEACH    |           |        |      | 20      | 1        |         |          |         | 21     | 21     | 63        |
| EGYA            | EGYA NO. 3 BEACH    |           |        |      | 4       | 6        |         |          |         | 10     | 2      | 25        |
| ANOMABO         | KROM MPOANO         | 3         |        |      |         | 20       | 3       |          |         | 26     | 20     | 17        |
| ANOMABO         | ATSIWA              | 4         |        | 3    | 4       | 64       | 13      |          |         | 88     | 76     | 387       |
| ANOMABO         | AFARI KUMAWU        | 8         |        | 6    |         | 74       | 19      |          |         | 107    | 103    | 482       |
| ANOMABO         | AHWEANO             | 25        |        |      |         | 14       | 12      |          |         | 51     | 51     | 691       |
| ANOMABO         | BAKA ANO            | 14        | 10     |      |         | 5        | 1       |          |         | 30     | 30     | 409       |
| BIRIWA          | ABAKA EKYIR         | 30        |        |      |         | 79       |         |          |         | 109    | 80     | 980       |
| BIRIWA          | SIMA BREMU          | 4         |        |      | 2       | 26       |         |          |         | 32     | 14     | 233       |
| BIRIWA          | OBER ENYIM          | 17        |        |      | 18      | 55       |         |          |         | 90     | 55     | 773       |
|                 | TOTAL               | 316       | 48     | 11   | 80      | 484      | 50      | 0        | 0       | 989    | 814    | 10923     |

| TABLE1.18 ABUF    | RA-ASEBU-KWAMANK         | ÆSE DISTR       | LICT – CE      | NTRAL | REGION          | -                 |         |                 |                  |          |                 |           |
|-------------------|--------------------------|-----------------|----------------|-------|-----------------|-------------------|---------|-----------------|------------------|----------|-----------------|-----------|
| FISHING VILLA GE  | LANDING BEACH            | PURSING<br>NETS | BEACH<br>SEINE | LINE  | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES   | TOTAL<br>MOTORS | FISHERMEN |
| MOREE             | ASEKYEREBEDZI            |                 | 10             |       |                 |                   |         |                 |                  | 10       | 0               | 61        |
| MOREE             | APESA MPOANO             |                 |                |       |                 |                   | 23      |                 |                  | 23       | 23              | 300       |
| MOREE             | ENFA ANO                 |                 |                |       |                 | 50                | 77      |                 |                  | 127      | 127             | 1578      |
| MOREE             | BENTSIN                  | 6               |                |       |                 | 13                | 11      |                 |                  | 30       | 25              | 325       |
| MOREE             | NKUM ABROFO              | 9               |                |       |                 | 46                | 14      |                 |                  | 69       | 64              | 505       |
| MOREE             | COTONOU                  |                 |                |       |                 | 9                 | 7       |                 |                  | 16       | 16              | 212       |
| MOREE             | ETUEI                    |                 |                |       |                 | 25                | 57      |                 |                  | 82       | 82              | 1062      |
| MOREE             | ABOKUM ANO               |                 |                |       |                 | 15                | 8       |                 |                  | 23       | 23              | 254       |
|                   |                          |                 |                |       |                 |                   |         |                 |                  |          |                 |           |
|                   | TOTAL                    | 15              | 10             | 0     | 0               | 158               | 197     | 0               | 0                | 380      | 360             | 4297      |
|                   |                          |                 |                |       |                 |                   |         |                 |                  |          |                 |           |
| TABLE1.19 CAPE    | COAST DISTRICT – C       | ENTRAL R        | EGION          | -     | •               | •                 | -       | -               | -                | -        | -               | -         |
|                   |                          | PURSING         | BEACH          |       | LOBSTER         | OTHER             |         | DRIFTING        | ONE MAN          | 21 11050 | TOTAL           |           |
| FISHING VILLAGE   | LANDING BEACH            | NETS            | SEINE          | LINE  | NETS            | SET NETS          | ALI NEI | NEľ             | CANOE            | CANOES   | MOTORS          | FISHERMEN |
| EKON              | MPOANOKESEIVI/DO<br>EMIS |                 |                |       |                 | 39                |         |                 |                  | 39       | 34              | 156       |
| EKON              | ANAFO/AKUBUREM           |                 |                |       |                 | 10                |         |                 |                  | 10       | 7               | 40        |
| EKON              | AHWIADO                  | 12              | 19             |       |                 | 12                |         |                 |                  | 43       | 41              | 811       |
| CAPECOAST         | BROFOYEDUR               | 2               |                |       |                 |                   |         |                 |                  | 2        | 2               | 12        |
| CAPECOAST         | AMANFUL                  |                 | 2              |       |                 |                   |         |                 |                  | 2        | 2               | 60        |
| <b>CAPE COAST</b> | ASEKAM                   | 5               |                |       |                 | 13                |         |                 |                  | 18       | 18              | 72        |
| CAPE COAST        | ABROFO MPOANO            | 2               |                | 12    |                 | 58                |         |                 |                  | 72       | 72              | 280       |
| CAPE COAST        | VICTORIA PARK            |                 | 6              |       |                 |                   |         |                 |                  | 6        | 6               | 180       |
| CAPE COAST        | BAKA ANO                 |                 | 2              |       |                 |                   |         |                 |                  | 2        | 2               | 60        |
| CAPE COAST        | OLA                      |                 | 5              |       |                 |                   |         |                 |                  | 5        | 5               | 150       |
| CAPE COAST        | DUAKOR                   |                 | 8              |       |                 |                   |         |                 |                  | 8        | 6               | 240       |
| CAPE COAST        | AHEBOBOE                 |                 | 4              |       |                 |                   |         |                 |                  | 4        | 0               | 48        |
| CAPE COAST        | ABAKAM                   |                 | 11             |       |                 | 1                 |         |                 |                  | 12       | 0               | 224       |
|                   |                          |                 |                |       |                 |                   |         |                 |                  |          |                 |           |
|                   | TOTAL                    | 21              | 57             | 12    | 0               | 133               | 0       | 0               | 0                | 223      | 195             | 2333      |

| TABLE 1.20 KOME | NDA EDINA EGUAFO A | ABREW DIA       | STRICT         | - CENT | FRAL REGIO      | ON                | -       |                 |                  |        | -               |           |
|-----------------|--------------------|-----------------|----------------|--------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
|                 |                    | PURSING         | BEACH          |        | LOBSTER         | OTHER             |         | DRIFTING        | ONE MAN          |        | TOTAL           |           |
| FISHING VILLAGE | LANDING BEACH      | NETS            | SEINE          | LINE   | NETS            | SET NETS          | ALI NET | NET             | CANOE            | CANOES | MOTORS          | FISHERMEN |
| ELMINA          | ESSUAKYIR          | 70              |                | 16     |                 | 31                |         |                 |                  | 117    | 117             | 1834      |
| ELMINA          | ASAMANPOWMU        | 18              |                | 3      | 23              | 40                |         |                 |                  | 84     | 64              | 693       |
| ELMINA          | ELMINA MAIN        | 112             |                | 30     |                 | 68                |         |                 |                  | 210    | 210             | 3363      |
| BANTAMA         | DETSEDO            | 19              |                | 4      |                 | 7                 |         |                 |                  | 30     | 25              | 393       |
| AKYINIM         | AKYINIM            |                 | 14             |        |                 |                   |         |                 |                  | 14     | 0               | 392       |
| ANKWANDA        | ANKWANDA MPON      |                 |                |        | 10              | 14                | 3       |                 | 10               | 37     | 8               | 150       |
| BREMU A KYINMU  | DOGOFOMU           |                 |                |        |                 | 6                 |         |                 |                  | 6      | 2               | 30        |
| BREMU A KYINMU  | MOWUREFOM          |                 |                |        |                 | 1                 | 1       |                 | 1                | 3      | 1               | 17        |
| BREMU AKYINMU   | BROFO MPOANO       |                 |                | 3      |                 | 12                | 3       |                 |                  | 18     | 3               | 90        |
| AMPENYIN        | ANAFO              | 1               |                |        |                 | 20                | 1       |                 |                  | 22     | 8               | 134       |
| AMPENYIN        | ABAKAM             |                 |                |        |                 | 18                |         |                 |                  | 18     | 4               | 73        |
| AMPENYIN        | BENTSIR            |                 |                |        |                 | 10                |         |                 | 1                | 11     | 3               | 41        |
| AMPENYIN        | BEREKESEMU         | 1               |                |        |                 | 13                | 13      |                 | 5                | 32     | 14              | 207       |
| DUT. KOMENDA    | AWONA BEACH        |                 | 3              |        |                 |                   |         |                 |                  | 3      | 0               | 72        |
| DUT. KOMENDA    | KANKAM<br>ANHWEADO | 2               |                |        | 13              | 26                |         |                 | 4                | 45     | 12              | 225       |
| DUT. KOMENDA    | EWUGYAN            |                 |                |        |                 | 3                 |         |                 |                  | 3      | 0               | 12        |
| BRI. KOMENDA    | BAKA ANO           | 57              |                |        | 16              | 26                | 2       |                 |                  | 101    | 91              | 1688      |
| BRI. KOMENDA    | SESAM              | 9               |                |        |                 |                   |         |                 |                  | 9      | 9               | 234       |
| ABROBEANO       | ABROBEANO          |                 |                |        | 9               | 13                | 2       |                 |                  | 24     | 2               | 103       |
| KAFODZIDZI      | KAFODZIDZI         |                 |                |        | 22              | 30                |         |                 | 2                | 54     | 13              | 218       |
| KAFODZIDZI      | ABAN ENYIM         | 3               |                |        |                 |                   | 6       |                 |                  | 9      | 9               | 135       |
|                 | TOTAL              | 289             | 17             | 56     | 93              | 338               | 31      | 0               | 23               | 7      | 595             | 10104     |
|                 |                    |                 |                |        |                 |                   |         |                 |                  |        |                 |           |
| TABLE 1.21 SHAM | A DISTRICT WESTER  | N REGION        |                | 1      | 1               | 1                 | 1       | 1               |                  |        |                 | T         |
|                 | LANDING BEACH      | PURSING<br>NETS | BEACH<br>SEINE | LINE   | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| SHAMA           | AWUNAKROM          |                 | 33             |        |                 |                   |         |                 |                  | 33     | 0               | 1188      |
| SHAMA           | APO                | 2               |                | 6      | 68              |                   | 39      | 107             |                  | 222    | 207             | 1287      |
| SHAMA           | BENTSIR            |                 |                |        | 29              |                   | 36      | 187             |                  | 252    | 252             | 1720      |
| SHAMA           | AMENA-ANO          | 5               |                |        | 12              |                   | 5       | 6               |                  | 28     | 28              | 203       |
| ABUESI          | ABUESI             | 47              |                |        |                 |                   | 13      |                 |                  | 60     | 60              | 950       |
| ABUESI          | SAMAN-ADZE         | 15              |                |        |                 |                   | 10      |                 |                  | 25     | 25              | 350       |
| ABUESI          | COMPOUND           | 32              |                |        | 3               |                   | 10      |                 |                  | 45     | 45              | 665       |
| ABOADZE         | BRONYI-BOMA        | 72              |                |        | 184             |                   | 119     |                 |                  | 375    | 367             | 3232      |
| ABOADZE         | EKROABEM           | 16              |                |        | 140             |                   | 84      |                 |                  | 240    | 213             | 1380      |
| ABUESI          | KESEWOKAN          | 27              |                |        | 7               |                   | 44      |                 |                  | 78     | 78              | 903       |
|                 |                    |                 |                |        |                 |                   |         |                 |                  |        |                 |           |
|                 | TOTAL              | 216             | 33             | 6      | 443             |                   | 360     | 300             |                  | 1358   | 1275            | 11878     |

| TABLE1.22 SEKC  | ONDI TAKORADI MET | ROPOLITA        | N ASSEM        | BLY-V | VESTERN I       | REGION            |         |                 |                  |        |                 |           |
|-----------------|-------------------|-----------------|----------------|-------|-----------------|-------------------|---------|-----------------|------------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH     | PURSING<br>NETS | BEACH<br>SEINE | LINE  | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| NGYIRESIA       | NGYIRESIA         | 21              |                |       | 91              | 45                | 161     | 4               |                  | 130    | 118             | 752       |
| SEKONDI         | SEKONDI           | 80              |                | 69    |                 | 6                 | 155     |                 |                  | 155    | 155             | 1737      |
|                 | EGYINAMBOA        |                 |                |       |                 |                   |         |                 |                  |        |                 |           |
| ESSAMAN         | BAKAM             |                 | 3              |       |                 |                   | 3       |                 |                  | 3      | 0               | 20        |
| NKONTOMPO       | NKONTOMPO         |                 |                |       | 28              | 3                 | 35      |                 | 4                | 35     | 19              | 84        |
| POASE           | POASE             |                 |                | 1     | 24              |                   | 25      |                 |                  | 25     | 11              | 62        |
| NEW TAKORADI    | NEW TAKORADI      |                 |                |       | 49              |                   | 49      |                 |                  | 49     | 33              | 131       |
|                 | TOTAL             | 101             | 3              | 70    | 192             | 54                | 428     | 4               | 4                | 397    | 336             | 2786      |
|                 |                   |                 |                |       |                 |                   |         |                 |                  |        |                 |           |
| TABLE 1.23 AHAN | TA WEST           |                 |                |       |                 | •                 |         |                 |                  |        |                 |           |
| FISHING VILLAGE | LANDING BEACH     | PURSING<br>NETS | BEACH<br>SEINE | LINE  | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| NEW AMANFUL     | AMANFU-KUMAN      |                 | 1              |       | 15              | 25                | 15      |                 |                  | 62     | 62              | 388       |
| FUNKO           | BENTIN BEACH      | 2               |                |       |                 | 150               | 25      |                 |                  | 177    | 177             | 782       |
| ADJOA           | UPPER BEACH       |                 |                | 2     | 20              |                   | 20      | 3               | 1                | 46     | 44              | 268       |
| ADJOA           | LOWER BEACH       |                 | 4              |       |                 |                   |         |                 |                  | 4      | 0               | 45        |
| ENYIMA EHU      | ENYIMA EHU        |                 |                |       | 2               | 14                | 1       |                 |                  | 17     | 3               | 74        |
| PUNPUNI         | PUNPUNI BEACH     |                 |                |       | 5               | 35                |         |                 |                  | 40     | 6               | 125       |
| AMPATANO        | AMPATANO          |                 | 1              |       | 100             | 100               | 4       |                 | 4                | 209    | 23              | 830       |
| ASEMKOW         | ASEMKOW           | 1               | 1              |       | 30              | 30                | 5       |                 |                  | 67     | 26              | 317       |
| BUTRE           | AWUNA BEACH       |                 | 4              |       |                 |                   |         |                 |                  | 4      | 0               | 144       |
| BUTRE           | BUTRE ETROM       | 9               | 1              |       | 32              | 32                | 42      | 2               | 2                | 120    | 75              | 749       |
| BUSUA           | BUSUA BEACH       |                 | 2              |       | 20              | 20                | 6       | 14              | 1                | 63     | 63              | 509       |
| UPPER DIXCOVE   | UPPER DIXCOVE     |                 |                | 2     | 10              |                   |         | 100             |                  | 112    | 106             | 838       |
| LOWER DIXCOVE   | LOWER DIXCOVE     | 4               |                | 2     | 6               |                   | 4       | 320             | 2                | 338    | 336             | 2662      |
| DIXCOVE         | TUROM             |                 |                | 4     | 3               |                   |         | 35              | 4                | 46     | 42              | 514       |
| ACHOWA          | ACHOWA            |                 | 1              |       | 10              |                   | 1       |                 | 15               | 27     | 2               | 80        |
| AKWADAE         | AKWADAE           | 21              | 2              |       | 15              | 25                | 22      |                 | 100              | 185    | 83              | 873       |
| KETAKOR         | KETAKOR           |                 |                |       | 10              | 2                 |         |                 | 15               | 27     | 5               | 63        |
| CAPE-3-POINTS   | ATENKYEN          | 2               |                | 18    | 8               | 8                 |         | 1               | 50               | 87     | 30              | 164       |
| AKITAKYI        | AKITAYI MPOANO    | 25              | 6              |       | 8               | 15                | 15      |                 | 20               | 89     | 63              | 947       |
| PRINCESS TOWN   | PRINCESS TOWN     |                 | 4              |       | 8               | 3                 | 1       |                 | 12               | 28     | 5               | 101       |
| MIEMIA          | MIEMIA            | 23              |                |       | 25              |                   |         |                 | 10               | 58     | 38              | 524       |
| AGYAMBRA        | ELAZULEYNU        |                 |                |       |                 |                   |         |                 | 20               | 20     | 0               | 20        |
|                 |                   |                 |                |       |                 |                   |         |                 |                  |        |                 |           |
|                 | TOTAL             | 87              | 27             | 28    | 327             | 459               | 161     | 475             | 256              | 1826   | 1189            | 11017     |

| TABLE 1.24 NZEM | A EAST DISTRICT – W | 'ESTERN RI      | EGION          |      |                 |                   |         |                 |                 |        |                 |           |
|-----------------|---------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|-----------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDING BEACH       | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONEMAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| EGHAN           | EGHAN               |                 |                | 8    |                 |                   |         |                 | 50              | 58     | 8               | 58        |
| DOMULI          | ADJEI-SUAZO         |                 |                |      |                 |                   |         |                 | 10              | 10     | 0               | 10        |
| DOMULI          | AKONU               |                 |                |      |                 |                   |         |                 | 10              | 10     | 0               | 10        |
| DOMULI          | DOMULI/TAHELAH      |                 | 1              |      |                 |                   |         |                 |                 | 1      | 0               | 43        |
| LOWER AXIM      | NKAKEMU             | 34              |                |      |                 | 25                | 1       | 2               |                 | 62     | 62              | 844       |
| LOWER AXIM      | SIKA SANTEWASE      | 5               |                |      |                 | 7                 |         |                 |                 | 12     | 12              | 138       |
| LOWER AXIM      | SIKA ABWIADO        | 21              |                |      |                 | 7                 |         |                 |                 | 28     | 28              | 488       |
| LOWER AXIM      | ANTOAPEWUSIKA       | 6               |                |      |                 |                   | 2       | 1               | 28              | 37     | 9               | 259       |
| LOWER AXIM      | FANTI-LINE          | 9               |                | 1    |                 | 1                 | 26      | 25              |                 | 62     | 62              | 559       |
| LOWER AXIM      | BOAT-ASE            | 10              |                |      |                 |                   | 2       | 12              | 16              | 40     | 24              | 334       |
| LOWER AXIM      | SUKPOM              |                 |                |      |                 |                   |         |                 | 43              | 43     | 0               | 43        |
| UPPER A XIM     | SOLO                | 2               |                | 4    |                 |                   |         |                 | 23              | 29     | 6               | 71        |
| UPPER A XIM     | AMANFOKUMANU        | 2               |                |      |                 | 29                |         |                 |                 | 31     | 31              | 160       |
| UPPER A XIM     | BRAWERE             |                 |                |      |                 | 20                |         |                 |                 | 20     | 20              | 400       |
| UPPER A XIM     | ANTO BREWERE        |                 |                | 38   |                 |                   |         |                 |                 | 38     | 38              | 560       |
| UPPER A XIM     | AKYINIM             |                 |                | 8    |                 |                   |         |                 |                 | 8      | 8               | 160       |
| UPPER AXIM      | AWUNA-KROM          |                 | 5              |      |                 |                   |         |                 |                 | 5      | 0               | 125       |
|                 |                     |                 |                |      |                 |                   |         |                 |                 |        |                 |           |
|                 | TOTAL               | 89              | 6              | 59   | 0               | 89                | 31      | 40              | 180             | 494    | 308             | 4262      |

| TABLE1.25 ELLE  | MBELE DISTRICT – W | 'ESTERN RI      | EGION          |      | ,               |                   |         |                 |                 |        |                 |           |
|-----------------|--------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|-----------------|--------|-----------------|-----------|
| FISHING VILLAGE | LANDINGBEACH       | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONEMAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| ANKOBRA         | ANKOBRA            |                 | 7              |      |                 |                   |         |                 |                 | 7      | 0               | 280       |
| ASANTA          | ASANTA             |                 | 9              |      |                 |                   |         |                 |                 | 9      | 3               | 300       |
| KIKAM           | KIKAM              | 6               | 2              |      |                 |                   | 4       |                 |                 | 12     | 11              | 160       |
| ESSIAMA         | ESSIAMA            |                 | 11             |      | 6               |                   |         |                 |                 | 17     | 6               | 730       |
| AZULELUNUANU    | AZULELUNUANU       |                 | 4              |      | 20              |                   |         |                 | 12              | 36     | 20              | 352       |
| AMPAIN          | AMPAIN             |                 | 3              |      |                 |                   |         |                 |                 | 3      | 0               | 136       |
| BAKANTA         | BAKANTA            |                 | 5              |      |                 |                   |         |                 |                 | 5      | 0               | 240       |
| SANZULE         | SANZULE            |                 | 4              |      |                 |                   |         |                 |                 | 4      | 0               | 160       |
| KRISTIAN        | KRISTIAN           |                 | 5              |      |                 |                   |         |                 |                 | 5      | 3               | 200       |
| EIKWE           | EIKWE              |                 | 3              |      |                 |                   |         |                 |                 | 3      | 0               | 120       |
| NGALEKPOLE      | NGALEKPOLE         |                 | 2              |      |                 |                   |         |                 |                 | 2      | 0               | 138       |
| NGALEKYI        | NGALEKYI           |                 | 5              |      |                 |                   |         |                 |                 | 5      | 0               | 200       |
| BAKU            | BAKU               |                 | 9              |      | 7               |                   |         |                 |                 | 16     | 7               | 672       |
| ANOKYI          | ANOKYI             |                 | 3              |      |                 |                   |         |                 |                 | 3      | 0               | 120       |
| ATUABO          | ATUABO             |                 | 4              |      |                 |                   | 4       |                 |                 | 8      | 4               | 360       |
|                 |                    |                 |                |      |                 |                   |         |                 |                 |        |                 |           |
|                 | TOTAL              | 6               | 76             | 0    | 33              | 0                 | 8       | 0               | 12              | 135    | 54              | 4168      |

| TABLE 1.26 JOMO      | RO DISTRICT – WEST   | TERN REGIO      | )N             |      |                 |                   |         |                 |                 |        |                 |           |
|----------------------|----------------------|-----------------|----------------|------|-----------------|-------------------|---------|-----------------|-----------------|--------|-----------------|-----------|
| FISHING VILLAGE      | LANDING BEACH        | PURSING<br>NETS | BEACH<br>SEINE | LINE | LOBSTER<br>NETS | OTHER<br>SET NETS | ALI NET | DRIFTING<br>NET | ONEMAN<br>CANOE | CANOES | TOTAL<br>MOTORS | FISHERMEN |
| AKABAKU              | AKABAKU              |                 | 2              |      |                 |                   |         |                 |                 | 2      | 0               | 60        |
| BENYIN               | BENYIN               |                 | 3              |      | 4               |                   |         |                 |                 | 7      | 4               | 140       |
| ELLOYIN              | ELLOYIN              | 1               | 6              |      |                 |                   |         |                 |                 | 7      | 1               | 200       |
| KANGEN               | KANGEN               | 3               | 9              |      |                 |                   |         |                 |                 | 12     | 3               | 183       |
| TWENE                | TWENE                |                 | 2              |      |                 |                   |         |                 |                 | 2      | 0               | 152       |
| AGYEZA               | AGYEZA               | 2               | 3              |      |                 | 5                 | 3       |                 |                 | 13     | 7               | 260       |
| EZINLEBO             | EZINLEBO             |                 | 3              |      |                 | 6                 |         |                 |                 | 9      | 0               | 120       |
| BONYERE              | BONYERE              |                 | 7              |      |                 | 2                 |         |                 |                 | 9      | 0               | 73        |
| EGBAZO               | EGBAZO               |                 | 4              |      |                 |                   |         |                 |                 | 4      | 0               | 120       |
| NEW AHOBRE           | AHOBRE KAKRABA       | 20              | 1              |      |                 |                   | 2       |                 |                 | 23     | 23              | 551       |
| OLD AHOBRE           | AHOBRE KESE          | 1               | 2              |      | 1               | 5                 | 1       |                 |                 | 10     | 8               | 120       |
| OLD EDOBO            | OLD EDOBO            |                 | 2              |      |                 |                   |         |                 |                 | 2      | 0               | 60        |
| NEW EDOBO            | NEW EDOBO            |                 | 2              |      |                 |                   |         |                 |                 | 2      | 0               | 60        |
| ANTWEBANSO           | ANTWEBANSO           |                 | 3              |      |                 |                   |         |                 |                 | 3      | 1               | 105       |
| EKPU                 | EKPU                 | 7               | 1              |      | 4               | 14                | 8       |                 |                 | 34     | 34              | 397       |
| HALF ASSINI          | FANTI-LINE           | 36              | 1              |      |                 |                   |         |                 |                 | 37     | 37              | 935       |
| HALF ASSINI          | EWE-LINE             |                 | 4              |      |                 |                   |         |                 |                 | 4      | 4               | 120       |
| METIKA               | METIKA               | 4               | 3              |      |                 |                   |         |                 |                 | 7      | 7               | 220       |
| ANOMATUAPE-<br>EWE   | ANOMATUAPE-EWE       |                 | 6              |      |                 |                   |         |                 |                 | 6      | 6               | 210       |
| ANOMATUAPE-<br>FANTI | ANOMATUAPE-<br>FANTI |                 |                |      |                 | 5                 |         |                 |                 | 5      | 5               | 35        |
| BUAKWA               | BUAKWA               |                 | 8              |      |                 |                   |         |                 |                 | 8      | 8               | 240       |
| MPAASEM              | MPAASEM              |                 | 6              |      |                 | 2                 |         |                 |                 | 8      | 7               | 190       |
| NZIMITIAN            | NZIMITIAN            |                 | 3              |      |                 | 1                 |         |                 |                 | 4      | 4               | 140       |
| MANGYEA              | MANGYEA              |                 | 3              |      |                 | 7                 | 13      |                 |                 | 23     | 23              | 360       |
| EFFASU               | EFFASU               | 4               | 2              |      |                 | 10                | 9       |                 |                 | 25     | 25              | 368       |
| NEW TOWN             | NEW TOWN             |                 | 5              |      |                 | 20                | 60      |                 |                 | 85     | 85              | 1175      |
|                      |                      |                 |                |      |                 |                   |         |                 |                 |        |                 |           |
|                      | TOTAL                | 78              | 91             | 0    | 9               | 77                | 96      | 0               | 0               | 351    | 292             | 6594      |

| Table 2.   CANOE FRAME | SURVEY 201         | <b>3 REGIONA</b> | L/DISTRI        | CT SUMN          | IARIES           |                 | •                  |             |                 |                  |        |                    |           |
|------------------------|--------------------|------------------|-----------------|------------------|------------------|-----------------|--------------------|-------------|-----------------|------------------|--------|--------------------|-----------|
| DISTRICT               | FISHING<br>VILLAGE | LANDING<br>BEACH | PURSING<br>NEIS | BEACH<br>SEINE   | LINE             | LOBSTER<br>NEIS | O THER<br>SET NEIS | ALI NET     | DRIFTING<br>NET | ONE MAN<br>CANOE | CANOES | TO TAL<br>MO TO RS | FISHERMEN |
| KETU                   | 11                 | 17               | 99              | 131              | 18               | 0               | 62                 | 1           | 0               | 0                | 311    | 186                | 6141      |
| KETA                   | 15                 | 32               | 24              | 292              | 12               | 0               | 212                | 17          | 13              | 6                | 576    | 208                | 12009     |
| SUB-TOTAL V/R          | 26                 | 49               | 123             | 423              | 30               | 0               | 274                | 18          | 13              | 6                | 887    | 394                | 18150     |
| DANGBEEAST             | 12                 | 15               | 146             | 50               | 0                | 0               | 20                 | 19          | 4               | 0                | 239    | 201                | 5944      |
| ADA WEST               | 6                  | 7                | 272             | 69               | 1                | 9               | 14                 | 0           | 2               | 0                | 367    | 367                | 10204     |
| DANGBE WEST            | 11                 | 12               | 118             | 12               | 156              | 7               | 71                 | 1           | 14              | 0                | 379    | 286                | 4689      |
| KPONE-KATAMANSO        | 1                  | 3                | 11              | 0                | 189              | 0               | 22                 | 17          | 26              | 0                | 265    | 164                | 2296      |
| TEMA                   | 2                  | 3                | 308             | 5                | 68               | 4               | 52                 | 18          | 66              | 0                | 521    | 447                | 7913      |
| LEDZOKUKU-KROWOR       | 2                  | 2                | 75              | 3                | 8                | 0               | 31                 | 101         | 0               | 0                | 218    | 191                | 1843      |
| LA DADEKOTOPON         | 1                  | 2                | 2               | 5                | 2                | 0               | 16                 | 0           | 0               | 0                | 25     | 12                 | 112       |
| AMA                    | 4                  | 9                | 424             | 28               | 129              | 7               | 59                 | 83          | 0               | 0                | 730    | 671                | 5118      |
| GA SOUTH               | 5                  | 6                | 54              | 22               | 47               | 15              | 45                 | 5           | 0               | 0                | 188    | 110                | 1618      |
| SUB-TOTAL G/R          | 44                 | 59               | 1410            | <mark>194</mark> | 600              | 42              | 330                | 244         | 112             | 0                | 2932   | <mark>2449</mark>  | 39737     |
| AWUTU-SENYA            | 1                  | 3                | 48              | 9                | 59               | 9               | 21                 | 2           | 0               | 0                | 148    | 102                | 1731      |
| EFFUTUMUNICIPAL        | 1                  | 5                | 92              | 15               | 40               | 0               | 41                 | 79          | 0               | 0                | 267    | 222                | 2941      |
| GOMOA EAST             | 4                  | 8                | 117             | 13               | 6                | 8               | 108                | 95          | 2               | 0                | 349    | 270                | 3518      |
| GOMOA WEST             | 4                  | 10               | 66              | 22               | 165              |                 | 221                | 53          | 30              | 0                | 557    | 344                | 3474      |
| EKUMFI                 | 3                  | 6                | 11              | 30               | 0                | 0               | 74                 | 20          | 0               | 0                | 135    | 114                | 1242      |
| MFANTSEMAN             | 16                 | 24               | 316             | 48               | 11               | 80              | 484                | 50          | 0               | 0                | 989    | 814                | 10923     |
| CAPECOAST              | 2                  | 13               | 21              | 57               | 12               | 0               | 133                | 0           | 0               | 0                | 223    | 195                | 2333      |
| A-A-KWAMANKESE         | 1                  | 8                | 15              | 10               | 0                | 0               | 158                | 197         | 0               | 0                | 380    | 360                | 4297      |
| KEFA                   | 10                 | 21               | 289             | 17               | 56               | 93              | 338                | 31          | 0               | 23               | 847    | 595                | 10104     |
| SUB5-TOTAL C/R         | 42                 | 98               | 975             | 221              | 349              | 190             | 1578               | 527         | 32              | 23               | 3895   | <mark>3016</mark>  | 40563     |
| SHAMA                  | 4                  | 10               | 216             | 33               | 6                | 443             | 0                  | 360         | 300             | 0                | 1358   | 1275               | 11878     |
| SEKONDI-TAKORADI       | 6                  | 6                | 101             | 3                | 70               | 192             | 54                 | 428         | 4               | 4                | 856    | 336                | 2786      |
| AHANTA WEST            | 20                 | 22               | 87              | 27               | 28               | 327             | 459                | 161         | 475             | 256              | 1820   | 1189               | 11017     |
| NZEMA EAST             | 4                  | 17               | 89              | 6                | 59               | 0               | 89                 | 31          | 40              | 180              | 494    | 308                | 4262      |
| ELLEMBELLE             | 15                 | 15               | 6               | 76               | 0                | 33              | 0                  | 8           | 0               | 12               | 135    | 54                 | 4168      |
| JOMORO                 | 25                 | 26               | 78              | 91               | 0                | 9               | 77                 | 96          | 0               | 0                | 351    | 292                | 6594      |
| SUB-TOTAL W/R          | 74                 | 96               | 577             | 236              | <mark>163</mark> | 1004            | 679                | <u>1084</u> | 819             | 452              | 5014   | <mark>3454</mark>  | 40705     |
| GRAND TOTAL            | 186                | 302              | <u>3085</u>     | 1074             | <u>1142</u>      | 1236            | 2861               | 1873        | 976             | 481              | 12728  | <mark>9313</mark>  | 139155    |

**Table 3 Regional Summaries** 

| Table 3                    | REGIONAL | L SUMMARII | ES      |         |          |
|----------------------------|----------|------------|---------|---------|----------|
| NUMBERS OF                 | VOLTA    | G/ACCRA    | CENTRAL | WESTERN | NATIONAL |
| Fishing Villages           | 26       | 44         | 42      | 74      | 186      |
| Landing Beaches            | 49       | 59         | 98      | 96      | 302      |
| Canoes                     | 887      | 2932       | 3895    | 5014    | 12728    |
| Outboard Motors            | 394      | 2449       | 3016    | 3454    | 9313     |
| Levels of Motorization (%) | 44       | 84         | 77      | 69      | 73       |
| Fishermen                  | 18150    | 39737      | 40563   | 40705   | 139155   |

| Table 4MEAN RAN     | NGE OF PRICES/COST ( | OF CANOES, FISHING G | EARS AND OUTBOARD M | OTORS (GHS)     |
|---------------------|----------------------|----------------------|---------------------|-----------------|
| GEARS               | VOLTA                | GT. ACCRA            | CENTRAL             | WESTERN         |
| Ali                 | 7,000-10,000         | 7,500 - 15,000       | 5,000 - 8,000       | 6,000 - 12,000  |
| Poli/Watsa          | 15,000 - 30,000      | 15,000 - 30,000      | 15,000 - 30,000     | 15,000 - 30,000 |
| Beach Seine (Big)   | 25,000 - 80,000      | 15,000 - 20,000      | 8,000 - 30,000      | 7,000 - 30,000  |
| Beach Seine (Small) | 10,000-50,000        | 4,000 - 80,000       | 6,000 - 20,000      | 5,000 - 15,000  |
| Set Net             | 1,000-4,000          | 1,500 - 3,000        | 800 - 1,600         | 1,000 - 3,000   |
| Line                | 750-1,500            | 750 - 1,500          | 750 - 1,500         | 1000 - 1,500    |
| Drift Gill Net      | 15,000-30,000        | 20,000 - 30,000      | 15,000 - 20,000     | 15,000 - 18,000 |
| Lobster Net         | 500-2,000            | 500 - 1,600          | 1,000 - 2,500       | 400 - 1,500     |
| CANOES              |                      |                      |                     |                 |
| Ali                 | 15,000-20,000        | 15,000 - 20,000      | 10,000 - 20,000     | 8,000 - 10,000  |
| Poli/Watsa          | 20,000-25,000        | 20,000 - 25,000      | 20,000 - 26,000     | 14,000          |
| One Man Canoe       | 500-800              | 1,000 - 1,500        | 500-800             | 500-700         |
|                     |                      |                      |                     |                 |
| MOTORS              |                      |                      |                     |                 |
| YAMAHA 40hp         | 7,200-8,000          | 7,200 - 8,000        | 8,000 - 8,500       | 7,200 - 8,500   |
| YAMAHA 30hp         | 5,000-6,000          | 5,000 - 6,000        | 5,000 - 6,000       | 5,000 - 6,000   |
| YAMAHA 25hp         | 4,000-5,000          | 4,000 - 5,000        | 4,800 - 5,000       | 4,200 - 4,800   |
| YAMAHA 15hp         | 4,000-5,000          | 4,000 - 4,500        | 3,800 - 4,200       | 3, 500-4,000    |
| YAMAHA 9hp          | 3,500-4,000          | 3,500 - 4,000        | 3,000 - 4,000       | 3,000 - 4,000   |
| YAMAHA 8hp          | 1,300-3,000          | 1,300 - 2,500        | 2,500- 3,000        | 2,500 - 3,000   |

# Table 4 Mean rangeof price/cost of Canoes, Fishing gear and Outboard motors in the Regions

## Table 5 Summary of Results of Canoe Frame Survey conducted between 1972 - 2013

| Table 5   SUMMARY OF | F RESULTS | OF CAN | OE FRAME | E SURVEY: | S CONDUCT | FED BETW | 'EEN 1969 | AND 2013 |        |        |        |        |
|----------------------|-----------|--------|----------|-----------|-----------|----------|-----------|----------|--------|--------|--------|--------|
| Number of            | 1969      | 1973   | 1977     | 1981      | 1986      | 1989     | 1992      | 1995     | 1997   | 2001   | 2004   | 2013   |
| Fishing Villages     | 198       | 191    | 200      | 174       | 188       | 192      | 189       | 189      | 191    | 185    | 195    | 186    |
| Landing Beaches      | 269       | 257    | 238      | 222       | 276       | 264      | 206       | 310      | 308    | 304    | 334    | 302    |
| Outboard Motors      |           |        |          | 3698      | 4250      | 4631     | 4262      | 5076     | 5139   | 5256   | 6405   | 9313   |
| Fishermen            |           |        | 81000    | 84100     | 104700    | 91400    | 96400     | 101700   | 103340 | 123156 | 124219 | 139155 |
| Number of Canoes for |           |        |          |           |           |          |           |          |        |        |        |        |
| Poli/Watsa           | 3215      | 2244   | 3005     | 3359      | 3969      | 3684     | 3458      | 3923     | 3709   | 2439   | 2597   | 3085   |
| Beach Seine          | 1587      | 1081   | 761      | 833       | 797       | 852      | 775       | 790      | 769    | 813    | 903    | 1074   |
| Line                 | 734       | 676    | 1174     | 661       | 1004      | 157      | 1040      | 782      | 920    | 1134   | 933    | 1142   |
| Lobster Set Net      |           |        |          |           |           | 1114     | 547       | 402      | 430    | 549    | 871    | 1236   |
| Set Net              | 3347      | 2973   | 3532     | 1734      | 1852      | 574      | 1955      | 2294     | 2036   | 2324   | 3004   | 2861   |
| Ali                  |           |        |          |           |           | 1874     | 1292      | 1437     | 1394   | 1618   | 1855   | 1873   |
| Poli                 |           |        |          |           |           |          |           |          |        |        |        |        |
| Watsa                |           |        |          |           |           |          |           |          |        |        |        |        |
| Nifa Nifa            |           |        |          |           |           |          | 249       | 333      | 332    | 462    |        |        |
| Drifting Nets        |           |        |          | 351       | 450       | 366      | 880       | 476      | 414    | 312    | 520    | 976    |
| One Man Canoe        |           |        |          |           | 142       | 162      | 580       | 327      | 332    | 330    | 530    | 481    |
| Total Canoes         | 8728      | 8238   | 8472     | 6938      | 8214      | 8052     | 8688      | 8641     | 8610   | 9981   | 11213  | 12728  |
| % Motorized          |           |        |          | 53.3      | 51.7      | 57.5     | 49.1      | 58.7     | 61.2   | 52.6   | 57.1   | 73.17  |

#### COMPARISON OF THE RESULTS OF THE 1997, 2001, 2004 AND 2013 CANOE FRAME SURVEYS Table 6 Numbers of **Volta Region Greater Accra Region Central Region** Western Region Total Fishing Villages Landing Beaches Motors Fishermen Pursing Nets Beach Seines Line Lobster Set Nets Other Set Nets Ali Nifa nifa Other Drifting Nets One Man Canoe Total Canoes

#### Table 6 Regional Summaries 1997, 2001, 2004, 2013

Table 7 Brand and Size of Outboard Motors

# Table 7 BRANDS AND SIZE OF OUTBOARD MOTORS -BY REGION 2013

|         | YAM | IAHA |     |     |     |      |      |      |      |             |             | JOHNSON | SUZUK | SUZUKI           IHP         5HP         8HP         15HP           2         34           2         10         1         73 |     |      | MARINA |     | TOHATSUA |
|---------|-----|------|-----|-----|-----|------|------|------|------|-------------|-------------|---------|-------|--|-----|------|--------|-----|----------|
|         | 4HP | 5HP  | 6HP | 8HP | 9HP | 10HP | 15HP | 20HP | 25HP | <b>30HP</b> | <b>40HP</b> | 25HP    | 4HP   | 5HP  | 8HP | 15HP | 4HP    | 8HP | 9HP      |
| VOLTA   |     |      |     |     |     |      |      |      |      |             |             |         |       |  |     |      |        |     |          |
| REGION  |     | 2    |     | 18  |     |      | 91   | 1    | 46   |             | 151         | 49      |       | 2  |     | 34   |        |     |          |
| GREATER |     |      |     |     |     |      |      |      |      |             |             |         |       |  |     |      |        |     |          |
| ACCRA   | 2   | 3    | 0   | 7   | 146 | 1    | 149  | 3    | 146  | 4           | 1784        | 111     | 2     | 10   | 1   | 73   | 2      | 0   | 5        |
| CENTRAL |     |      |     |     |     |      |      |      |      |             |             |         |       |  |     |      |        |     |          |
| REGION  | 1   | 1    |     |     | 331 | 0    | 326  | 9    | 157  | 29          | 1681        | 277     | 0     | 62   | 42  | 4    | 88     | 0   | 8        |
| WESTERN |     |      |     |     |     |      |      |      |      |             |             |         |       |  |     |      |        |     |          |
| REGION  | 2   | 1    | 1   |     | 385 | 0    | 206  | 0    | 120  | 0           | 2533        | 198     | 0     | 0  | 2   | 0    | 5      | 0   | 1        |
| TOTAL   | 5   | 7    | 1   | 25  | 862 | 1    | 772  | 13   | 469  | 33          | 6149        | 635     | 2     | 74   | 45  | 111  | 95     | 0   | 14       |

### Table 8 Mean Dimensions/Ranges of Canoes along the Coast in Ghana

| Table 8         MEAN DIMENSIONS /RANGES OF | CANOES ALONG THE COAST IN GHANA-2013 | 3           |
|--|--------------------------------------|-------------|
| CANOES                                     | LENGTH (M)                           | WIDTH (M)   |
| Ali/Poli/watsa                             | 12–19.5                              | 1.57 - 2.8  |
| Line                                       | 14.9                                 | 2.0         |
| Beach Seine (Large)                        | 11.04                                | 1.06        |
| Beach Seine (Small)                        | 8.6                                  | 1.25        |
| Set Net                                    | 7.05 - 9.1                           | 1.06 - 1.98 |
| One Man Canoe                              | 4.45-4.8                             | 0.5 - 0.6   |
| DGN  | 12-19                                | 1.6-2.85    |

Table 9 Fish Sharing System within the Region

| TABLE 9           | FISH SH | ARING SY | STEM WITHIN THE | E REGIO | NS    |          |                |      |
|-------------------|---------|----------|-----------------|---------|-------|----------|----------------|------|
|                   | VOLTA   | A        |                 |         | GREAT | ER ACCRA |                |      |
|                   | NET     | CANOE    | OUTBOARD MOTOR  | CREW    | NET   | CANOE    | OUTBOARD MOTOR | CREW |
| Ali               | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Poli              | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Watsa             | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
|                   |         | 30%      |                 |         | 50%   |          |                |      |
| Beach Seine       | 20%     |          |                 | 50%     |       |          |                | 50%  |
| Set Net (Toga)    | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Set Net (Lobster) | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Drift Gill Net    | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Line              | 50%     |          |                 | 50%     | 50%   |          | 50%            |      |
|                   |         |          |                 |         |       |          |                |      |
| CENTRAL           |         |          |                 |         | WESTE | RN       |                |      |
|                   | NET     | CANOE    | OUTBOARD MOTOR  | CREW    | NET   | CANOE    | OUTBOARD MOTOR | CREW |
| Ali               | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Poli              | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Watsa             | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Beach Seine       | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Set Net (Toga)    | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |
| Set Net (Lobster) | 50%     |          |                 | 50%     | 50%   |          | 50%            |      |
| Drift Gill Net    | 50%     |          |                 | 50%     | 50%   |          |                | 50%  |

| Line 50% 50% 50% 50% |  |
|----------------------|--|
|----------------------|--|



Figure 2 Fishing villages and landing sites



Figure 3 Total number of canoes 1969 - 2013



**Figure 4 Fishermen and Motors** 



Figure 5 Comparison of Fishing villages to landing sites between 1969 - 2013



Figure 6 Canoes and Fishermen in the Regions 2013

# Figure 7: RELATIVE IMPORTANCE OF FISHING GEAR IN SOME COASTAL DISTRICTS









Figure 7 Relative importance of Fishing gear in each coastal districts



Pic 1. Officers interviewing fishermen

Pic 2. Landing Beach



Pic 3.Officers measuring canoes



Pic 4. Officers en-route to a fishing village

# APPENDIX 1FORM AFRAME SURVEY (CANOE REGISTRATION)

| REGION          | DATE          | ENUMERATOR      |
|-----------------|---------------|-----------------|
| FISHING VILLAGE | LANDING BEACH | CHIEF FISHERMAN |

| SERIAL<br>NO. | REGISTRATION NO. | NAME OF<br>CANOE | NAME OF<br>OWNER | NO. OF<br>CREW | TYPES<br>OF GEAR | OUTBO                 | REMARKS |    |      |    |  |
|---------------|------------------|------------------|------------------|----------------|------------------|-----------------------|---------|----|------|----|--|
|               |                  | SYMBOL           |                  |                |                  | DO YOU IF YES<br>HAVE |         | S  |      |    |  |
| 1             |                  |                  |                  |                |                  | YES                   | NO      | NO | TYPE | HP |  |
| 2             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 3             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 4             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 5             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 6             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 7             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 8             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 9             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 0             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 1             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
| 2             |                  |                  |                  |                |                  |                       |         |    |      |    |  |
## **APPENDIX 2**

## FORM B FRAME SURVEY CANOE FISHERY STATISTICS

| REGION   | DATE       |
|--|------------|
| DISTRICT                                       |            |
| FISHING VILLAGE                                | ENUMERATOR |
| LANDING BEACH                                  |            |
| WHERE DOES THE CHIEF FISHERMAN LIVE (VILLAGE): |            |

| GEAR          |     | CANOE |        |        | AVERAGE NO. OF FISHERMEN |      |       |
|---------------|-----|-------|--------|--------|--------------------------|------|-------|
| NAME          | NO. | TOTAL | MOTORS | ACTIVE | AVE. NO. OF              | FULL | TOTAL |
|               |     |       |        |        | CREW ON                  | TIME |       |
|               |     |       |        |        | CANOE                    |      |       |
| ALI           |     |       |        |        |                          |      |       |
| POLI          |     |       |        |        |                          |      |       |
| WASTA         |     |       |        |        |                          |      |       |
| BEACH SEINE   |     |       |        |        |                          |      |       |
| S/N LOBSTER   |     |       |        |        |                          |      |       |
| LINE          |     |       |        |        |                          |      |       |
| DGN/NIFA-NIFA |     |       |        |        |                          |      |       |
| ONE MAN CANOE |     |       |        |        |                          |      |       |
| TOTAL         |     |       |        |        |                          |      |       |

2. For one man canoe, what gears are usually used?

------

3. Does fishing go on all the year around? <u>Yes/No</u>

| 4. If "No" state the period of operation   |
|--|
| 5. Range of fishing grounds  |
| <ul> <li>6. Do the canoes here migrate to other centers within Ghana? <u>Yes/No</u></li> <li>(i) If "Yes", where do they go mainly to:</li> </ul>  |
| (ii) State the usual period that they migrate from the center?   |
| (iii) What type of gear do they mainly migrate to operate?   |
| <ul> <li>8. Do canoes at other centers migrate into this center? <u>Yes/No</u></li> <li>(i) If "Yes" where do they mainly come from?</li> <li>(ii) State the usual period that they migrate from this center:</li> </ul> |
| (iii) The canoes that migrate into this center operate what main gear  |
| <ol><li>Do canoes at this center migrate outside the country? Yes/No<br/>If "Yes</li></ol>   |
| (i) Where do they usually migrate to?  |
| (ii) How long do they stay?  |
| (iii) State the usual period they migrate from this  |
| center   |
| (iv) Do they register with Ghana Embassy Abroad?   |
| (v) What do they usually migrate with?   |

| <ul> <li>(i) Where do they usually migrate to this center<br/>from</li></ul>  | 10.   | Do non-Ghanaians canoes migrate to this center? Yes/No If yes                                  |  |  |  |
|---|-------|--|--|--|--|
| <ul> <li>from</li></ul>   | (i)   | Where do they usually migrate to this center   |  |  |  |
| <ul> <li>(ii) How long do they stay?</li></ul>  |       | from   |  |  |  |
| <ul> <li>(iii) What period do they usually migrate from this center</li></ul>   | (ii)  | How long do they stay?   |  |  |  |
| <ul> <li>center</li> <li>11. Are there conflicts between Ghanaian and Fisherman at this center? Yes/No <ul> <li>(i) If yes, what is the nature of the conflicts</li></ul></li></ul>   | (iii) | What period do they usually migrate from this  |  |  |  |
| <ol> <li>Are there conflicts between Ghanaian and Fisherman at this center? Yes/No</li> <li>(i) If yes, what is the nature of the conflicts</li></ol>   |       | center   |  |  |  |
| <ol> <li>Are there conflicts between Ghanaian and Fisherman at this center? Yes/No</li> <li>(i) If yes, what is the nature of the conflicts</li></ol>   |       |  |  |  |  |
| <ul> <li>(i) If yes, what is the nature of the conflicts</li> <li>12. Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No</li> <li>(i) If Yes, what is the nature of the conflicts</li> <li>13. What condition does migrant fisherman have to satisfy at this center?</li> <li>(a) Ghanaian</li> </ul> | 11.   | Are there conflicts between Ghanaian and Fisherman at this center? Yes/No                      |  |  |  |
| <ul> <li>12. Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No</li> <li>(i) If Yes, what is the nature of the conflicts</li></ul>  | (i)   | ) If yes, what is the nature of the conflicts  |  |  |  |
| <ul> <li>12. Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No</li> <li>(i) If Yes, what is the nature of the conflicts</li></ul>  |       |  |  |  |  |
| <ul><li>(i) If Yes, what is the nature of the conflicts</li><li>13. What condition does migrant fisherman have to satisfy at this center?</li><li>(a) Ghanaian</li></ul>  | 12.   | Are there conflicts between Ghanaian and Non Ghanaian Fishermen at this center? Yes/No         |  |  |  |
| <ul><li>13. What condition does migrant fisherman have to satisfy at this center?</li><li>(a) Ghanaian</li></ul>  | (i)   | ) If Yes, what is the nature of the conflicts  |  |  |  |
| <ul><li>13. What condition does migrant fisherman have to satisfy at this center?</li><li>(a) Ghanaian</li></ul>  |       |  |  |  |  |
| (a) Ghanaian  | 13.   | What condition does migrant fisherman have to satisfy at this center?                          |  |  |  |
|   | (a)   | Ghanaian   |  |  |  |
| (b) Non-Ghanaian  | (b)   | Non-Ghanaian   |  |  |  |
|   | . ,   |  |  |  |  |
| 14. Does this fishing village observe non-fishing days? (Fishing holiday) Yes/No If Yes, State the  | 14.   | Does this fishing village observe non-fishing days? (Fishing holiday) Yes/No If Yes, State the |  |  |  |
| Day(s)  |       | Day(s)   |  |  |  |

| GEAR            | NET | CANOE | OUTBOARD MOTOR | CREW |
|-----------------|-----|-------|----------------|------|
| ALI             |     |       |                |      |
| POLI            |     |       |                |      |
| WASTA           |     |       |                |      |
| BEACH SEINE     |     |       |                |      |
| S/N TOGA        |     |       |                |      |
| S/N LOBSTER     |     |       |                |      |
| LINE            |     |       |                |      |
| D.G.N/NIFA-NIFA |     |       |                |      |
| O.M.C           |     |       |                |      |

15. How are the proceeds from Fishing shared? Give the percentage/Fractions for the input