****

**REPUBLIC OF GHANA**

**Ministry of Fisheries and AquaculturE Development**

**(mofad)**

**NATIONAL FISHERIES AND AQUACULTURE POLICY**

**2022**

**FINAL**

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# **ACRONYMS AND ABBREVIATIONS**

ANAF Aquaculture Network for Africa

ATLAFCO Fisheries Cooperation of African States Bordering the Atlantic Ocean

AU African Union

BGI Blue Growth Initiative

CAADP Comprehensive Africa Agriculture Development Program

CBFMC Community-Based Fisheries Management Committee

CCRF Code of Conduct for Responsible Fisheries

CIFAA Committee for Inland Fisheries and Aquaculture of Africa

CLAT Child Labour and Anti-Trafficking

CSIR Council for Scientific and Industrial Research

EEZ Exclusive Economic Zone

EPA Environmanetal Protection Agency

EU European Union

FAO Food and Agriculture Organization of the United Nations

FASDEP Food and Agriculture Sector Development Policy

FC Fisheries Commission

FCWC Fisheries Committee for the West Central Gulf of Guinea

FTT FAO Thiaroye Technology

GDP Gross Domestic Product

GAAHP Ghana Aquatic Animal Health Policy

GLSS Ghana Living Standard Survey

GMA Ghana Maritime Authority

GNADP Ghana National Aquaculture Development Plan

GPHA Ghana Ports and Harbours Authority

ICCAT International Commission for the Conservation of Atlantic Tunas

IEZ Inshore Exclusive Zone

ILO International Labour Organization

INDC Intended Nationally Determined Contribution

IUU Illegal, Unreported, Unregulated

IWC International Whaling Commission

L I Legislative Instrument

MCS Monitoring, Control and Surveillance

MDGs Millennium Development Goals

MFMP Marine Fisheries Management Plan

MMDAs Metropolitan, Municipal and District Assemblies

MoFA Ministry of Food and Agriculture

MoFAD Ministry of Fisheries and Aquaculture Development

NAPA National Adaptation Programme of Action

NDPC National Development Planning Commission

NEPAD New Partnership for Africa’s Development

NGOs Non-Governmental Organizations

NIMS National Integrated Maritime Strategy of the Republic of Ghana

NPFS National Premix Fuel Secretariat

OACPS Organization of African, Caribbean and Pacific States

PAF Partnership for African Fisheries

RFNs Refrigeration Network Facilities Project

SDGs United Nations Sustainable Development Goals

SFMP Sustainable Fisheries Management Programme

SHS Senior High School

SMTDP Sector Medium-Term Development Plan (2018-2021)

UN United Nations

UNCRC UN Convention on the Right of the Child

USAID United States Agency for International Development

VGMFG Voluntary Guidelines for the Marking of Fishing Gear

VMS Vessel Monitoring System

VTMIS Vessel Traffic Management and Information System

WFCL Worst Forms of Child Labour

**FOREWORD**

Ghana is endowed with important marine and freshwater fishery resources and for centuries these resources have constituted one of the economic backbones for the country. The artisanal fishers and fish processors who mainly constitute the many fishing communities in the country, have relied heavily on fishery resources and will continue to do so for their main economic sustenance. Accordingly, the National Fisheries and Aquaculture Policy (NFAP) which was developed in 2008 addressed issues including strong research capacity, biological and socio-economic environment, with a view to significantly bridging the gap between national fish demand and supply.

To enable the many fishing communities in the country, take full advantage of these resources, there is the need to harness these resources in a sustainable manner. In this way the fishery sector will contribute efficiently and effectively to the transformation agenda of the country and enable Ghana take full advantage of global trade and investment. In this regard it is essential to develop a robust national fisheries and aquaculture policy that addresses current and emerging domestic and international issues as well as challenges confronting the sector.

The Government of Ghana, in collaboration with stakeholders in the sector, implemented the 2008 National Fisheries and Aquaculture Policy. Significant changes have occurred in the fisheries sector at both national and international levels since the NFAP came into effect over a decade ago. Currently the fisheries and aquaculture sector is confronted with a number of challenges including:

* illegal fishing,
* high post-harvest losses,
* inadequate human, technological, and infrastructural capacity,
* high cost of aquaculture inputs, and
* limited access to quality fingerlings for aquaculture production.

The 2008 NFAP therefore needed to be revised to address the challenges confronting the sector and to incorporate the relevant emerging issues. Accordingly, the Ministry of Fisheries and Aquaculture Development (MoFAD), after a detailed review of the 2008 National Fisheries and Aquaculture Policy, and through extensive consultations with stakeholders of the sector, has developed this revised National Fisheries and Aquaculture Policy. The revised Policy seeks to consolidate the sectoral gains made from the implementation of the 2008 Policy and to ensure sustainable growth of the sector. It offers a strategic way forward to develop, harness, manage and regulate capture fisheries and aquaculture in a responsible and sustainable manner. This revised policy also provides space to address some of the international commitments and treaties the country has signed to with legal remit using it for a revised legislative framework. Accordingly, these reforms will provide adequate space and motivation for the private sector to invest due to enhanced and modernized regulatory reforms.

The revised Policy provides appropriate interventions to address the critical gaps with the principal goal of transforming the fisheries and aquaculture sector into a viable economic segment to contribute to national development. In terms of Policy Areas, the revised NFAP outlines eleven (11) key areas adopted from the 2008 Policy and the situational analysis of the sector. The Policy Focus Areas include fisheries infrastructure development, fisheries governance, post-harvest management and trade, aquatic animal health, as well as environment and climate change.

Ghana is a party to a number of fisheries-related regional, continental, and international agreements for which the country is expected to take into consideration the management and regulatory decisions and recommendations emanating from those agreements. Consequently, Government will continue to foster strong regional and international cooperation in the management and sustainable utilization of fishery resources in its territorial waters, including conservation of species/stocks. The revised Policy also acknowledges the importance of incorporating into national policies the novel concepts of Blue Growth and Blue Economy, as well as policy on Gender and Youth, and issues of Child Labour and Trafficking in the fisheries sector. It is the expectation of the Ministry that the implementation of the Policy would, among others:

1. Ensure the sustainable utilization of aquatic living resources;
2. Ensure the sustainable development and management of aquaculture;
3. Optimize fisheries infrastructure development;
4. Promote effective post-harvest management and trade of fish and fish products; and
5. Address impacts of climate change on fisheries and aquaculture;
6. Provide ample space to address and implement national and international commitments; and
7. Promote Public Private Partnerships through the development and promotion of modern regulatory mechanisms.

I wish to acknowledge the contribution of various stakeholders and individuals who supported the Ministry in the development of the revised National Fisheries and Aquaculture Policy, and note that their concerted efforts would further be required for the implementation of this Policy.

**HON. MRS. MAVIS HAWA KOOMSON (MP)**

**MINISTER FOR FISHERIES AND AQUACULTURE DEVELOPMENT**

**EXECUTIVE SUMMARY**

The fisheries and aquaculture sector play a key role in the socio-economic development of Ghana by contributing to Gross Domestic Product (GDP), job and wealth creation, and food and nutrition security. To sustainably manage capture fisheries and develop aquaculture to protect the livelihoods of the significant proportion of the population that directly or indirectly depend on the sector, requires management actions, including the development and implementation of a policy that will provide the guidelines for the management and development of the sector. Consequently, the first comprehensive Ghana Fisheries and Aquaculture Policy was developed in 2008.

This National Fisheries and Aquaculture Policy, 2022 (NFAP 2022) builds on the 2008 Policy (NFAP 2008) and is an outcome of a detailed review of the current status of capture fisheries and aquaculture, the management of the fisheries sector, a review of other policy documents relevant to fisheries and aquaculture, as well as widespread consultations with stakeholders. The Policy is expected to consolidate the results achieved from the implementation of the 2008 Policy and take into consideration the changing nature of the fisheries and aquaculture sector globally, and for that matter in Ghana.

The Policy is also guided by the Medium-Term National Development Policy Framework (Agenda for Jobs) (2018-2021) which operationalizes the Coordinated Programme of Economic and Social Development Policies (2017-2024) and takes into account national policies including the Ghana National Climate Change Policy, and the Food and Agriculture Sector Development Policy (FASDEP II). In this regard, national development priorities and the general principles of policy development, including transparency and accountability, equity, stakeholder participation, conservation, sustainability and precautionary principles have been considered. In addition, the Policy is informed by a number of international initiatives and best practices of relevance to the sector such as the Blue Growth Initiative, Blue Economy Agenda, Gender and Youth, as well as, Child Labour and Trafficking in the Fisheries Sector.

Ghana is a member of a number of international and regional fisheries organizations including, the Food and Agriculture Organization of the United Nations (FAO), International Whaling Commission (IWC), the Organization of African, Caribbean and Pacific Group of States, and the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Fisheries Committee for West Central Gulf of Guinea (FCWC), and the Ministerial Conference on fisheries cooperation among African States bordering the Atlantic Ocean (ATLAFCO). These organizations often take decisions and make recommendations that seek to move the fishing industry forward. These decisions and recommendations, particularly those binding on member States, are reflected in this Policy.

Eleven (11) key policy focus areas have been identified in this Policy. Each area has a specific goal, operational objectives and policy actions for the operational objectives; these are summarised in Table 6. Effective implementation of this Policy anchors on an effective monitoring and evaluation strategy with the appropriate performance indicators and an efficient feedback mechanism. Consequently, the Ministry of Fisheries and Aquaculture Development (MoFAD), which has the responsibility of managing the sector, is required to set up a comprehensive monitoring and evaluation plan to determine the baseline conditions and data, as well as collate specific indicators that will inform the review of the Policy. The NFAP 2022 will be reviewed periodically in the light of emerging information and challenges from implementation. The review shall be informed by monitoring activities and experience gained from implementation.

MoFAD commits to mobilize resources to finance the implementation of the Policy through the national budget framework in line with the Public Financial Management Act, 2016 (Act 921). Annual budgetary allocations shall be made for the implementation of the strategies outlined in the Policy. To ensure a sustained financing mechanism, the strategies in this Policy shall be made an integral part of the sector budget and Annual Action Plans.

Concerted efforts will be made to ensure that this Policy is understood by all stakeholders. To achieve this, effort would be made to provide a user-friendly version of the Policy and translate it into local languages to ease communication and enhanced awareness. Promoting concerted voice implies mobilization of all segments of the economy, including the private sector, for a joint and strong voice, and awareness of their roles and rights. These would enhance the enabling environment for a productive fisheries and aquaculture sector. National, Regional, District and Zonal level staff of the Fisheries Commission will be tasked to carry out public awareness campaign on the Policy as it is implemented and provide feedback through the Monitoring and Evaluation (M&E), and supervision systems that will be established.

Ghana is situated in the Gulf of Guinea and has a coastline of 550km. The marine and fresh water bodies of Ghana are well endowed with fishery resources which, if properly managed, shall provide sustainable economic opportunities for the country. The fishery resources have been the economic backbone of the many fishing communities in the country for centuries, and will continue to remain so provided the fisheries are managed to ensure sustainable exploitation of the resources. The exploitable marine fisheries resources include small pelagic, large pelagic and demersal fish species. The marine fisheries sector is comprised of three sub-sectors - artisanal, semi-industrial and industrial - classified according to the type of fishing crafts and fishing gears used.

The artisanal subsector (also usually referred to as small-scale sector) is made up of about 14,000 dugout canoes some of which use outboard motors as a means of propulsion. The vessels are operated from around 300 fish landing sites dotted along the entire coastline of the country, and use various types of fishing gears that target all types of fish species. Currently, the subsector is virtually open access. The semi-industrial fleet comprises 400 mostly locally-constructed vessels of up to 37 m long that use bottom trawl nets or purse seines depending on the season. The vessels operate from 6 landing sites, and target both small pelagic and demersal species. The industrial subsector comprises large foreign-built trawlers and tuna fishing vessels. As at January 2021, the Fisheries Commission Vessel Register had 76 industrial trawlers and 37 tuna vessels operating in Ghanaian waters. The industrial vessels operate only from Tema and Takoradi where there are suitable berthing facilities. The tuna industry is the only sector of the Ghanaian fishing industry where foreigners are permitted to go into joint-venture with Ghanaian nationals.

Inland capture fisheries refer to the exploitation of fishery resources in freshwater bodies. The sub-sector occurs mainly in Lake Volta which borders thirty-two (32) administrative districts in the country. The fisheries of the Lake are artisanal in nature, using planked canoes - some of which are motorized – and usually operated by small number of crew. Commonly used fishing gears are the cast net, gill/set nets, traps, and hook-and-line. Major threat facing fisheries on the Lake is the absence of a management plan and the open access nature of it, leading to over-exploitation. There are also fishing activities in other inland water bodies such as Lake Bosomtwe, the Black Volta and White Volta rivers.

There are several lagoons located along the coastline of the country, the Keta Lagoon complex being the largest among them. Fishing is the major economic activity of the multiple uses of the lagoons. The lagoon fisheries are artisanal usually operated by individuals using traditional fishing methods and sometimes from small crafts. It is evident that the productivity of the lagoon can be further enhanced if sustainable fishing practices are adopted. Management strategies should, therefore, aim at enhancing stakeholder action for sustainable management of the fisheries resources through, education and awareness creation on the values of the lagoon, biodiversity and conservation issues.

Aquaculture is a fast-growing sub-sector which has the potential to attract significant level of investment from the private sector. There are about 3,000 small scale fish farmers and 10 large scale operators. The aquaculture subsector is dominated by non-commercial systems (i.e. extensive, small scale and subsistence), often using earthen ponds. However, there has been an increase in the use of other aquaculture holding facilities like cages, tanks, dams, dugouts and reservoirs. Cage culture is the leading system of production and Tilapia is the most cultured species in Ghana, although in recent times, catfish production has also seen significant improvement. The move towards catfish culture has been attributed to a number of factors including the hardiness, fast growth and high survival rates of the species under adverse environmental conditions.

The fisheries and aquaculture sector play a key role in the socio-economic development of Ghana by contributing significantly to Gross Domestic Product (GDP), jobs, wealth creation, and food and nutrition security. The sector provides direct and indirect job opportunities for an estimated 10%of the population along the fisheries and aquaculture value chain. The fisheries sector also supports Government efforts to achieve national food and nutrition security with fish constituting about 60% of the animal protein intake of Ghanaians.

Over the past three decades, there is evidence of depleting stock size of both marine and inland fishery resources while aquaculture is still being developed. Though, the aquaculture segment of the sector has been considered as a reliable alternative source of fish supply, increase in aquaculture production has not been sufficient enough to make up for the shortfall in fish supply from capture fisheries. As a result, Ghana imports appreciable quantities of fish to meet its domestic fish requirement.

The fisheries sector has not performed to expectation in spite of the great potential with a combination of factors contributing to the current state of affairs in the sector. Notable among these are the issues of perceived open access in the artisanal sub-sector, illegal, unreported and unregulated (IUU) fishing, excess fishing capacity, overfishing, climate change, unregulated fishing gears and fishing methods, inadequate fisheries infrastructure facilities and high cost of aquaculture inputs. Many of these factors are due mainly to challenges in the management of the fisheries.

MoFAD has a core mandate of formulating and implementing sector policies and strategies aimed at transforming the fisheries and aquaculture sector to contribute more effectively to national development through science, technology, innovation and institutional capacity enhancement. The Ministry has two (2) implementing agencies, namely; the Fisheries Commission (FC) and the National Premix Fuel Secretariat (NPFS). The Fisheries Commission is the key implementing agency of the Ministry established by the Fisheries Act, 2002 (Act 625) with a Board and Secretariat headed by an Executive Director. The Fisheries Commission regulates and manages aquaculture development and utilization of fishery and resources, through effective policy implementation. The NPFS serves as the Secretariat to the National Premix Fuel Committee (NPFC) established to facilitate the procurement and distribution of premix fuel.

The implementation of the NFAP 2008 has achieved some results and moved the sector forward, especially the development of the aquaculture subsector. However, there are several emerging issues and strategies in fisheries and fisheries management and Ghana has also ratified a number of international and regional fisheries conventions and treaties that need to be incorporated into national fisheries policies and legislation. Examples are the International Commission for the Conservation of Atlantic Tunas (ICCAT) Recommendations on Transhipment; minimum standards for Vessel Monitoring Systems (VMS) in ICCAT Area, as well as provisions for gear technology, and the FAO Port State Measures to Prevent, Deter and Eliminate Illegal, Unregulated, and Unreported (IUU) Fishing. The issue of climate change and its impact on the fisheries sector has also become a key factor in fisheries management thus calling for adequate provisions on climate change mitigation and adaptation in the sector.

From the above, it was found necessary to update the NFAP 2008 to incorporate the emerging issues and approaches in the sector. The NFAP 2022 takes on board some of the measures included in the last policy and is expected to, among others,

1. Ensure sustainable development and management of aquaculture;
2. Ensure the sustainable utilization of aquatic living resources;
3. Optimize fisheries infrastructure development;
4. Promote fish post-harvest management and fish trade; and
5. Address issues of climate change and its impact on fisheries and aquaculture.

**The effective implementation of this Policy will help address the challenges confronting the sector and** achieve the primary policy objective of ensuring sustainable management and development of fisheries and aquaculture **in Ghana. In this way, the sector could experience accelerated growth and contribute meaningfully to the country’s economic transformation agenda.**

# **1.0 INTRODUCTION**

The marine and fresh water bodies of Ghana are well endowed with important fishery resources which, if properly managed, shall provide sustainable economic opportunities for the country. The fishery resources have been the economic backbone of the many fishing communities in the country for centuries, especially artisanal fishers and fish processors, and will continue to remain so provided the fisheries are managed to ensure sustainable exploitation of the resources. Over the past three decades, however, there has been evidence of depleting stock size of the fishery resources. Though, the still developing aquaculture segment of the sector has been considered as a reliable alternative source of fish supply, increase in aquaculture production has not been sufficient enough to make up for the shortfall in fish supply from capture fisheries. As a result, Ghana is currently a net importer of an estimated 40% of domestic fish requirement.

Fishery resources, like any other natural renewable resource, are expected to contribute significantly to the socio-economic development of the country. However, the fisheries sector in Ghana has not performed to expectation in spite of its great potential. A combination of factors has contributed to the current state of affairs in the sector. Notable among the factors are:

* the perception of open access to the fisheries, particularly the artisanal sub-sector;
* illegal, unreported and unregulated (IUU) fishing;
* excessive fishing capacity;
* overfishing;
* climate change;
* unregulated fishing gears and methods; and
* inadequate fisheries infrastructure facilities.

The aquaculture sub-sector is also plagued with a number of challenges including high cost of aquaculture inputs, inadequate infrastructure and non-availability of good quality broodstock and fish fingerlings.

To sustainably manage capture fisheries and develop aquaculture to protect the livelihoods of the significant proportion of the population that directly or indirectly depend on the sector, requires immediate management actions including the development and implementation of a policy that will provide the guidelines for the management and development of the sector. Consequently, the first comprehensive Ghana National Fisheries and Aquaculture Policy was developed in 2008. The policy was structured around four major strategic areas, namely:

1. The management of fisheries, conservation of aquatic resources and protection of their natural habitat;
2. The promotion of value addition in the fisheries sector and the improvement of livelihood in the fisheries communities;
3. The sustainable development of aquaculture; and
4. The improvement of services provided to the sector.

Implementation of the policy has had a significant impact on the sector, especially the development of the aquaculture sub-sector. However, there are several emerging issues in the fisheries sector and strategies in fisheries management, and Ghana has also ratified a number of international and regional fisheries conventions and treaties that need to be incorporated into national fisheries policies and legislation. Examples are the International Commission for the Conservation of Atlantic Tunas (ICCAT) Recommendations on Transhipment; FAO Port State Measures to Prevent, Deter and Eliminate IUU Fishing, minimum standards for Vessel Monitoring Systems (VMS) in ICCAT Area, as well as, provisions for gear technology. The issue of climate change and its impact on the fisheries sector has also become a key factor in fisheries management and there is the need for adequate provisions on climate change mitigation and adaptation in the sector.

Also, of relevance here is the declaration of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) and the commitment of the High-Level Panel for a Sustainable Ocean Economy (the Ocean Panel). The main motivation for the former is to “support efforts to reverse the decline in ocean health and create improved conditions for sustainable development of the ocean, seas and coasts”. The Ocean Panel, made up of Heads of State and Government, including the President of the Republic of Ghana, has committed to “bold transformations towards a sustainable ocean economy where environmental protection and conservation, and economic production and prosperity go hand in hand”. This includes “to sustainably manage 100% of the ocean area under national jurisdiction, guided by Sustainable Ocean Plans”. Reference is also made to the draft National Integrated Maritime Strategy (NIMS) of the Republic of Ghana which, among other things, underlines Government’s commitment to ensure that fish stocks in Ghana’s maritime space are exploited within biologically acceptable levels and that effective fisheries legislation and relevant international instruments are fully implemented and enforced.

In the light of the above, it is imperative that the 2008 National Fisheries and Aquaculture Policy is updated to have a new policy that would among others:

1. Ensure sustainable development and management of aquaculture;
2. Ensure the sustainable utilization of aquatic living resources;
3. Optimize fisheries infrastructure development;
4. Promote fish post-harvest management and fish trade; and
5. Address issues of climate change and its impact on fisheries and aquaculture.

This revised National Fisheries and Aquaculture Policy is expected to be responsive to the changing nature of the fisheries and aquaculture sector in Ghana. The policy is an outcome of detailed examination of the current status of capture fisheries and aquaculture, the management of the fisheries sector, as well as widespread consultations with stakeholders.

# **2.0 BACKGROUND**

## 2.1Contribution of the fisheries and aquaculture sector to the Ghanaian economy

The fisheries and aquaculture sector play a key role in the socio-economic development of Ghana by contributing to Gross Domestic Product (GDP), job and wealth creation, and food and nutrition security. The sector also provides raw materials to the fish canneries and other fisheries-related industries in the country. The average contribution of the sector to GDP, and Agriculture GDP for the period 2015-2020 is estimated at 1.1% and 5.4% respectively (Fisheries Commission, 2021).

The sector provides direct and indirect job opportunities for an estimated 10%of the population along the fisheries and aquaculture value chain. The fisheries sector also supports Government efforts to achieve national food and nutrition security with fish constituting about 60% of the animal protein intake of Ghanaians. Indeed, the annual per capita fish consumption in Ghana, over the last decade ranged between 20 and 25kg, which is much higher than the global average of 20kgper year**.** Significantly, this figure exceeds the FAO estimate of 9-10 kg in sub-Saharan Africa, demonstrating the importance of fish for food and nutrition security in Ghana. Hence, Ghana ranks high in terms of nutritional, macro-economic and employment dependency on the fisheries and aquaculture sector.

Fish is considered as an important non-traditional export commodity in terms of foreign exchange earning with average export value of USD 213 million for the period 2015-2019 (GEPA, 2020). Fish exports from Ghana consist of high value tuna (whole, loins and canned), frozen finfish (mostly demersal species), shrimps, lobsters, cuttlefish and smoked-dried fish. The export destinations are mainly European Union (EU) countries, United States of America, and Japan. Some types of fish are imported into the country, particularly small pelagic species (chub and horse mackerels, and sardinellas). Fish imports are high during the local lean fishing period (November to May).

## 2.2 Description of the Ghana Fisheries and Aquaculture Sector

Ghana is situated in the Gulf of Guinea and has a coastline of 550 km. The country’s exploitable marine fisheries resources include small pelagic, large pelagic and demersal species. The most important small pelagic fish species are round sardinella, flat sardinella, anchovy, chub mackerel and horse mackerel. By virtue of their quantities, small pelagic species contribute immensely to national food security. The most important demersal fish species include sea breams, red snappers, groupers, grunts, croakers, cephalopods and shrimps.

**Box 1: Fish species of commercial importance targeted in the fisheries sector in Ghana**

Marine

*Small pelagic species* – Sardinellas (round and flat), Anchovy, Mackerels (chub and scad).

*Large pelagic species* – Tunas (yellowfin, bigeye and skipjack)

*Demersal species* - Seabreams, Grunts, Croakers, Snappers, Mullets, Groupers, Shrimps and Cuttlefish.

Freshwater

Tilapias (various species), Catfishes (various species), Heterotis (Bonytongue), and Citharinus (Moonfish)

The marine fisheries sector comprises of three sub-sectors - artisanal, semi-industrial and industrial - classified according to the type of fishing crafts and fishing gears used. In the artisanal sector (also usually referred to as small-scale sector), the dugout canoe is the fishing craft and various fishing gears are employed. The last census of canoes (referred to as Canoe Frame Survey) was carried out in 2016 (Dovlo et al., 2016) and from which the total number of canoes, of various types, was put at 11,583. From the Fisheries Commission’s Vessel Register, currently (2021) there are more than 14,000 canoes operating in the sub-sector and about 90 per cent of these are equipped with outboard motors. The vessels operate from 292 landing sites dotted along the entire coastline of the country, and use various types of fishing gears the most important being beach seine, set nets, hook-and-line, gillnets and purse seines (made up of “poli” and “watsa” nets). Currently, the subsector is virtually open access.

The semi-industrial (also referred to as inshore) fleet comprises 400 vessels mostly locally-constructed and with wooden hulls of up to about 37 m long and powered by inboard engines. The semi-industrial vessels use bottom trawl nets or purse seines depending on the season. The purse seine gear is used mainly during the upwelling season when sardinellas are the target species. For the rest of the year, the vessels that have strong engines switch to bottom trawling. The vessels operate from 6 landing sites, target both small pelagic and demersal species.

The industrial subsector comprises large foreign-built trawlers and tuna fishing vessels. As at January 2021, the Fisheries Commission Vessel Register had 76 industrial trawlers and 37 tuna vessels (comprising of 17 pole-and-line (or bait-boat) vessels and 20 purse seiners), operating in Ghanaian waters. The industrial vessels operate only from Tema and Takoradi where there are suitable berthing facilities. Presently, the tuna fisheries sub-sector is the only sector of the Ghanaian fishing industry where foreigners are permitted to go into joint-ventures with Ghanaian nationals.

Inland capture fisheries refer to the exploitation of fishery resources in freshwater bodies and whose target species are those that spend all or part of their entire life-cycle therein. The sub-sector occurs mainly in Lake Volta which has an area of about 8,500km2 and borders thirty-two (32) administrative Districts in the country. The fisheries of the Lake are artisanal in character, usually operated by small number of crew, using planked canoes, some of which are motorized. Commonly used fishing gears are the cast net, gill/set nets, traps, and hook-and-line. Major threats facing the Lake are the absence of regular monitoring, a management plan and the open access nature of fisheries sector, leading to over-exploitation.

There are also fishing activities in other inland water bodies such as Lake Bosomtwe, the Black and White Volta, and coastal lagoons. The Keta Lagoon, the largest lagoon in Ghana, supports a wide range of aquatic species including shrimps, and is also recognized as a protected wetland area (Ramsar site). Of the multiple uses of the lagoon, fishing is the major economic activity. The fisheries in the lagoons are artisanal in character, usually operated by individuals using traditional labour - intensive fishing methods from small crafts. Commonly used fishing gears are the cast net, traps, brush parks and hook-and-line. It is evident that the productivity of the lagoons can be further enhanced if sustainable fishing practices are adopted. Management strategies should, therefore, aim at enhancing stakeholder action for sustainable management of the fisheries resources through, education and awareness creation on the values of the lagoons, biodiversity and conservation.

Aquaculture is a fast-growing sub-sector which has the potential to attract significant level of investment from the private sector. The aquaculture subsector is dominated by non-commercial systems (i.e. extensive, small scale and subsistence), often using earthen ponds. However, there has been an increase in the use of other aquaculture holding facilities like cages, tanks, dams, dugouts and reservoirs. There are about 3,000 small scale fish farmers and 10 large scale operators.

Tilapia continues to dominate cultured species in Ghana and cage culture is the leading system of production. In recent times, catfish production has seen significant improvement, recording a high production figure of 13,434 MT in 2019 as against 7,517 MT in 2018. The increase in catfish production has been attributed to a number of factors including their hardiness, fast growth and high survival rates under adverse environmental conditions which have influenced fish farmers to shift to catfish farming.

The development of aquaculture is constrained by several factors including the following:

1. Limited access to good quality fingerlings
2. High cost of fish feed
3. Low investment interest of the private sector
4. Inadequate funding for research
5. Lack of market for cultured fish
6. Inadequate extension services
7. Disease outbreak in fish farms

In order to tap into the natural potential for aquaculture in Ghana there is a need to promote the development of the industry by creating conditions to address the challenges militating against the sector.

## 2.3Status of marine fish stocks

Considering the fact that all natural resources are amenable to change and depletion if not sustainably exploited, it is essential that fish stocks are assessed periodically. Assessment of stocks of fish on the continental shelf of Ghana using a fisheries research vessel, began in the middle of the last century and both Ghanaian and foreign research vessels were utilized in subsequent surveys. In the last two decades, all assessment surveys in Ghanaian waters have been carried out by foreign research vessels as Ghana does not own a research vessel anymore. The last three comprehensive surveys of marine fisheries resources of Ghana were conducted in April 2016, August 2017, and July/August 2019 by the Norwegian fisheries research vessel *Dr Fridtjof Nansen*, operating under FAO’s EAF-Nansen Project. The 2017 survey assessed small pelagic fishery resources only.

The estimates of the main species and groups of species in the three surveys are summarised in Tables 1 and 2. In the R/V *Dr Fridtjof Nansen* survey reports, Pelagic 1 species are anchovy and sardinellas, and Pelagic 2 species are mackerels, barracudas, and hairtails. The results should be interpreted with caution as the 2016 survey was conducted during the thermocline season whilst the 2017 and 2019 surveys were conducted during the major upwelling season when abundance of pelagic fish species, particularly those in Pelagic 1, are expected to be high.

**Table 1: Biomass estimates (in MT) of pelagic species in the 2016, 2017 and 2019 R/V Dr Fridtjof Nansen surveys**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MONTH/YEAR** | PELAGIC 1 | | PELAGIC 2 | TOTAL |
| Anchovies | Sardinellas | Carangids, Scombrids, Barracudas & Hairtail |
| April, 2016 | 25,000 | 500 | 107,000 | 132,500 |
| August, 2017 | 73,140 | 4,000 | 28,000 | 105,140 |
| July/August, 2019 | 18,372 | 7,398 | 41,783 | 67,553 |

*Source: Fisheries Commission*

**Table 2: Biomass estimates (in MT) of valuable demersal fish species in the 2016 and 2019 R/V Dr Fridtjof Nansen surveys**

|  |  |  |
| --- | --- | --- |
| **GROUP/SPECIES** | **April, 2016** | **July/August, 2019** |
| Sea breams | 12,959 | 11,598 |
| Grunts | 620 | 624 |
| Croakers | 567 | 1,280 |
| Groupers | 452 | 431 |
| Snappers | 1,450 | 1,026 |
| **TOTAL** | **16,048** | **14,959** |

*Source: Fisheries Commission*

## 2.4 Production from capture fisheries and aquaculture

The sources of fish in Ghana are capture fisheries in the sea, lagoons, lakes, reservoirs and rivers, and aquaculture. The total fish landings from both marine and freshwater fisheries and from aquaculture, for the period 2015 to 2020, are shown in Table 3 and Table 4.

**Table 3: Fish production (in MT) from marine and inland capture fisheries and aquaculture**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **YEAR** | **Marine fisheries** | **Inland fisheries** | **Aquaculture** | **Total** |
| 2015 | 325,355 | 86,268 | 44,610 | 456,233 |
| 2016 | 298,283 | 84,345 | 52,471 | 435,098 |
| 2017 | 306,601 | 76,754 | 57,405 | 440,760 |
| 2018 | 297,976 | 73,628 | 76,620 | 448,224 |
| 2019 | 309,320 | 81,205 | 52,350 | 442,874 |
| 2020 | 326,868 | 80,923 | 64,004 | 471,795 |

*Source: Fisheries Commission*

Table 4**: Fish landings by the various fleets operating in marine fisheries (in MT)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YEAR** | **Artisanal** | **Semi-industrial** | **Industrial** | **Tuna** | **Total** |
| 2015 | 187,414 | 11,890 | 36,713 | 89,338 | **325,355** |
| 2016 | 179,721 | 12,474 | 24,469 | 81,618 | **298,283** |
| 2017 | 176,578 | 12,474 | 31,990 | 85,559 | **306,601** |
| 2018 | 159,723 | 9,699 | 33,645 | 94,909 | **297,976** |
| 2019 | 170,149 | 11,353 | 37,507 | 90,311 | **309,320** |
| 2020 | 181,499 | 12,661 | 41,598 | 91,110 | **326,868** |

*Source: Fisheries Commission*

Table 4 shows that over the period 2015 – 2020, capture fisheries (both marine and inland) accounted for 87.1 per cent of domestic fish production in Ghana of which 69.2 and 17.9 per cent came from the marine and the inland sub-sectors respectively. Production from aquaculture constituted an average of 12.9 per cent over the same period. Of the marine fish production, 56.6, 3.8, 11.0 and 28.6 per cent came from artisanal, semi-industrial, industrial and tuna fleets respectively.

The bulk of fish species landed in Ghana are small pelagics (horse mackerel, chub mackerel, sardinellas, and anchovies). The small pelagic fish species account for about 70 per cent of the total marine fish landings in Ghana. Other fish species commonly caught in Ghana’s fishery waters include large pelagic species (skipjack and yellowfin tunas, and billfish) and demersal (or bottom-dwelling) species.

The marine fishery resources of Ghana are increasingly showing signs of full exploitation or overexploitation. There is excess capacity in all fleets except tuna fisheries sub-sector. Tuna stocks are a regional resource and species like skipjack tuna are underexploited while bigeye and yellowfin tunas are fully exploited. Although environmental fluctuations may lead at times to higher or lower catch levels, especially for small pelagics, there seems to be little scope for further increases in catch from Ghanaian marine waters. There are also signs of very intensive exploitation in lagoons.

It is estimated that about 80 per cent of inland fish landings come from the Lake Volta. However, because of the poor state of data collection in the inland fisheries sub-sector, there is uncertainty as to the exact contribution of inland capture fisheries to domestic fish production. There are signs of overexploitation of' Lake Volta fishery resources, at least in the form of a lesser number of species being caught and of the predominance of relatively small sizes in the catch (Afoakwah, et al., 2018). Rivers and other reservoirs where inland capture fisheries take place are under threat from illegal fishing and mining activities, and changes in weather conditions as a result of climate change.

In spite of the under reporting of the actual inland capture fishery production, the prospect for increased production from either marine or inland capture fisheries appears limited. These prospects are indeed entirely constrained, by the natural productivity of the fisheries resources available in Ghanaian waters. The average fish production from aquaculture for the period 2015-2020 was 57,910 MT. The subsector recorded consistent increase in production during the period reaching its highest level of 76,620 MT in 2018, but this decreased to 52,350 MT in 2019 (Table 3). The decrease was mainly attributed to the Infectious Spleen and Kidney Necrosis Virus (ISKNV) disease outbreak in the aquaculture enclave of the Volta Lake. The disease outbreak was further attributed to illegal importation of foreign strains of tilapia by some fish farmers.

Using the FAO recommended per capita fish requirement of 40 Kg, Ghana’s total annual fish requirement over the period 2015-2020 was an average 1.18 million MT. The average domestic fish production over the same period was 450,000 MT, resulting in average annual deficit of about 730,000 MT. However, using the average of the estimated per capita consumption of 22.5 Kg for the same period (Fisheries Commission, 2020), the actual requirement and the deficit would be about 662,000 MT and 212,000 MT respectively, and the deficit will stand at 32 per cent of the requirement. Since part of the local production was exported, the deficit was much more. Over the same period, the average annual fish import was 189,900 MT (Table 5).

With prospects for higher landings from the capture fisheries being limited, the situation of net deficit in fish supply is expected to worsen in time and aquaculture production is expected to contribute progressively to bridge the gap. This structural transformation will be driven largely by efficiency gains, and increased private sector investment in aquaculture to increase domestic fish production, reduce fish imports and create additional job opportunities. At the same time, however, significant steps have to be taken to ensure sustainable exploitation in the capture fisheries sub-sector.

**Table 5: Total fish imports (MT) and freight-on-board value (USD)**

|  |  |  |
| --- | --- | --- |
| **YEAR** | **Weight (MT)** | **Value (USD)** |
| 2015 | 180,802 | 154,019,585 |
| 2016 | 192,131 | 131,388,230 |
| 2017 | 197,064 | 146,124,560 |
| 2018 | 192,690 | 116,447,371 |
| 2019 | 190,617 | 78,164,476 |
| 2020 | 193,327 | 51,981,449 |

*Source: Fisheries Commission*

## 2.5 Policy and Legal Frameworks for Fisheries and Aquaculture

The current national legal framework governing the fisheries sector comprises the Fisheries Act, 2002 (Act 625) as amended by the Fisheries (Amendment) Act 2014 (Act 880) and complemented by the Fisheries Regulations, 2010 (L.I. 1968) as well as the Fisheries (Amendment) Regulations, 2015 (L.I. 2217). The Act provides for the regulation and management of fisheries, development of the fishing industry, sustainable exploitation of the fisheries resources and related matters, and applies to both inland and marine fisheries within Ghana’s fishery waters as well as aquaculture. There is also the National Premix Fuel Committee Regulations, 2016 (L.I. 2233) which regulates the management and allocation of premix fuel.

Other important legislations relevant to the management of the fisheries sector are the Ghana Shipping Act, 2003 (Act 645), the Local Governance Act, 2016 (Act 936), Local Government Act, 1993 (Act 462) and the Environmental Protection Agency Act, 1994 (Act 490).

Ghana continues to play an active role within the community of nations in operationalizing global and regional development frameworks, and contributing towards achieving agreed development aspirations. Over the years, Ghana has signed up to, and ratified several international protocols that are related to the fisheries sector. In 2015, Ghana signed three major international agreements of relevance to the fisheries and aquaculture sector, namely; the United Nations 2030 Agenda for Sustainable Development, the Africa Union’s Agenda 2063 (the Africa We Want) and the Paris Agreement on Climate Change. These agreements are expected to influence developmental interventions in Ghana’s fisheries sector hence, overall development in Ghana.

The UN Sustainable Development Goals (SDGs), specifically Goals 1, 2, 3, 12, 13 and 14, highlight the critical importance of fisheries and marine life in changing production and consumption patterns, reducing poverty and hunger, creating employment and improving livelihoods in general. Goal 14, in particular, is on conservation and sustainable use of the oceans, seas, and marine resources for sustainable development. The Paris Agreement on Climate Change, underscores the threat of climate change in all aspects of the global economy including fisheries. In Ghana, the proposed adaptation actions focus on agriculture and food security, sustainable forest resource management, resilient infrastructure, health, water resources, gender and vulnerable people.

At the continental level, there are the African Union Agenda 2063, the Comprehensive Africa Agriculture Development Program (CAADP), the African Union Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS), as well as the New Partnership for Africa’s Development (NEPAD) – Partnership for Africa Fisheries (PAF). The Africa Union Agenda 2063: The Africa We Want, has a number of its goals that are related to the fisheries and aquaculture sector. The adoption of CAADP was based on the consensus that agriculture, including fisheries, plays a crucial role in the economy of developing countries and is the main source of food, income and employment for rural dwellers. Thus, the AU Agenda 2063 and the CAADP seek to accelerate agricultural growth, including fisheries.

The PFRS was developed with the purpose of facilitating coherent policy development for the sustainable management of fisheries and aquaculture resources in the member states of the African Union. It provides opportunities for member states to optimize benefits from their natural resources by implementing the strategic reforms enunciated in the document thus offering Africa the opportunity to transition its fisheries to productivity, sustainability and profitability with options for enhanced regional collaborative management of shared resources. The NEPAD-PAF calls on member states to leverage key partnerships through research and foreign direct investment to introduce new technologies and innovations that have worked elsewhere, to elevate the levels of sustainable production and quality of fish and aquaculture products.

Ghana is also a member of Regional and International Fisheries Organizations whose decisions are binding on the country and which must be considered in national fisheries management and policy. The regional organizations include the International Commission for the Conservation of Atlantic Tunas (ICCAT) responsible for the management of tuna resources in the Atlantic Ocean, the Fisheries Committee for West Central Gulf of Guinea (FCWC), and the Ministerial Conference on fisheries cooperation among African States bordering the Atlantic Ocean (ATLAFCO). The international organizations of relevance here are the Food and Agriculture Organization of the United Nations (FAO), the Organization of African, Caribbean and Pacific Group of States, and the International Whaling Commission (IWC). There are a number of FAO-led initiatives that Ghana upholds, for example the FAO Code of Conduct for Responsible Fisheries (CCRF), and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), among others. The SSF Guidelines is the first internationally agreed instrument dedicated entirely to the small-scale fisheries sector.

Ghana is one of the countries that signed the United Nations Convention on the Law of the Sea (UNCLOS), also called the Law of the Sea Convention, when it was opened for signature on 10 December 1982 and ratified it on 7 June 1983, as the third African country and the sixth State in the world to do so. UNCLOS is the international agreement that establishes a legal framework for all marine and maritime activities. It provides the legal context for all subsequent international arrangements and agreements relating to the use of the oceans and seas, including the UN Fish Stocks Agreement and the FAO Compliance Agreement. Thus, Ghana has legal obligations under the UNCLOS to ensure the sustainability of its fisheries. The country also has obligations under the FAO Port State Measures Agreement to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA).

As per the provisions in the above-mentioned agreements and in line with responsibilities and obligations thereof, Ghana is committed to preparing and implementing a policy on fisheries and aquaculture that ensures that the country is also complying with the provisions in those agreements.

## 2.6 Institutional arrangements for the management of the fisheries and aquaculture sector

The fisheries and aquaculture sector is managed by the Ministry of Fisheries and Aquaculture Development (MoFAD), which was established in January 2013. The Ministry provides leadership role and has oversight responsibility in the management of the Sector. It has a core mandate of formulating and implementing sector policies and strategies aimed at transforming the fisheries and aquaculture sector to contribute more effectively to national development through science, technology, innovation and institutional capacity enhancement.

The Ministry has two (2) implementing agencies, namely; the Fisheries Commission (FC) and the National Premix Fuel Secretariat (NPFS). The Fisheries Commission is the key implementing agency of the Ministry established under the Fisheries Act, 2002 (Act 625) with a Board and Secretariat headed by an Executive Director. The Fisheries Commission regulates and manages the utilization of fishery and aquaculture resources through effective policy implementation. It advises the Minister on matters pertaining to ensuring the sustainable exploitation of fisheries resources. The Commission has offices in all the sixteen (16) administrative regions of Ghana.

The National Premix Fuel Secretariat (NPFS) was established by the National Premix Fuel Committee Regulations, 2016 (L.I. 2233). The NPFS serves as the Secretariat to the National Premix Fuel Committee established to facilitate the procurement and distribution of premix fuel. The Secretariat is headed by an Administrator.

The following are the vision, mission and goal of the sector Ministry:

*Vision*: To promote accelerated fisheries and aquaculture development to contribute to national development.

*Mission*: To modernize the fisheries and aquaculture sector and transform the industry into a viable economic segment through enhanced regulatory mechanisms and empowerment of the private sector for increased investment.

*Goal*: Increase domestic fish production to offset import of fish and fishery products, and develop and/or transform the fisheries and aquaculture sector into a viable economic segment to contribute to national development.

# 3.0 **POLICY DEVELOPMENT PROCESS**

This National Fisheries and Aquaculture Policy was developed through a critical examination of the National Fisheries and Aquaculture Policy of 2008 (NFAP 2008) and other policy documents related to fisheries and aquaculture. The outcome of these reviews are presented below under Situational Analysis. Under the World Bank-funded West Africa Regional Fisheries Programme (WARFP, 2013 - 2018), the World Bank and FAO carried out a comprehensive review of Ghana’s fisheries legislative framework. The outcome of the reviews has also informed the development of this policy document. The policy is also informed by recent global, continental and regional initiatives that Ghana has been a party to. The process also involved extensive stakeholder consultations on the marine, aquaculture and inland fisheries sub-sectors.

# 3.1 Situational Analysis

### 3.1.1 The 2008 National Fisheries and Aquaculture Policy

NFAP 2008 was the first comprehensive National Fisheries and Aquaculture Policy in Ghana to serve as a blueprint for the management of the fisheries sector and development of aquaculture in Ghana. The Policy was structured around four major strategic areas - management of fisheries, conservation of aquatic resources and protection of their natural habitat; promotion of value addition in the fisheries sector and the improvement of livelihood in the fisheries communities; sustainable development of aquaculture; and improvement of services provided to the sector.

Since its development, NFAP 2008 has not been reviewed to reflect emerging trends in fisheries management. For instance, ICCAT Recommendations on Transhipment; the FAO PSMA, and minimum standards for VMS in ICCAT Area, as well as, provisions for gear technology are a few examples of emerging trends in the sector which have to be incorporated into national fisheries policies. The issue of climate change and its impact on the fisheries sector, child labour and trafficking in the fisheries sector, the FAO Blue Growth Initiative, as well as Blue Economy have become key issues in fisheries management that need to be considered in a sector policy.

### 3.1.2 The Sector Medium Term Development Plan (2018-2021)

The Sector Medium Term Development Plan (SMTDP) (MoFAD, 2018a) for the fisheries sector operationalizes the development policies, strategies, and programmes contained in the Medium-Term National Development Policy Framework (2018-2021) (Agenda for Jobs) developed by the National Development Planning Commission (NDPC) as it relates to the fisheries and aquaculture sector. The Medium-Term National Development Policy Framework (2018-2021) serves as a road map for the medium term intended to guide Government investment and development partners’ support to revamp the fisheries sector to increase its contribution to national development. The main objective of the Plan is to consolidate the gains made by the sector during the period preceding the plan, and transform the fisheries sector into a viable economic segment.

### 3.1.3 The Aquatic Animal Health Policy

The Ghana Aquatic Animal Health Policy (GAAHP) (MoFAD, 2018b) was developed to achieve the overall goal of protecting farmed and wild fishes, including shellfish, from the effects of harmful infectious diseases and through prevention and control measures to ensure food safety and security thereby increasing the economic benefits of domestic and international trade in aquatic animals and their products. By strengthening prevention and control measures to ensure food safety and security, the economic benefits of domestic and international trade in aquatic animals and their products will be increased.

The policy principally focuses on five (5) component areas: biosecurity; emergency preparedness; surveillance and diagnostics; aquatic veterinary pharmaceuticals; and education, training and awareness. Its implementation is expected to help:

* Improve biosecurity measures at enterprise, regional, and national levels;
* Strengthen emergency disease preparedness and response capability to adverse aquatic animal health events;
* Improve disease detection, surveillance and diagnostic services;
* Enhance availability of appropriate and safe veterinary medicines;
* Promote education, training and awareness of aquatic veterinary health; and
* Promote domestic and international trade.

The policy also complements existing policies in the health, environment and economic sectors and enables Government to achieve its overall goal of food safety and security and in assisting industry players to boost domestic and international trade in the fisheries and aquaculture sector. The implementation of the GAAHP has intensified the enforcement of biosecurity measures to ensure compliance by aquaculture establishments.

### 3.1.4 The Co-Management Policy for the Fisheries Sector

Over the years, Ghana has been managing its fishery resources using various forms (formal and informal) of co-management, including government-supported community-based groups and other collaborative arrangements involving government, resource users and other key stakeholders in the fisheries sector, for fisheries management. The closest form of sharing management responsibility with stakeholders was promoted by the Fisheries Department (now Fisheries Commission) through the Community-Based Fisheries Management Committees (CBFMCs) established in the late 1990s and early 2000s, with chief fishermen serving as chairpersons of the committees. That was in line with global trends and innovations in fisheries management that have influenced the adoption of co-management, usually a bottom-up approach, as a management strategy.

Co-Management approach to management has been globally viewed as an acceptable best practice of fisheries governance and management where fishers and other resource users are empowered as active members in the resources management team balancing rights and responsibilities and working in partnership with government. A Fisheries Co-Management Policy (MoFAD, 2020) has been approved and gazetted by Government for implementation. When it is fully implemented, fisheries management at the regional and local levels will be significantly improved.

### 3.1.5 The Ghana National Aquaculture Development Plan

The Ghana National Aquaculture Development Plan (GNADP) (Fisheries Commission, 2012) was developed in 2012 to enable the country take advantage of its biophysical and socio-economic environment to significantly bridge the gap between national fish demand and supply in the medium term (2012-2016). The Plan was developed to facilitate the implementation of the National Aquaculture Strategic Framework of 2006 meant to facilitate the promotion of aquaculture as a business under the principle that:

1. the best investments come from matching appropriate aquaculture system and the prerequisite bio-physical and socio-economic requirements;
2. support mechanisms or services for aquaculture businesses should also be private sector-led, thereby requiring a shift in Government’s roles and responsibilities more to one of facilitation, monitoring and control.

The medium-term objectives of the GNADP included the following:

1. to increase the commercial output of farmed fish produced from 10,200 tons in 2010 to 100,000 tons by the end of 2016;
2. to increase the market share of commercially farmed fish from 3% in 2010 to 30% in 2016;
3. to improve the effectiveness and efficiency of public sector institutions in aquaculture development policy making and regulation; and

1. to improve and assure the environmental sustainability of aquaculture production and aquatic animal health as well as the social acceptability of aquaculture products.

### 3.1.6 The National Marine Fisheries Management Plan (2015-2019)

The National Marine Fisheries Management Plan (2015-2019) was developed in 2015. The Plan was developed to help address the challenges of managing the marine fisheries resources of Ghana in a bold and consultative manner with all stakeholders to halt further decline and rebuild the marine fish stocks in order to support the socio-economic lives of present and future generations of Ghanaians. It provides a strategic framework for reversing the declining trend of fish resources and establish sound management regime to ensure that fish stocks are exploited sustainably in an enhanced environment. The Plan sets out a formal harvest strategy for the fishery and provides direction for the formulation of management actions within the context of the Fisheries Act 2002 (Act, 625) and Fisheries Regulations 2010 (L.I 1968).

The Management Plan covers the activities of all vessels fishing in the marine waters of Ghana and Ghanaian-flagged fishing vessels operating outside Ghana. The Fisheries Management Plan outlined five key management measures for implementation to restore the marine fisheries resources of Ghana to sustainable levels. These measures are:

* reducing the current levels of fishing effort and fishing capacity;
* improving information on fisheries biology and stock assessment to support a stock rebuilding harvest strategy;
* effective enforcement of fisheries legislation;
* protecting marine habitat to conserve biodiversity; and
* Product certification and reducing post-harvest losses.

Key management strategies implemented from the Plan include the annual closed seasons to reduce excessive pressure on marine fishery resources and help replenish the dwindling fish stock as well as the introduction of observers on board vessels. The management plan is being revised.

## 3.2 Stakeholder consultations

This National Fisheries and Aquaculture Policy was developed through a comprehensive stakeholder participation. The process involved stakeholder consultations for marine, and inland fisheries, and aquaculture sub-sectors. Inputs gathered from stakeholders during the consultations provided the operational focus of this Plan. The objective of this approach was to build strong plan implementation partnership with industry players, regulators, researchers and private sector operators in the sector. The approach also aimed at enhancing effectiveness, efficiency and measurement for results in plan coordination and implementation.

# 4.0 **POLICY FRAMEWORK**

## 4.1 Policy Problem Statement

The fisheries and aquaculture sector has continuously contributed to national development. However, the percentage contribution to GDP fell from 1.46% in 2015 to 0.94% in 2020 (Fisheries Commission, 2020). Similarly, the percentage contribution towards the agriculture GDP fell from about 7% in 2015 to 5% in 2020. The decline is partly attributed to the rebasing of the economy with the oil and gas finds in Ghana with its notable effects on agriculture including fisheries. There are also fisheries-specific issues that could have contributed to this decline.

The decline in contributing to GDP has also impacted negatively on poverty reduction in fishing communities in the Urban Coastal and Rural Coastal as indicated in Box 2 below.

**Box 2: Poverty Incidence in coastal communities in Ghana (Sources: GLSS 6, 2014; GLSS 7, 2019; Fisheries Commission 2019 Annual Performance Report)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Locality** | **2005/2006** | | **2012/2013 2016/2017** | | | |
| **Incidence of Poverty in Coastal Communities** | | | | | |
| **Poverty** | **Extreme poverty** | **Poverty** | **Extreme poverty** | **Poverty** | **Extreme poverty** |
| **Urban Coastal** | 6.4 | 1.1 | 10.1 | 2.0 | 8.3 | 0.9 |
| **Rural Coastal** | 27.2 | 9.6 | 30.3 | 9.4 | 29.9 | 6.9 |

Box 2 shows a comparison in poverty rates between urban and rural and coastal communities; generally, most fishing villages are included in the rural sector. The noticeable reduction in extreme poverty in rural coastal from 9.4 in 2012/2013 to 6.9 in 2016/2017 could be attributed to the various Government social interventions such as the Livelihood Empowerment Against Poverty. In spite of the marginal (0.4) decline in poverty levels in rural coastal communities between 2012/2013 and 2016/2017, rural coastal communities remain the second highest behind rural savannah (GLSS 6, 2014; GLSS 7, 2019). Obviously, there is need for more effective and drastic management interventions in fishing communities and this can be aided by fisheries management measures that ensure sustainable exploitation of fishery resources.

The fisheries resources, especially marine, are fully exploited and many are currently showing signs of overexploitation. The aquaculture subsector which has been considered as the alternative to reduce excessive pressure on marine fishery resources has not been fully developed. A large proportion of aquaculture operations in Ghana is carried out by small and medium scale enterprises. The following issues have been identified as some of the key factors that inhibit the development of the fisheries and aquaculture sector in Ghana.

1. Weak extension service delivery: One essential input for the growing aquaculture sub-sector in Ghana is the provision of quality and timely extension delivery services to fish farmers across the country. Quality of service is a function of relevant skills and competencies and the number of service providers. Currently, there is limited number of skilled extension service providers in the aquaculture sub-sector. There is the need to hire and train additional extension service staff to meet the increasing demand in extension service delivery to aquaculture operators.
2. Low level of private sector investment in Aquaculture: There are three (3) categories of aquaculture producers (i.e. small, medium and large scale operators). Small and medium scale producers lack adequate access to financial resources to invest and expand their operations. Coupled with this is the high interest rates charged by financial institutions. There are also inadequate economic incentives to attract private sector investment into the aquaculture sub-sector. The effect is that aquaculture production targets are not realized. There is therefore the need for a strong partnership with the private sector through the provision of appropriate economic incentive packages to enable small and medium scale fish farmers expand their operations to increase production. The provision of economic incentives will also attract new entrants into the aquaculture industry to increase domestic production that will help reduce fish imports in the long run.
3. High cost of aquaculture inputs: Fish feed and fingerlings are critical inputs for aquaculture production just as fertilizer and improved seedlings are important for increasing food crop production in Ghana. Currently, there are only three (3) private feed mills producing fish feed for fish farmers in Ghana. This has created a gap between demand and supply, resulting in high feed cost (which constitutes about 70 per cent of production cost).
4. Limited access to good quality fingerlings: Availability of good quality fingerlings is one of the ways of increasing fish production in aquaculture. Unfortunately, there is limited access to good quality fingerlings across the country. This situation has compelled some farmers to smuggle fingerlings from other countries into Ghana, which resulted in the introduction of some fish diseases in the country in 2018. There is the need to support local research in the improvement of the broodstock of tilapia and catfish in country.
5. Diversification of culturable species: The aquaculture subsector depends mainly on tilapia and catfish species for culture. There is the need to consider the culturing of other species. To achieve this, biological research should be carried out in the areas of reproduction, nutrition, larval rearing to market size (grow-out), fish health and product quality.
6. Untapped productive capacity of Aquaculture: Although aquaculture production increased from 10,199 MT in 2010 to 64,004 MT in 2020, there is huge potential for it to grow at an accelerated rate if the untapped productive capacity of the sub-sector is effectively harnessed. The untapped capacity includes (1) abundant water bodies, (2) availability of relatively cheap labour force, (3) high demand for aquaculture products (domestic and sub-regional markets), (4) availability of agricultural by-products as input support to increase production, and (5) promising aquaculture value chain.
7. Low compliance with biosecurity measures and regulations: Strict adherence to biosecurity measures and standards regulations for aquaculture establishments is an essential investment protection tool. This is because the occurrence and spread of fish diseases can wipe out huge investment capital outlays in an entire aquaculture production enclave. A huge number of aquaculture establishments, especially those operated by small and medium scale fish farmers, and hatchery operators in Ghana, do not abide by standard regulations and bye-laws in relation to safe and good fish farming practices. For example, the fish disease outbreak on the Volta Lake that devastated a number of fish farms in 2018 and 2019 was due principally to non-adherence to biosecurity measures and standard regulatory practices (at farm level) by fish farmers on the Lake. Because of low compliance, aquaculture establishments do not maximize returns on their investments.
8. Over-exploitation of fisheries resources: The inconsistency in the establishment of a balance between available fish stock levels and the number of vessels exploiting the resource has put tremendous pressure on fishery resources, especially in the marine sub-sector. Also, the apparent open access for artisanal fishers has compounded the over exploitation challenge.
9. Weak involvement of communities in fisheries resource management: There is weak community involvement of fishing communities in fisheries resource management in Ghana, despite the involvement of numerous Government Agencies and Non-Governmental Organizations in coastal Resource Management. The result is that fishers regard themselves as “Aliens” in programmes and projects that are intended to promote co-management of fisheries resources. This makes it difficult for communities to effectively own and implement prescribed interventions coming from outside since they are not involved in the design stages of these “prescribed/imposed interventions”.
10. Inadequate fisheries infrastructure: The fisheries sector is faced with infrastructure deficit such as limited number of fish health laboratories, hatcheries, state-of-the art landing sites, and dedicated fisheries educational facilities. There are only three (3) functional public hatcheries (i.e. Pilot Aquaculture Centre at Kona-Odumasi, Aquaculture Demonstration Centre at Ashaiman, and Aquaculture Research and Development Centre at Akosombo) in Ghana that produce fingerlings for the large number of fish farmers. Between 2008 and 2017 there were several attempts to build twelve (12) modern landing sites but these did not yield the expected results. The number of fish health laboratories is also limited to serve the disease challenges facing the aquaculture industry.
11. Weak inter-agency collaboration: MoFAD recognizes that the production of sector specific public goods does not reside with a single institution or sector, but rather a collective responsibility of all relevant sectors. Currently, inter-agency collaboration to implement sector programmes is weak, resulting in duplication of efforts and waste of scarce financial development resources.

Sustainable management of fisheries resources for the benefit of current and future generations is of paramount importance to the Government. The rapid depletion of fisheries resources mainly through human activities such as over-capacity and illegal fishing practices need to be adequately addressed if the Government’s Goal to safeguard the fishing industry is to be achieved. In addressing these challenges, the Ministry faces significant constraints that require review and/or possible adjustments of the legal and regulatory framework as well as a significant effort to improve staff capabilities. The Ministry needs to play a catalytic role in providing for livelihood improvements in fisheries communities. New partnerships need to be developed and appropriate financing is required. This National Fisheries and Aquaculture Policy is therefore, developed to help address these issues.

## 4.2 Policy Priorities and Principles

At the national level, the development and implementation of this Policy is guided by the Medium-Term National Development Policy Framework (2018-2021) (Agenda for Jobs) which operationalizes the Coordinated Programme of Economic and Social Development Policies (2017-2024). The Plan also takes into account national policies such as the Ghana National Climate Change Policy, the Co-Management Policy for the Fisheries Sector, the Food and Agriculture Sector Development Policy (FASDEP II); the National Marine Fisheries Management Plan, and the Sector Medium-Term Development Plan.

The Coordinated Programme of Economic and Social Development Policies (2017-2024) outlines Government’s vision and offers a comprehensive diagnosis of the socio-economic challenges confronting the country. It presents new approaches to addressing them, and the specific interventions to be introduced to overcome them. The Policy document also contains selected flagship programmes and projects, which will serve as the broad expression of Government policies.

**The following national development priorities and general principles, which are subjected to periodic reviews, inform and guide the National Fisheries and Aquaculture Policy:**

* **Poverty reduction: consideration is given to the national agenda for poverty reduction in connection with actions undertaken in the sector;**
* **Decentralization: in line with current practice, decentralized and community-based institutions play a key role in co-management and development;**
* **Divestiture of government function: involvement of government in activities that can be carried out by the private sector is avoided;**
* **Gender equity: the active participation and respective role of men, women and youth in the sector is recognized and accounted for;**
* **Code of Conduct: actions are guided by the FAO Code of Conduct for Responsible Fisheries, its supporting international fisheries instruments and related technical guidelines;**
* **Stakeholder participation: the Policy supports stakeholder participation at community and industry level with regard to fisheries management and sector development;**
* **Sustainability: the Policy seeks to avoid the overexploitation of fisheries resources and detrimental environmental and economic impacts;**
* **Precautionary principle: where there is inadequate scientific knowledge, precautionary measures will be applied to reduce the risk of serious harm to livelihood of fishers, fish stocks, habitats and the aquatic environment in general;**
* **Conservation: the Policy seeks to ensure appropriate use of fish and fishery resources to conserve biodiversity;**
* **Research: the Policy seek to ensure that scientific research should be the basis to drive development and management of the fisheries sector;**
* **Education, Training and Public Awareness: the Policy will ensure education and training of all stakeholders and also create public awareness of the fisheries sector;**
* **Equity: equity guides Government action in general and in relation to the specificities of the sector. Intergenerational equity is sought through resource management and environmental protection. Gender-related equity is sought in participatory and co-management processes. The user pays principle is applied whereby users of common property natural resources such as fisheries pay access fees and contribute towards the cost of managing fisheries for the benefits of future generation;**
* **Polluter pays principle: integrate pollution control measures in fisheries management;**
* **Transparency and accountability: these general principles of good governance also guide Government action; and**
* **Public Private Partnership (PPP):**  to provide the framework for PPP arrangements in the fisheries and aquaculture sector.

In addition to these **national development priorities and general principles, the Policy is also informed by key international initiatives and best practices of relevance to capture fisheries and aquaculture as provided below.**

### 4.2.1 The Blue Growth Initiative and Blue Economy

FAO’s Blue Growth Initiative (BGI) seeks to improve the governance and management of aquatic ecosystems, through conservation of biodiversity and habitats as well as empowering communities (FAO, 2017). By this approach, BGI aims at reducing environmental degradation across sectors related to fisheries and aquaculture while supporting responsible and sustainable fisheries and aquaculture sectors. BGI covers mainly four streams namely; i) capture fisheries; ii) aquaculture; iii) ecosystem services contributing to livelihoods; and iv) trade, markets, post-harvest and social support. The Blue Growth Initiative is considered as a vehicle to achieve Sustainable Development Goal 14 (SDG 14, Conserve and sustainably use the oceans, seas and marine resources).

Blue Economy is also an emerging concept which promotes the responsible and sustainable management of the ocean and the use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem (World Bank, 2017). It is also a key element towards the attainment of SDG 14, and recognizes that this will require coordinated actions to sustainably manage, protect and preserve the ocean for the present and future generations. Blue Economy puts particular emphasis on the close linkages between the ocean, climate change and the wellbeing of the people. It involves exploring and optimizing the potential of the oceans and seas for socio-economic development while preserving the health of the oceans. The Blue Economy provides a great opportunity to access ocean resources and ensure food security and gainful employment, only if the resources are sustainably harvested and well-managed. It links production and consumption to capacity and envisages an integrated approach to economic development and environmental sustainability. Blue Economy also pays special attention to the seafood value chain.

The above initiatives therefore aim at promoting investment and innovation in support of food security, poverty reduction, and the sustainable management of aquatic resources. These initiatives take an overall approach towards improving sustainable growth and management of aquatic resources.

### 4.2.2 Gender and Youth Issues

In the fisheries sector, inequalities especially concerning the role of women in fisheries and aquaculture remain a challenge. The role of women in the fisheries and aquaculture is often not documented, and hence undervalued. This leads to a loss of development opportunities and undermines the contribution of the sector to food and nutrition security, poverty eradication, equitable development and sustainable resource utilization.

To address the issue of gender equality, there is the need for a long-term bottom-up approach that requires adequate funding. This approach needs to recognize the critical role played by women within fisheries and put in place mechanisms to promote and protect women’s rights to participate in all aspects of marine, coastal and inland water fisheries governance and management. It should also seek to improve access of women to fish and fish markets, particularly through the provision of credit at affordable rates.

Young people represent the future and therefore need to be fully engaged in shaping that future. The youth are very often hit by unemployment and limited access to resources and services. There is therefore the need for specific attention the youth issues in the fisheries sector. The youth will have to be equipped with the appropriate skills, particularly in aquaculture, through education and empowerment. It is for these reasons that gender and youth issues have been given the needed attention in this Policy.

### 4.2.3 Child Labour and Trafficking in the Fisheries Sector

Child Labour and Trafficking (CLaT) is a major global problem that governments, civil society and development partners show grave concern about because of its devastating impact on society. The International Labour Organization (ILO)'s 2008 estimate asserts that about 60 per cent of the 215 million boys and girls engaged in child labour are in the agricultural sector, including fishing (MoFAD, 2018c).

The Ghana Statistical Service Ghana Living Standards Survey (GLSS) Round 6 (2014), a nationally representative household survey which provides reliable, disaggregated and internationally comparable welfare and living conditions statistics in Ghana, estimated that 2.7 million children were engaged in child labour in Ghana. The GLSS estimated further that about 1.2 million of these were engaged in hazardous forms of child labour. Empirical evidence points to the fact that, particularly in the artisanal fisheries sector, children are engaged to work and many are trafficked from one location to the other to engage in fishing.

In response to the prevalence of CLaT and the urgent need to eliminate it, Ghana has ratified a number of international conventions and treaties, including the United Nations Convention on the Rights of the Child (UNCRC), ILO Conventions 189 (related to worst forms of child labour, WFCL) and 138 (dealing with Minimum Age to Employment). The Government of Ghana has also enacted legislations including the Children's Act, 1998, Human Trafficking Act, 2005, Domestic Violence Act, 2006, among others. A Child and Family Welfare Strategy, National Social Protection Strategy and National Action Plan against Child Labour have all been developed to reduce CLaT.

MoFAD, with the assistance of the United States Agency for International Development (USAID) Sustainable Fisheries Management Programme, developed the Anti-Child Labour and Trafficking Strategy for the Fisheries Sector (MoFAD, 2018c) to help address the issue of child labour and trafficking in the sector. Specific strategies outlined in the document include those on withdrawal and rescue, rehabilitation, integration, and prevention. Others are community awareness and behaviour change communication, investigations and prosecution, and institutional strengthening and capacity building strategies. Priority Areas identified include public awareness and advocacy; health, welfare and social protection; education, training and capacity building; social development, decent work and reintegration; and governance, legislation and enforcement. The issue of child labour and trafficking in the fisheries sector are given the needed attention in the various areas in this Policy.

# **5.0 POLICY AREAS, GOALS AND RELATED ACTIONS**

Below is the list of focus areas considered in this policy; the goals, operational objectives, and policy action for each policy focus area are also elaborated below.

* Marine Fisheries
* Lagoon Fisheries
* Inland Fisheries
* Aquaculture
* Fisheries Infrastructure Development
* Post-Harvest Management & Trade
* Aquatic Animal Health
* Environment & Climate Change
* The special case of Small-Scale Fisheries
* Fisheries Governance
* Research and Innovation

## 5.1 Marine Fisheries

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*Goal:* A responsible and sustainably managed marine fisheries subsector that operates with a strong private sector under national and international regulatory frameworks

**Operational objectives**

The following operational objectives are to be pursued:

* + 1. To establish specific management and conservation measures based on regular assessments of the status of fish stocks and associated aquatic environment.
  1. 2 To improve the effectiveness of stakeholder institutions and mechanisms for co-management.
     1. To ensure the sustainability of commercial fisheries through appropriate regulations and management measures.
     2. To protect and improve the aquatic environment, including biodiversity and habitats.
     3. To combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance systems.
     4. To establish and/or strengthen and promote effective collaboration among key national and international actors.

**Policy actions for Operational Objective 5.1.1: Assessment and monitoring of fish stocks**

1. Revamp statistical monitoring to improve on the quality of information regarding fishing units, catch and effort.
2. Establish clear priorities for periodic in-depth monitoring and assessments of specific fisheries and their management. Adapt present work on monitoring and assessments to the requirements of an ecosystem approach to fisheries management.
3. Maintain a fleet register for semi-industrial and industrial vessels, and canoes.
4. Design and initiate a programme of policy research in the area of fisheries management and conservation so as to inform and guide policy making and effective implementation.
5. Support and participate actively in bilateral and regional processes and institutions such as ICCAT, Fishery Committee for the Eastern Central Atlantic (CECAF), FCWC and ATLAFCO for the assessment and management of fisheries, particularly of shared fish stocks.
6. Strengthen collaboration and cooperation with national and international research agencies and institutions in fisheries research.

**Policy actions for Operational Objective 5.1.2: Improve the effectiveness of stakeholder institutions and mechanisms for co-management**

1. Promote co-management in the fisheries sector and encourage the involvement and support of NGOs in the process.
2. Facilitate the implementation of the National Co-management Policy for the Fisheries Sector, 2020
3. Ensure periodic review of the National Co-management Policy for the Fisheries Sector

**Policy actions for Operational Objective 5.1.3: Regulations and management measures**

1. Pursue the development and implementation of management plans for the various fisheries.
2. Adhere to principles of co-management, the ecosystem approach to fisheries, the precautionary approach and international best practices for fisheries management.
3. Conduct periodic assessments of fisheries management measures, their relevance in a changing environment, the degree to which these are implemented and their effectiveness, and adapt these measures accordingly.
4. Review existing approaches and measures on the control of access to fisheries, such as licensing, and seek to extend such control to small-scale fisheries in collaboration with fishing community organizations.
5. Prepare and periodically review a National Plan of Action for the management of fishing capacity in accordance with the FAO International Plan of Action for the Management of Fishing Capacity in the context of the FAO Code of Conduct for Responsible Fisheries.
6. Assess the impact of subsidies in the fisheries sector (e.g. subsidy on pre-mix fuel) on fisheries management efforts and fishing capacity.
7. Regulate and control destructive fishing practices with an objective of eventually banning them.
8. Regularly update fisheries specific management plans and promote stakeholder awareness of their content.
9. Develop plans for the management and conservation of endangered and or protected species like sharks, sea turtles, dolphins and other fish species, in line with relevant FAO International Plan of Action.
10. Give priority to artisanal fisheries in the allocation of fishing quotas in view of their significant contribution to value addition and poverty reduction and in accordance with the FAO SSF Guidelines.

**Policy actions for Operational Objective 5.1.4: Protecting and improving aquatic environments**

1. Monitor aquatic biodiversity and key habitats through periodic assessments to identify critical changes and their origin.
2. Identify vulnerable marine ecosystems and advise on steps that could be taken to prevent adverse impact on them.
3. Review area-based management and conservation measures with the view to promoting the establishment of marine protected areas for the purpose of sustainability and conservation of critical habitats and biodiversity.
4. Strengthen the regulatory framework and extension work with the aim of protecting and enhancing the productivity of coastal wetlands and associated fauna and flora (e.g. mangroves).
5. Increase awareness and knowledge of riparian communities on the importance of a healthy aquatic environment to the productivity of the ecosystems.
6. Ensure effective collaboration between the Ministry of Fisheries, the Environmental Protection Agency and other relevant institutions in order to adopt and implement regulations aimed at protection of the aquatic environment.
7. Encourage NGOs and other stakeholder institutions that support aquatic environmental protection to network and collaborate more effectively in relation to fisheries management.
8. Seek and strengthen inter-agency collaboration to address negative impact of other policies on fisheries.

**Policy actions for Operational Objective 5.1.5: Combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance systems**

1. In collaboration with the Ministry of Transport, in particular the Ghana Maritime Authority (GMA) and the Ghana Ports and Harbours Authority (GPHA), enact regulations to implement the FAO PSMA.
2. Update and continue with the implementation of the National Plan of Action (NPoA) to combat IUU fishing, in line with the international plan (IPOA-IUU).
3. Seek and strengthen more efficient inter-agency collaboration for MCS operations (e.g. the use of the GMA Vessel Traffic Management Information System (VTMIS).
4. Enter into a collaborative agreement with artisanal fishing communities (marine), particularly CBFMCs, to undertake surveillance of fishing grounds and enforcement of measures to avoid IUU by artisanal fishers.
5. Improve the electronic monitoring systems in operation in order to cover activities of all fishing vessels and at all times.
6. Strengthen and increase the coverage of fishery observer programmes.
7. Seek and arrange for the financing required to upgrade MCS infrastructure (patrol boats and surveillance aircraft) in a cost-effective manner.
8. Take complementary steps to strengthen MCS capacity aimed at reducing IUU through regular inspection of fishing gear at sea and at landing sites and fishing ports.
9. Enforce regulations on fines and penalties for all fishing crafts and fishers that engage in IUU fishing.
10. Collaborate effectively with neighbouring countries in MCS activities (e.g. through the FCWC Regional MCS Centre) given the shared nature of the fisheries resources and the need for their joint management and cost effective MCS implementation.

**Policy actions for Operational Objective 5.1.6: To establish and/or strengthen and promote effective collaboration among key national and international actors**

1. Strengthen collaboration and cooperation with international and regional organizations in the management of highly migratory and straddling fish stocks (e.g. tunas), shared and common stocks (e.g. sardinellas in the Western Gulf of Guinea).
2. Collaborate effectively with CECAF for the monitoring, evaluation and management of non-tuna fishery resources and fisheries in West Africa, giving appropriate emphasis to the need for more multi-disciplinary work and a more policy-oriented approach.
3. Continue to provide support for the Fisheries Committee for the West Central Gulf of Guinea (FCWC) as an operational instrument for sub-regional cooperation for fisheries management and conservation and for the management of shared stocks fisheries in particular.
4. Collaborate with regional fisheries bodies and regional seas conventions to address the degradation of ecosystems and habitats to mitigate the impact of climate change.
5. Collaborate with national stakeholders including institutions, fishers, CBOs and NGOs for sustainable management of the various fisheries.

## 5.2 Lagoon Fisheries

Several lagoons are located along the coastline of Ghana. These lagoons and associated wetlands form part of the interface between the land and the sea. The coastal wetlands are important components of the coastal ecosystem as they are crucial nursery and feeding grounds for a large number of marine and freshwater fish species. In a study of three of the coastal lagoons, Koranteng et al. (1998) recorded 20 fish species 8 of which were typical marine species of economic importance. The species either have their juvenile forms move into the lagoons from the sea or spend sometime in the lagoons. As noted by Entsua-Mensah (2002), the coastal lagoons and associated wetlands “present unique environments and habitats that provide valuable products and services which include support of fisheries, flood assimilation, regulation and supply of water and protection of biodiversity”. Thus, healthy lagoon ecosystems are important for the health of the coastal ecosystem and associated fisheries. However, many lagoon ecosystems in Ghana are seriously degraded as a result of unregulated urbanization, agricultural run-off, and domestic and industrial pollution, among other causes.

Coastal wetlands in Ghana also support internationally important populations of migratory water birds. In 1988, Ghana ratified the Ramsar Convention, an international agreement promoting the conservation and wise use of wetlands, and designated some coastal sites as Ramsar sites in 1992. Management of Ramsar sites in Ghana is the responsibility of the Wildlife Division of the Forestry Commission of Ghana, hence collaboration with the Division will be sought for the implementation of the actions outlined in this policy.

**Goal: Coastal lagoon ecosystems are restored and the resources harnessed with shared benefits management system in place and functional**

**Operational objectives**

The following operational objectives are to be pursued:

5.2.1 To restore, protect and improve the coastal lagoon ecosystem, including biodiversity and habitats.

5.2.2 To promote sustainable use of lagoon resources through appropriate regulations and management measures.

**Policy actions for Operational Objective 5.2.1: Restore, protect and improve the coastal lagoon ecosystem, including biodiversity and habitats**

1. Consolidate knowledge from previous studies aimed at understanding the ecological and socio-economic importance of coastal lagoons and associated wetlands.
2. Carry out an assessment of national and international policies and management measures related to coastal wetland ecosystems and see to the incorporation of essential elements in relevant national legislative instruments and management regimes.
3. Establish multi-stakeholder forum at District level to promote conservation measures.
4. Promote local participation in conservation of lagoon resources through joint ownership and management as well as enforcement of regulations.

**Policy action for Operational Objective 5.2.2: Promote sustainable use of lagoon resources through appropriate regulations and management measures**

1. Highlight the importance of lagoon fisheries as a source of domestic fish supply.
2. Carry out an assessment of status of the fish stocks in the lagoons.
3. Design and implement statistical monitoring of lagoon fisheries to obtain information regarding fishing units as well as catch and effort.
4. Sensitize stakeholders on regulations and management measures to promote voluntary compliance.
5. Enforce regulations and management measures.

## 5.3 Inland Fisheries

Ghana’s inland fisheries comprises exploitation of fish resources from the Volta and other lakes, reservoirs and rivers. Most of these water bodies are currently showing signs of over exploitation, environmental degradation and threats from climate change. Measures are required to strengthen the regulatory framework to ensure effective implementation of conservation measures aimed at protecting habitats and biodiversity to ensure the sector contributes fully to food security and livelihood of small-scale communities.

**Goal: Inland fisheries subsector managed sustainably to increase its contribution to domestic fish supply and export**

**Operational objectives**

The following operational objectives are to be pursued:

5.3.1 To establish specific management and conservation measures to improve freshwater environment, biodiversity and habitats based on regular assessments of the status of fisheries and their aquatic environment.

5.3.2 To ensure the sustainability of inland fisheries through effective stakeholder institutions and collaboration, both national and international with mechanisms for co-management.

5.3.3 To combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance.

5.3.4 To increase the contribution of fish supply from inland water bodies

5.3.5 To promote Co-Management in inland fisheries

**Policy actions for Operational Objective 5.3.1: To establish specific management and conservation measures to improve aquatic environment, biodiversity and habitats based on regular assessments of the status of fisheries and their aquatic environment.**

1. Conduct periodic in-depth monitoring and assessments of specific fisheries and their management.
2. Conduct regular stock assessment and canoe frame surveys to improve the data and information on fleet size and fish production, among others.
3. Undertake regular assessments of the status of fisheries and their aquatic environment as input for policy decisions.
4. Develop, implement and periodically review inland fisheries management plan.
5. Adapt fisheries activities based on periodic assessments of fisheries management measures, their relevance and effectiveness.

**Policy actions for Operational Objective 5.3.2: To ensure the sustainability of commercial fisheries through effective stakeholder institutions and collaboration**

1. Promote collaboration with national and international research agencies and institutions.
2. Participate actively in multilateral, national and international processes for the assessment and management of inland fisheries.

**Policy actions for Operational Objective 5.3.3: To combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance**

1. Enforce fisheries laws and regulations on all inland water bodies by strengthening MCS capabilities through education and collaboration with stakeholders.
2. Ensure regular sensitization of fishing communities to encourage voluntary compliance.

**Policy action for Operational Objective 5.3.4: To increase the contribution of fish production from inland water bodies**

1. Assess and streamline statistical monitoring to improve the quality of information regarding fishing units as well as catch and effort.

**Policy actions for Operational Objective 5.3.5: Promote Co-Management in Inland Fisheries**

1. Promote co-management in the inland fisheries sector and encourage the involvement of NGOs in supporting the process.
2. Pursue current efforts to establish decentralized and community-based fisheries management through the establishment of co-management committees in communities bordering large freshwater bodies.
3. Establish measures to sustain and support the co-management committees
4. Working with the communities, assess the strengths and weaknesses of such an approach and seek ways of securing more active involvement of riparian communities in fisheries management and conservation.
5. Sensitize and educate fishing communities on co-management.

## 5.4 Aquaculture Development

Most of Ghana’s capture fisheries are fully exploited and many are currently showing signs of overexploitation and the habitats are suffering from environmental degradation. Obviously, significant additional production from marine capture fisheries cannot be expected in the short to medium term. In time, aquaculture will be expected to play a key role in ensuring fish food security. At present the utmost priority is to build a solid basis for aquaculture development. Based on years of disappointing experience in Africa with the promotion of small-scale (family, subsistence, or barely commercial) fish farming, the conclusion is that such an approach, while socially appealing, faces severe objective constraints. The policy will encourage commercial farming on a scale that is appropriate to profitability requirements for markets in which aquaculture products can compete with capture fisheries products.

Goal: **A developing and viable aquaculture sub-sector contributing to domestic fish supply and export**

**The following operational objectives are pursued to address the challenges**:

* + 1. To strengthen the complementary role of private and public sectors and build strong partnerships among public and private institutions and civil society organizations.
    2. To strengthen extension services through education and research
    3. To promote appropriate and sustainable aquaculture production systems.
    4. To establish quarantine facilities, and develop health certification protocols and guidelines for introduction of exotic fish species
    5. To develop and implement guidelines on culture-based fisheries.
    6. To reduce the impact of aquaculture operations on the environment
    7. To define and regularly update regulatory framework on aquaculture development in line with international standards and regulations.
    8. To promote diversification of fish species for aquaculture.

**Policy actions for Operational Objective 5.4.1: To strengthen the complementary role of private and public sectors and build strong partnerships among public and private institutions and civil society organizations.**

1. Encourage private sector institutions (farmers, fish farmers’ associations, agro-industry and financial institutions) to take up roles in aquaculture development, including for the provision of inputs and extension services.
2. Review public sector aquaculture facilities, such as fingerling production farms and demonstration stations, by a set of criteria (e.g. services provided, cost effectiveness, profitability) to allow for a better definition of function. Divestiture should be applied when necessary.
3. Ensure that aquaculture-related public institutions work in a coordinated manner within the same understanding of the national policy and develop some specialization in offering support services.
4. Promote the affiliation of new fish farmers to farmer associations, networking among such associations and training for members through appropriate means.

**Policy actions for Operational Objective 5.4.2: To strengthen extension services through education, regular training and research**

1. Establish formal collaboration between existing training institutions and industries involved in aquaculture to develop and assist in the implementation of key training programmes in support of demands expressed by aquaculture operators.
2. Conduct training needs assessment for public institutions, farmer associations and other operators.
3. Develop basic and comprehensive curricula for aquaculture education and training at all levels in close collaboration with appropriate stakeholders.
4. Facilitate the organization of short courses in commercially viable fish farming by both private and public institutions as means of building human resource base and raising of awareness.
5. Regularly assess the effectiveness of extension services and ways to promote quality, focusing on targeted production systems.
6. Based on periodic assessment of demand for extension services, increase the number of extension agents available to assist fish farmers and initiate a programme of intensive training and retraining of extension personnel to increase or complement the competencies of such personnel.
7. Establish an information support unit and complement it by a Research Extension Linkage system that ensures the timely dissemination of key information and research findings.
8. Establish a demand-driven agenda for aquaculture research and identify sources of funding for such research in collaboration with stakeholders and development partners, and mainstream social and economic research into such a research agenda.

**Policy actions for Operational Objective 5.4.3: To promote appropriate and sustainable aquaculture production systems**

1. Establish clear and unequivocal national guidelines on the type of aquaculture systems and approaches that should be promoted. Disseminate the national guidelines on aquaculture promotion (NGAP) and seek partner adherence to such guidelines.
2. Compile periodic information on seed and feed producers and estimate potential supply on this basis.
3. Establish guidelines for fingerlings production, brood stock management and fish seed quality.
4. In collaboration with appropriate institutions, establish standard procedure for the evaluation of the quality of feed produced by industry for fish farmers.
5. Promote financing mechanisms for aquaculture through creating awareness on potential profitability, the development of institutional credit facilities, and the establishment of revolving funds by aquaculture-related associations.
6. **Map out and characterize zones of high aquaculture potential. Promote the use of the African Water Resource Database (AWRD) as a mechanism to pre-select areas and monitor land and water use for aquaculture.**
7. **Discourage non-specialized national institutions, NGOs and development partners from promoting aquaculture outside of areas of high potential and in the manner that does not conform to NGAP.**
8. **Establish procedures for the acquisition by investors of property or access rights to suitable land and water areas for aquaculture production.**
9. **Sensitize local and traditional authorities on land and water conflicts management as well as the potential effects of aquaculture production on their natural, social and economic environment.**
10. **Develop and promote species with potential for culture in lagoons and marine waters e.g. mangrove oyster and clams.**
11. **In collaboration with the Irrigation Development Authority, implement, in suitable areas, the existing policy on the use of 5% of irrigable land for aquaculture.**
12. **Establish standards for the definition of suitable areas for pond culture, other types of freshwater aquaculture (e.g. Integrated Aquaculture-Agriculture (IAA), Integration of Irrigation and Aquaculture (IIA), pens and cages) as well as for brackish and marine culture.**

**Policy actions for Operational Objective 5.4.4: To establish quarantine facilities, and develop health certification protocols and guidelines for introduction of exotic fish species**

1. Compile periodic information on sources of fish fingerlings and movement of live fish.
2. Promote the documentation of the health status of live fish, fish farms and the disease history of brooders and their supply sources.
3. Establish standard evaluation procedure of fish farms, facilities and materials.
4. Establish fish quarantine stations and aquatic animal health laboratories.
5. Draw up public health procedures to prevent spread of diseases and to encourage the reporting of fish diseases to the authorities, including rapid intervention mechanisms.
6. Develop guidelines for farm certification, shipment inspection and quarantine procedures.
7. Enhance cooperation between public and private stakeholders to address the need for concerted action on the introduction of exotic species.
8. Prepare and implement regulations to guide the introduction of exotic fish species into Ghana.
9. Enhance capacity for the management of exotic fish species.

**Policy actions for Operational Objective 5.4.5**: **To develop and implement guidelines on culture-based fisheries.**

1. Assess the feasibility to develop and promote species suitable for culture-based fisheries in reservoirs.
2. Collaborate with the appropriate agencies to develop regulations and standards to govern the construction and size of reservoirs with a view to enhancing the profitability of culture-based fisheries.
3. Ensure that communities which own reservoirs manage them appropriately to enhance fish production on a sustainable basis.
4. Issue clear directions on which species to stock and at which locations

**Policy actions for Operational Objective 5.4.6: To reduce the impact of aquaculture operations on the environment**

1. Encourage collaboration between the fish farmers’ associations and the Environmental Protection Agency to enhance good aquaculture practices.
2. Establish an evaluation procedure of the negative effects of fish farms on the environment with a view to ensuring that aquaculture practices do not endanger the environment (similarly for possible effects of environmental degradation on aquaculture).
3. Ensure that an environmental impact assessment is undertaken and approved for the setting up of any aquaculture establishment
4. Commercial fish farming activities should be undertaken in line with FAO’s Ecosystem Approach to Aquaculture.

**Policy actions for Operational Objective 5.4.7: To define and regularly update regulatory framework on aquaculture development in line with international standards and regulations.**

1. Establish mechanisms for the implementation of the regulatory framework and the enforcement of the regulatory provisions with the assistance of appropriate institutions.
2. Develop regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.
3. Participate actively in the Aquaculture Network for Africa (ANAF) for the exchange of experience, documentation and expertise in aquaculture for purposes ranging from training to research or policy development. (5.4.5)
4. Participate actively in the deliberations and activities of the FAO Committee for Inland Fisheries and Aquaculture of Africa (CIFAA) and other relevant international institutions, to benefit from regional cooperation in research and development. (5.4.5)

**Policy actions for Operational Objective 5.4.8: Diversification of fish species for aquaculture**

1. Select species, produce fingerlings and conduct trials on selected fish species.
2. Identify elements of the value chain that need strengthening for production, aggregation, processing and marketing of the selected species.
3. Identify suitable business models for promoting the culture of the selected species.
4. Identify and collaborate with potential key players that could lead an early adoption of the technology or lead the development of the value chain.
5. Strengthen research in aquaculture for fast growing and disease resistant culturable species and quality feed from local ingredients.
6. Resource key research institutions and universities to develop and improve quality of identified fish species for fast growth and disease resistance.

## 5.5 Fisheries and Aquaculture Infrastructure Development

Infrastructural development is key to the transformation and sustainability of the fisheries sector. Enhancing fisheries infrastructure therefore remains a major priority on the Government’s development agenda. Fisheries infrastructure including landing sites and fishing harbours, fisheries and aquaculture training institutions, improved processing facilities and hatcheries are being provided to, among other things, ensure safe berthing place for fishers and fish handling, enhance the level of expertise and skills, ensure hygienic fish processing to meet international standards for export and the provision of quality fingerlings.

The modernization and sustainable management of the fisheries resources requires skills development and building the capacity of both resource managers and users in order to be well-informed with emerging trends in the fisheries sector. Accordingly, educational and training facilities like the Fisheries College project at Anomabo in the Central Region and the National Aquaculture Centre and Commercial Farms located at Amrahia in the Greater Accra Region, are being provided to help provide training in fisheries and aquaculture. The fisheries college project comprises an administration block, classrooms, laboratories, and demonstrating facilities like fish ponds. It also includes staff bungalows and a hostel for the students.

The College would be a satellite campus of the University of Cape Coast and would offer the following, among others:

1. Short-term Proficiency Certificate Courses in all areas (basically in-service training for practitioners in the fisheries sector),
2. Non-tertiary Certificate (Vocational) courses (for Junior High School (JHS) graduates),
3. Tertiary Diploma programmes in Fisheries, Aquaculture and Extension (for Senior High School (SHS) graduates),
4. Degree programmes in Fisheries, Aquaculture and Fisheries Extension for SHS graduates, and
5. Graduate programmes at MSc, MPhil and PhD levels.

The construction of the National Aquaculture Centre and Commercial Farms is also expected to provide skills training in various aspects of aquaculture including production, farm management, aquatic animal health, feed formulation and processing for the youth to take up aquaculture as a viable enterprise. When completed, the Centre will contain indoor aquaculture structures, classrooms, accommodation, pack houses and cold storage facilities.

The artisanal fishing subsector is highly informal and operated by small scale fishers. This segment constitutes the majority of the fisher population and accounts for the bulk of the domestic fish production in Ghana. However, artisanal fishing communities are generally characterized by poor living conditions and lack modern landing and marketing infrastructure. To address this, construction of twelve (12) modern landing sites at various fishing communities along the coast and a fishing harbour complex, started in 2019.The landing sites and the fishing harbour would have berthing, fish handling, processing, marketing, repair and educational facilities to ensure the safety of fishing gears, improve hygienic handling of fish and fishery products to meet required standards for domestic consumption and export.

To reduce post-harvest losses and increase value addition, ice plants and cold store facilities have been provided at Nungua, Nakwa and Tema in recent years. A turnkey fish processing plant has also been provided at Elmina in the Central Region, to reduce fish post-harvest losses while six (6) Refrigeration Network (RFN) facilities have also been constructed at various fishing communities along the coast namely; Shama, Half Assini and New Takoradi in the Western Region, Prampram in the Greater Accra Region, and Kormantse and Nyanyano in the Central Region. The Elmina Fish Processing Plant consists of a cold store, an ice plant with capacity of 60MT of ice per day, 40 stalls and a fish processing area. There are also fish feed plant, social centre, crèche, workshop, and a conference room.

In addition, new improved fish smoking technologies have also been introduced to fish processors to replace the old “Chokor smoker”. These are the “Ahotor oven” and the “FAO Thiaroye Technology (FTT) fish smoking kilns (ovens)”. The “Ahotor oven” is more energy efficient and durable and the improved combustion system reduces Polycyclic Aromatic Hydrocarbons (PAH) concentration thereby improving the quality of the smoked fish for domestic consumption and export. The provision of these facilities is expected to help reduce post-harvest losses, ensure the hygienic handling and processing of fish as well as improve the return on investment by fishers.

The promotion of aquaculture development to transform and grow the aquaculture sub-sector requires that the operators have access to critical aquaculture infrastructure. The aquaculture subsector also thrives on good quality fingerlings and fish feed. Existing public hatcheries at Vea in the Upper East Region and aquaculture demonstration centres with hatchery facilities at Ashaiman and Kona-Odumase have been upgraded. New hatcheries are also being constructed at Sefwi Wiawso and Dormaa Ahenkro for the production of quality fingerlings. These hatcheries are expected to increase the availability and supply of quality fingerlings to fish farmers.

Aquatic animal health laboratories have also been provided at Koforidua and Accra, to enhance fish disease detection and prevention. Though the laboratories are inadequate to serve the disease challenges facing the fisheries sector, especially the aquaculture industry, it is expected that the additional fish disease containment and prevention measures like vaccination of aquaculture organisms would help improve aquatic animal health in the country.

The above-mentioned fisheries and aquaculture infrastructure are inadequate to facilitate the fisheries sector transformation envisioned in the Coordinated Programme of Economic and Social Development Policies (2017-2024).

**Goal: Promotion of Fisheries and Aquaculture infrastructure development**

**Operational objective 5.5.1: To improve fisheries and aquaculture infrastructure for the modernization of the sector**

**Policy actions for Operational Objective 5.5.1 are:**

1. Provide fisheries and aquaculture, educational and training facilities to enhance expertise and skills of fisheries officers and practitioners.
2. Rehabilitate/upgrade existing public hatcheries and provide additional ones to enhance the production and supply of good quality fingerlings to aquaculture establishments.
3. Rehabilitate/upgrade existing aquatic animal health laboratories and provide additional ones at strategic locations to improve aquatic animal health delivery.
4. Collaborate with relevant institutions for the provision of modern fish landing facilities.
5. Improve Information Communication Technology infrastructure of MoFAD, FC and NPFS.
6. Establish a fishery dedicated Data Centre to enhance data collection, management, and dissemination.
7. Promote private sector participation by providing the enabling environment for investment in the fisheries and aquaculture sector.

## 5.6 Post-Harvest Management and Trade of Fish and Fish Products

**Goal: Post-harvest losses in the fisheries sector are reduced by providing fishers with the appropriate technologies on fish handling, processing and storage that seek to add value to the harvested product and promote trade**

**Operational Objective 5.6.1:** **To facilitate the dissemination and adoption of improved fish handling, processing and storage technologies; coordinate, strengthen and facilitate the operations of fish processors and traders.**

**Policy actions to achieve the Operational Objective 5.6.1 are:**

1. Conduct fish inspection, quality and safety control and certify compliant facilities, in collaboration with mandated regulatory bodies, to enhance fish quality and safety.
2. Facilitate and coordinate activities of fish processors and traders associations to improve compliance with national and international food safety standards.
3. Advocate and facilitate the adoption of improved fish handling, processing and storage technologies to promote national and international trade.
4. Periodically conduct post-harvest value chain analysis in the fisheries and aquaculture sector.
5. Develop and maintain data collection system and a database on post-harvest fisheries activities.
6. Support the development of markets for safe and hygienic fish products.

## 5.7 Aquatic Animal Health

Key aquatic animal health issues that need to be addressed by the Policy have been identified to include (i) biosecurity; (ii) emergency disease preparedness and response capability; (iii) surveillance and diagnostic services; (iv) aquatic veterinary pharmaceuticals; and (v) education, awareness and training.

**Goal:** Farmed and wild fishes are protected from the effects of harmful infectious diseases, with a view to ensuring food safety and security through prevention and control measures to increase the economic benefits of domestic and international trade in aquatic animals and their products.

**Operational Objectives**

The following operational objectives are pursued:

5.7.1. To improve biosecurity at the national, regional and enterprise levels.

5.7.2. To strengthen emergency disease preparedness and response capability to adverse aquatic animal

health events.

* + 1. To enhance surveillance and diagnostic services.
    2. To improve availability of appropriate aquatic veterinary pharmaceuticals.
    3. To improve on education, awareness and training.

**Policy actions to achieve Operational Objective 5.7.1: Improving biosecurity at national, regional and enterprise levels**

1. Establish national biosecurity measures that will provide effective protection of cultured and wild fishes.
2. Support establishment of disease-free compartments and zones and to align these with zonation for aquaculture development.

1. Encourage farm-level biosecurity measures that balance practicality, cost and regulatory priorities.

1. Strengthen stakeholder institutions and services to adequately address biosecurity.
2. Promote regional and international collaboration on aquatic biosecurity.
3. Strengthen interagency responsibility and improve regulatory oversight.
4. Establish collaboration with regional laboratories working on aquatic animal health.

1. Promote establishment of a regional database on aquatic animal disease occurrences.

**Policy actions to achieve Operational Objective 5.7.2**: **Strengthening emergency disease preparedness and response capability to adverse aquatic animal health events**

1. Develop a national emergency aquatic animal disease response plan for priority and listed diseases.
2. Establish and facilitate a national emergency aquatic animal disease response team.
3. Establish a national emergency aquatic animal disease response fund.

**Policy actions to achieve Operational Objective 5.7.3**: **Enhancing surveillance and diagnostic services**

1. Identify prioritized diseases (OIE-listed and others).
2. Develop passive and targeted surveillance programs to provide information on occurrence of, or freedom from priority and notifiable diseases.
3. Identify and procure relevant cost-effective and validated diagnostic tests.
4. Establish contact with relevant OIE reference laboratories.
5. Source funding to implement surveillance.
6. Establish a disease database and communication network.

**Policy actions to achieve Operational Objective 5.7.4**: **Improving availability of appropriate aquatic veterinary pharmaceuticals**

1. Assess current aquatic veterinary medicine needs.
2. Assess current aquatic veterinary medicine availability and align needs and availability to current regulatory framework.
3. Facilitate development of an information brochure on prudent use of aquatic veterinary medicinal products.

**Policy actions to achieve Operational Objective 5.7.5: Improving education, awareness and training.**

1. Review current training possibilities in aquatic animal health in Ghana.
2. Assess the training requirements of government and industry personnel.
3. Facilitate short-course training to fill the most immediate knowledge gaps.
4. Facilitate development of field information guides.

## 5.8 Environment and Climate Change

The impact of climate change is evident in Ghana. Rising sea levels, increasing mean sea surface temperatures and ocean acidification, changes in salinity and currents, and more frequent extreme weather events are among the observed changes (Asante & Amuakwa-Mensah, 2015). These may, in turn, lead to changes in species distribution and abundance which will affect fishing operations, and also aquaculture at all scales, postharvest activities, markets and consumption. The rainfall pattern has changed, becoming less predictable, while the patterns of average sea surface temperature and annual upwelling index (a measure of the duration and intensity of the upwelling event) have also changed.

Rising sea levels and other anthropogenic factors (e.g. sand mining and mangrove destruction), have led to sea surges and coastal erosion. Studies conducted by the Fisheries Scientific Survey Division (FSSD) of the Fisheries Commission have pointed to changes in the distribution of fish species, their abundance, breeding behaviour and other phenological attributes of fish in the marine waters. These changes have been attributed to factors including rising temperature or shift in salinity patterns in the marine waters, which are primarily due to climate variability and change.

Fisheries and aquaculture, as well as the operators in the sector, are considered to be among the most vulnerable to climate change. Climate change and disasters are already impacting on aquatic systems and the livelihoods and economies that depend on them. Fishers and fish farmers have only a low or moderate capacity to adapt to impact of climatic change.

The state of the environment in both marine and inland waters of Ghana is under stress due to pollution especially from plastic waste, domestic and municipal waste, agricultural and industrial waste, and recently on the large scale illegal mining activities. There is also high marine and coastal degradations due to intensive agricultural production, industrial development, and urban development causing undue pressure on marine and coastal areas. The discovery of oil and gas with possible oil spills at sea also poses a major threat to marine habitats. These activities have adverse impact on fish stocks.

Considering the competing demands for ocean space especially with the growing demand for mineral and oil exploration from Ghana’s marine waters, the need for Marine Spatial Planning (MSP), which is an important tool for the implementation of the Blue Economy is of significance. With these contemporary developments in view, emphasis is placed on a sound MSP to ensure that all economic activities get their due space and, in the process, conflicts are reduced. Consequently, support will be given to the ongoing process for MSP in Ghana under the leadership of the Environmental Protection Agency.

While promoting the development of sustainable fisheries, the Policy places emphasis on maintenance of the ecological integrity of the freshwater and marine environment, so as to ensure that there are no adverse effects on the endangered, threatened, or protected species. Mangroves, seagrass beds, and coral reefs are an integral part of the coastal marine ecosystems and provide a range of ecosystem services, including habitation for many fish species and marine mammals (e.g. dugong). Such ecosystems will be protected from anthropogenic impacts.

The Policy encourages focused studies on climate change impacts on fish stocks that can improve the understanding of such climate-induced changes and provide adaptive mechanisms to the fishing communities in order to reduce their impact on the livelihoods of fishers.

***Goal:* Fisheries will be made more resilient to climate change by the incorporation of adaptation and mitigation measures within fisheries management and aquaculture development.**

**Policy actions to achieve the goal are:**

1. Consider national and international climate change research findings within resource assessments and incorporate appropriate adaptation measures within fisheries and aquaculture regulation to increase resilience to climate change.
2. Undertake an assessment of the vulnerability of the fisheries sector to climate change and adaptation measures that may be possible.
3. Encourage the development of indicators that would monitor the climate change impacts within the fisheries sector.
4. Adopt provisions in the Ghana National Climate Change Policy related to the fisheries and aquaculture sector.
5. Ensure the highlighting of fisheries and aquaculture in any possible revision of the Ghana National Climate Change Policy.

## 5.9 The Special Case of Small-Scale Fisheries Management

**Goal: Management of the Small-Scale Fisheries is improved to enhance its net returns and quality of landings**

**Operational objective 5.9.1: To enhance net returns from small-scale fishing operation through cost reduction approaches and improvements in the quality of landings.**

**Policy actions to achieve operational objective 5.9.1 are:**

1. Streamline the management of landing sites, with emphasis on co-management and the promotion and maintenance of best practice to meet internationally acceptable hygiene and sanitary conditions.
2. Promote better handling and preservation of fish on board fishing craft by promoting a more systematic use of ice.
3. Promote the development of appropriate landing sites.
4. Seek financing nationally or through development partners to pursue efforts already undertaken to equip major landing sites with modern facilities.
5. Discourage further entry into all aspects of the capture fisheries, allowing for exception only on the basis of prior analysis and expert consultation.
6. Encourage the establishment of equitable and efficient linkages between fisheries and post-harvest operators to ensure greater value-added creation and equitable allocation of added benefits.
7. Involve SSF operators in the socio-economic development activities of their fishing communities such as recommended in the FAO SSF Guidelines.
8. Reduce great reliance on fishing by small-scale fishers by developing alternative livelihoods.
9. Promote participation of small-scale fishers in the conservation and management of fisheries.
10. Promote inland fisheries research.

## 5.10 Fisheries Governance

The capacity of MoFAD and its agencies needs to be strengthened to enable the institutions deliver on their respective mandates. Similarly, coordinating the activities of all stakeholders including NGOs needs to be enhanced to ensure that these institutions are responsive to the fisheries and aquaculture requirements.

*Goal:* **Fisheries governance is improved for effective and efficient service delivery and accelerated development of the fisheries and aquaculture sector**

**Operational Objective 5.10.1: To enhance the capacity for policy formulation, implementation and coordination**

**Policy actions to achieve the operational objective 5.10.1 are:**

1. Improve human capital base at all levels of MoFAD and FC through recruitment of additional staff, and implementation of specialized training and skills to deliver quality services.
2. Facilitate the review of the existing Fisheries Act, 2002, (Act 625) to incorporate emerging trends in fisheries management and governance.
3. Develop and periodically review Management Plans for marine, inland and lagoon subsectors.
4. Strengthen collaboration with key agencies (governmental and non-governmental) in policy formulation and implementation.
5. Ensure regular engagements of fishers and fishing communities in the development and implementation of policies, projects and programmes.
6. Institutionalize public, private partnership in investment, management and monitoring of fisheries and aquaculture resources

## 5.11 Research and innovation in the fisheries and aquaculture sector

Ghana has a good record of research in support of the fisheries and aquaculture sector. However, in preparation for improved benefits from effective management of the sector, it is necessary to assess research manpower needs and provide the base for growth of the sector and resilience to external shocks. Both capture fisheries and aquaculture are knowledge-based ventures and increasingly innovation will drive the sector. It is important for the country to actively continue to leverage its research and development capabilities by undertaking high quality, state of the art initiatives with collaborative partners and projects.

***Goal*: Needs of the fisheries and aquaculture sector are met through promoting tactical research driven by fisheries management and aquaculture development**

The Policy actions to achieve the goal are:

1. Make greater use of institutions of research and learning such as the universities (e.g. University of Ghana, Regional Maritime University, Kwame Nkrumah University of Science and Technology, and University of Cape Coast).

1. Produce and implement a research plan based on fisheries management plans and priorities in the fisheries and aquaculture sector.
2. Improve collaboration between the Ministry of Fisheries and Aquaculture Development, the Ministry of Environment, Science, Technology and Innovation and its agencies (CSIR and EPA), and others, to closely collaborate for marine spatial planning and to encourage ecosystem-based and climate-related research and monitoring.
3. Address imbalance of socio-economic research in fisheries and aquaculture.
4. Facilitate the mobilization of resources for fisheries and aquaculture research and development facilities.
5. Identify skill gaps and capacity needs in the fisheries and aquaculture sector and coordinate with universities, vocational and technical institutions to address the needs.
6. Strengthen arrangements for the delivery of fisheries and aquaculture research and development findings.

# **6.0 REGIONAL AND INTERNATIONAL COOPERATION**

Collaboration is needed to build appropriately integrated and iterative systems of governance, both nationally and internationally. Ghana will take advantage of the opportunities offered through regional and international cooperation, to mutually enhance capacity in specific areas and to strengthen relationships, promote integrated management, sustainable development and protect shared resources to improve fisheries governance and management.

Ghanaian fishers are widely recognized in other countries in the region for their fishing skills. As a result, fishers from Ghana are now finding employment in the fishing fleets of other countries whiles Ghanaian fishers also migrate to countries like Côte d’Ivoire, Togo, Liberia and Senegal, among others. On many occasions, Ghanaian fishers have been apprehended in these neighbouring countries, when they unknowingly stray into the EEZ of other countries, making it difficult for the Government to secure their release through normal channels. The policy will lay the guidelines to ensure that fishers who are willing to take employment in the fisheries sector in other countries have adequate skills and knowledge of working in alien seas and go through formal governmental approvals.

At the sub-regional level, Ghana is a member of the Economic Community of West African States (ECOWAS) and the FCWC which provides advice on managing fisheries resources in the West Central Gulf of Guinea. At the continental level, Ghana is a member of the African Union (AU) and is expected to actively cooperate with other member countries towards the attainment of the objectives of the AU especially the AU Agenda 2063.

As a member of international fisheries organizations like FAO and IWC, and the Organization of African, Caribbean and Pacific States (OACPS), as well as regional organizations like ICCAT and ATLAFCO, the country is required to collaborate with other member countries in several aspects including implementation of the decisions of these organizations. The Policy underscores Ghana’s commitment to implementing decisions and recommendation which are legally binding on member States.

Government will foster strong regional and international cooperation in the management and sustainable utilization of the resources, including conservation of species/stocks, wherever necessary. Cooperation in the safety and security of fishers is also necessary. Such cooperation will facilitate managing shared resources and shared ecosystems; harmonization of policies and programmes aimed at optimized harvesting of trans-boundary resources; safeguard of human rights, in particular for fishers straying in waters of other countries. With regard to international commitments, it will be the endeavour of the Government to fulfil its obligations and support the global agenda of meeting the Sustainable Development Goals, in particular Goal 14 - Life Below Water.

# **7.0 POLICY IMPLEMENTATION ARRANGEMENTS, FINANCING, AND COMMUNICATION**

## 7.1 Implementation arrangement

MoFAD and its two (2) agencies namely the Fisheries Commission and the National Premix Fuel Secretariat will lead the implementation of this Policy. All stakeholders will be part of the implementation process and in this regard, MoFAD will develop an Implementation Plan that will guide the implementation and execution of the policy. There will also be the need for a new Fisheries Legislation to ensure effective and efficient implementation of this Policy which has incorporated new and emerging issues.

## 7.2 Monitoring and Evaluation Framework

The effective implementation of this Policy hinges on an effective monitoring and evaluation strategy with appropriate performance indicators and an efficient feedback mechanism. MoFAD and FC will set up a comprehensive monitoring and evaluation plan to determine the baseline conditions and data, as well as collate specific indicators that will inform the review of the policy.

To evaluate the effectiveness and impact of the various interventions under this policy, MoFAD and FC will undertake periodic reviews of this Policy. The National Fisheries and Aquaculture Policy shall be reviewed periodically in the light of emerging information and challenges from implementation. The policy review shall be informed by monitoring activities and experience gained from implementation.

## 7.3 Financing

Government shall mobilize resources to finance the implementation of this Policy through the national budget framework in line with the Public Financial Management Act, 2016 (Act 921). Annual budgetary allocations shall be made for the implementation of the strategies outlined in the Policy. To ensure a sustained financing mechanism, the strategies in this Policy shall be made an integral part of the Annual Action Plans for the sector and work plans of MoFAD and its agencies. In the event that resources are insufficient in financing the implementation of the Policy, financial and technical support would be sought from all stakeholders including development partners.

## 7.4 Communication

Concerted efforts will be made to ensure that this Policy is understood by all stakeholders. To achieve this, MoFAD will collaborate with the National Commission for Civic Education (NCCE). A user-friendly version of the policy will be prepared. In addition, it will be translated into local languages to ease communication and enhanced awareness. National, Regional, District and Zonal level staff of the Fisheries Commission will be tasked to popularise the policy as it is implemented and provide feedback through the monitoring and evaluation, and supervision systems that will be established.

MoFAD and FC will also take advantage of various fisheries fora to educate stakeholders on the Policy. A two-way system will be devised where on the one hand MoFAD/FC will explain the aspirations of the Policy while on the other, feedback from stakeholders will be considered during reviews.

Table 6**: Policy focus areas, Goals and Operational objectives of the Fisheries and Aquaculture Policy, 2022**

|  |  |  |
| --- | --- | --- |
| ****FOCUS AREA**** | ****GOAL**** | ****OPERATIONAL OBJECTIVES**** |
| ****Marine Fisheries**** | **A responsible and sustainably managed marine fisheries subsector that operates with a strong private sector under national and international regulatory frameworks** | 1. **To establish specific management and conservation measures based on regular assessments of the status of fish stocks and associated aquatic environment.** 2. **To improve the effectiveness of stakeholder institutions and mechanisms for co-management.** 3. **To ensure the sustainability of commercial fisheries through appropriate regulations and management measures.** 4. **To protect and improve the aquatic environment, including biodiversity and habitats.** 5. **To combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance systems.** 6. **To establish and/or strengthen and promote effective collaboration among key national and international actors.** |
| Lagoon Fisheries | Coastal lagoon ecosystems are restored and the resources harnessed with shared benefits management system in place and functional | **To restore, protect and improve the coastal lagoon ecosystem, including biodiversity and habitats.**  **To promote sustainable use of lagoon resources through appropriate regulations and management measures.** |
| Inland Fisheries | **Inland fisheries subsector managed sustainably to increase its contribution to domestic fish supply and export** | 1. To establish specific management and conservation measures to improve freshwater environment, biodiversity and habitats based on regular assessments of the status of fisheries and their aquatic environment. 2. To ensure the sustainability of inland fisheries through effective stakeholder institutions and collaboration, both national and international with mechanisms for co-management. 3. To combat IUU fishing through appropriate regulations and effective monitoring, control and surveillance. 4. To increase the contribution of fish supply from inland water bodies. 5. To promote Co-Management in inland fisheries. |
| Aquaculture Development | **A developing and viable aquaculture sub-sector contributing to domestic fish supply and export** | 1. To strengthen the complementary role of private and public sectors and build strong partnerships among public and private institutions and civil society organizations. 2. To strengthen extension services through education and research. 3. To promote appropriate and sustainable aquaculture production systems. 4. To establish quarantine facilities, develop health certification protocols and guidelines for introduction of exotic fish species. 5. To develop and implement guidelines on culture-based fisheries. 6. To reduce the impact of aquaculture operations on the environment. 7. To define and regularly update regulatory framework on aquaculture development in line with international standards and regulations. 8. To promote diversification of fish species for aquaculture. |
| Fisheries and Aquaculture Infrastructure Development | **Promotion of Fisheries and Aquaculture infrastructure development** | 1. **To improve fisheries and aquaculture infrastructure for the modernization of the sector.** |
| Post-Harvest Management & Trade | **Post-harvest losses in the fisheries sector are reduced by providing fishers with the appropriate** technologies on fish handling, processing and storage that seek to add value to the harvested product, and promote trade | 1. **To facilitate the dissemination and adoption of improved fish** handling, processing and storage **technologies; coordinate, strengthen and facilitate the operations of fish processors and traders.** |
| Aquatic Animal Health | **Farmed and wild fishes are protected from the effects of harmful infectious diseases, with a view to ensuring food safety and security through prevention and control measures to increase the economic benefits of domestic and international trade in aquatic animals and their products** | 1. To improve biosecurity at the national, regional and enterprise levels. 2. To strengthen emergency disease preparedness and response capability to adverse aquatic animal health events. 3. To enhance surveillance and diagnostic services. 4. To improve availability of appropriate aquatic veterinary pharmaceuticals. 5. To improve on education, awareness and training. |
| Environment & Climate Change | **Fisheries will be made more resilient to climate change by the incorporation of adaptation and mitigation measures within fisheries management and aquaculture development** |  |
| The case of Small-Scale Fisheries Management | **Management of the Small-Scale Fisheries is improved to enhance its net returns and quality of landings** | 1. **To enhance net returns from small-scale fishing operation through cost reduction approaches and improvements in the quality of landings** |
| Fisheries Governance | **Fisheries governance is improved for effective and efficient service delivery and accelerated development of the fisheries and aquaculture sector** | 1. To enhance the capacity for policy formulation, implementation and coordination |
| Research and innovation in the fisheries and aquaculture sector | **Needs of the fisheries and aquaculture sector met through promoting tactical research driven by fisheries management and aquaculture development** |  |

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MoFAD (2020). Co-Management Policy for the Fisheries Sector.

World Bank (2017). What is the Blue Economy?

# **Appendix 1: Alignment of the 2022 National Fisheries and Aquaculture Policy with National, Regional and Global Policies**

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| **National Fisheries and Aquaculture Policy, 2022**  **(Policy Focus Areas)** | **Medium-Term National Development Policy Framework (2018-2021) (Agenda For Jobs)** | **AU Policy Framework and Reform Strategy for African fisheries and aquaculture** | **African Union Agenda 2063: The Africa We Want** | **United Nations Sustainable Development Goals – Agenda 2030** |
| **Aquaculture Development**  **A developing and viable aquaculture sub-sector contributing to domestic fish supply and export** | 5.1 Ensure sustainable development and management of aquaculture  **(Fisheries and Aquaculture Development)** | P1. Conservation and  Sustainable Resource  Use  P3. Sustainable Aquaculture  Development | AU5. Modern Agriculture for increased productivity and production | SDG 1: End poverty in all its forms everywhere  SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture  SDG 12: Ensure Sustainable Consumption and production pattern |
| **Marine Fisheries**  A responsible and sustainably managed marine fisheries subsector that operates with a strong private sector under national and international regulatory frameworks  **Inland Fisheries**  Inland fisheries subsector managed sustainably to increase its contribution to domestic fish supply and export  **Lagoon Fisheries**  Coastal lagoon ecosystems are restored and the resources harnessed with shared benefits management system in place and functional | 4.2. Conserve Marine Areas  **(Coastal and Marine Erosion)**  5.2 Ensure sustainable development and management of aquatic fisheries resources **(Fisheries and Aquaculture Development)** | P1. Conservation and  Sustainable Resource  Use | AU6. Blue/ ocean economy for accelerated economic growth   * Marine resources   AU7. Environmentally sustainable and climate resilient economies and communities   * Sustainable natural resource management and Biodiversity conservation | SDG 1: End poverty in all its forms everywhere  SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture  SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development |

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| **National Fisheries and Aquaculture Policy, 2022**  **(Policy Focus Areas)** | **Medium-Term National Development Policy Framework (2018-2021) (Agenda For Jobs)** | **AU Policy Framework and Reform Strategy for African fisheries and aquaculture** | **African Union Agenda 2063: The Africa We Want** | **United Nations Sustainable Development Goals – Agenda 2030** |
| **Aquatic Animal Health**  Farmed and wild fishes are protected from the effects of harmful infectious diseases, with a view to ensuring food safety and security through prevention and control measures to increase the economic benefits of domestic and international trade in aquatic animals and their products | 4.2. Conserve Marine Areas  **(Coastal and Marine Erosion)**  5.2 Ensure sustainable development and management of aquatic fisheries resources **(Fisheries and Aquaculture Development)** | P1. Conservation and  Sustainable Resource  Use | AU6. Blue/ ocean economy for accelerated economic growth   * Marine resources   AU7. Environmentally sustainable and climate resilient economies and communities   * Sustainable natural resource management and Biodiversity conservation | SDG 1: End poverty in all its forms everywhere  SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture  SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development |
| **Environment & Climate Change**  Fisheries will be made more resilient to climate change by the incorporation of adaptation and mitigation measures within fisheries management and aquaculture development | 7.1. Enhance Climate Change resilience  **(Climate Variability and Change)** |  | AU7. Environmentally sustainable and climate resilient economies and communities   * Climate resilience | SDG13: Take urgent action to combat climate change and its impacts |
| **Fisheries Governance**  Fisheries governance is improved for effective and efficient service delivery and accelerated development of the fisheries and aquaculture sector | 5.1. Enhance Capacity for Policy formulation and Coordination  **(Public Policy Management)** | P6. Awareness Enhancing and Human-capacity Development |  | SDG16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. |
| **Post-Harvest Management & Trade of Fish and Fish Products**  Post-harvest losses in the fisheries sector are reduced by providing fishers with the appropriate technologies on fish handling, processing and storage that seek to add value to the harvested product, and promote trade | Improve post-harvest management  **(Agriculture and Rural Development)** | P4. Responsible and  Equitable Fish Trade and Marketing  (Value Addition and Marketing) | AU5. Modern Agriculture for increased productivity and production |  |
| **Research and innovation in the fisheries and aquaculture sector**  Needs of the fisheries and aquaculture sector met through promoting tactical research driven by fisheries management and aquaculture development | Improve research and development, and financing for industrial development  **(Industrial Transformation)** |  |  |  |
| **National Fisheries and Aquaculture Policy, 2022**  **(Policy Focus Areas)** | **Medium-Term National Development Policy Framework (2018-2021) (Agenda For Jobs)** | **AU Policy Framework and Reform Strategy for African fisheries and aquaculture** | **African Union Agenda 2063: The Africa We Want** | **United Nations Sustainable Development Goals – Agenda 2030** |
| **All Policy Focus Areas** | Ensure Food and Nutrition Security  **(Food and Nutrition Security)** | All Policy Areas | AU3. Healthy and well-nourished citizens | SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture |
| **Fisheries and Aquaculture Infrastructure Development**  Promotion of Fisheries and Aquaculture infrastructure development |  |  | AU 10. World class infrastructure crisscrosses Africa | SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation |