



**GNADP
2024 – 2028**



FISHERIES COMMISSION

MINISTRY OF FISHERIES AND AQUACULTURE DEVELOPMENT

**GHANA NATIONAL AQUACULTURE
DEVELOPMENT PLAN**

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FOREWORD

The Fisheries and Aquaculture Sector plays a significant role in the socio-economic development of Ghana by contributing to job and wealth creation, food and nutrition security, as well as, Gross Domestic Product (GDP). The sector provides direct and indirect job opportunities for an estimated 3,000,000 of the population along the fisheries and aquaculture value chain. The Fisheries and Aquaculture Sector is also key to Ghana's attainment of the United Nations Sustainable Development Goals, most importantly Goals 1, 2, 3, 14, and 15.

Over the past three decades, there has been evidence of a depleting stock of capture fishery resources (marine and inland) while aquaculture is still being developed. Accordingly, Ghana imports appreciable quantities of fish to meet its domestic fish requirement estimated at 1,308,219.64mt in 2022. With prospects for higher landings from capture fisheries being limited due to the depleted stocks, the situation of net deficit in fish supply is expected to worsen with time. Aquaculture production is therefore, expected to, contribute progressively to bridge the gap between domestic fish supply and demand, reduce the overdependence on capture fisheries, and create additional job opportunities along the value chain.

Though aquaculture has been considered a reliable source of fish supply, production from aquaculture over the years has not been sufficient enough to make up for the shortfall in fish supply from capture fisheries. The average aquaculture production between 2015 and 2022 is 71,186mt. The slow growth rate is mainly attributed to low productivity of about 5.5mt/ha/yr. The industry is also faced with challenges such as the high cost of fish feed, limited access to good quality fingerlings, disease outbreaks at farms, and low investment interest from financial institutions.

There is a high potential for aquaculture to augment domestic fish production, reduce fish imports, create additional job opportunities, improve food and nutrition security, which serves as strong justification to promote the development of aquaculture in Ghana. In this regard, the Ministry of Fisheries and Aquaculture Development (MoFAD) and the Fisheries Commission (FC) after a detailed review of the Ghana National Aquaculture Development Plan (GNADP) 2012 – 2016 has developed GNADP 2024 – 2028, which seeks to consolidate the gains of the 2012 – 2016 Plan and to ensure the sustainable development of the aquaculture industry. It also seeks to serve as a guide to enhance aquaculture production, marketing, environmental sustainability and social acceptability of Ghana's commercial fish farm enterprise and related aquaculture value chain.

The GNADP 2024 – 2028, which has been developed as part of the implementation of the National Fisheries and Aquaculture Policy, 2022 and the National Aquaculture Strategic Framework provides appropriate interventions to address the critical challenges confronting the aquaculture industry. The Plan outlines five (5) key Result Areas and related key operations adopted from the 2012 – 2016 Plan and situational analysis of the aquaculture subsector. It is the expectation of MoFAD and FC that, the implementation of the GNADP 2024 – 2028 would among other things:

1. Increased quantities of commercial farmed fish production and jobs for the youth and women
2. Increased quantities of high quality commercial farmed fish products and sold at more

- competitive prices
3. Increased productivity and profitability of fish farms and their related aquaculture value chain enterprises
 4. Increased compliance of commercial fish farms to national environmental and food safety policies, standards and regulations
 5. Increased effectiveness and efficiency of public institutions in policy and regulation formulation to facilitate aquaculture development
 6. Enhanced food and nutrition security in the country
 7. Reduced poverty among the youth and women

I wish to acknowledge the contributions of various stakeholders and individuals who supported the preparation of the Ghana National Aquaculture Development Plan (2024 – 2028). MoFAD and FC will continue to rely on your support for the implementation of the Plan.

Thank you.



HON. MRS. MAVIS HAWA KOOMSON (MP)
MINISTER FOR FISHERIES AND AQUACULTURE DEVELOPMENT

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The document has been carefully prepared through a participatory and consultative process involving key aquaculture stakeholders of the sub-sector.

We wish to thank our Stakeholder Institutions, Fish Farmer Organizations, and individual fish farmers for the immense support during the preparation of the GNADP, 2024 – 2028.

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EXECUTIVE SUMMARY

The Ghana National Aquaculture Development Plan (GNADP 2024 – 2028) was developed to help in closing the supply and demand gap for fish in the country by leveraging on the favourable bio-physical, socio-economic, and the strong research capacity of the country.

Since the GNADP went into effect in 2012, the aquaculture sub-sector has undergone significant improvements on both national and global scale.

However, there are still some challenges such as:

- High costs of inputs,
- Disease incidence,
- Inadequate human, technological, and infrastructural capacity,
- Absence of an in-country research agenda that is responsive to the needs of the aquaculture subsector
- Low productivity

Therefore, it was necessary to review the GNADP (2012 – 2016) to address the concerns the sub-sector was facing and to take into account pertinent new issues. As a result, the Fisheries Commission through a technical cooperation with the Norwegian Government under the Fish for Development Project has developed the current Ghana National Aquaculture Development Plan (2024 – 2028) following a thorough evaluation of the GNADP (2012 – 2016) and extensive consultations with sector stakeholders. The GNADP (2024 – 2028) aims at enhancing the sustainable growth of the sector while consolidating the gains from the GNADP (2012 – 2016). The Plan provides a tactical pathway for expanding, utilizing, managing, and regulating aquaculture development in a responsible and sustainable manner.

The GNADP (2024 – 2028) is aligned with the national aquaculture strategic framework of 2021, meant to facilitate the promotion of aquaculture as a business under the following principle:

- The best investments come from matching the appropriate aquaculture system and the prerequisite ecological balance and socio-economic requirements
- Support mechanisms or services for these aquaculture businesses should be private sector-led thereby requiring a shift in Government's roles and responsibilities more to one of facilitation, monitoring and control.

Though crafted essentially to facilitate targeted implementation of the National Aquaculture Strategic Framework (2021), due diligence was exercised to ensure stakeholder participation, take on board emerging issues, and place the GNADP within the scope of current relevant national and international development frameworks such as:

- Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (2014)
- ECOWAS Comprehensive Strategic Framework for Sustainable Fisheries and Aquaculture Development (CSFS FAD) – 2019
- African Union Agenda 2063: The Africa We Want (Framework, 2015)
- African Union Interafrican Bureau for Animal Resources (Strategic plan 2018 – 2023)
- The Code of Conduct for Responsible Fisheries of FAO (1995)
- Aquaculture Strategic Framework (2006)
- The Ghana National Aquaculture Development Plan (2012-2016)

- Medium-Term National Development Policy Framework (2010-2013)
- National Medium Term Development Policy Framework (2022-2025)
- Medium Term Agriculture Sector Improvement Program (2010)
- Fisheries Sector Medium-Term Development Plan (2018-2021)
- Fisheries Sector Medium-Term Development Plan (2022-2025)
- National Fisheries and Aquaculture Policy (2008)
- National Fisheries and Aquaculture Policy (2022)
- Fisheries Act, 2002 (Act 625)
- Fisheries Regulations 2010 (L.I. 1968)
- The Ghana Aquatic Animal Health Policy (2021)

The GNADP's vision is a solid foundation for the quickening of the development of an aquaculture led by the private sector that enables this subsector to significantly contribute to fish food and nutrition security, employment creation, increased incomes, economic growth, and poverty reduction on a sustainable basis. The goal is to provide an environment that will encourage and draw sustainable public and private investment in aquaculture. The objective is to enhance aquaculture management, practice, and commercial viability. The long-term goal is to significantly contribute to advancements in production, marketing, environmental sustainability, and social acceptability of commercial fish farm operations and associated aquaculture value chain development.

The plan is expected to increase commercial farmed fish from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%. Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028. The design of the GNADP (2024 – 2028) would ensure significant improvements in environmental sustainability of aquaculture production, fish health and fish food safety measures in the country.

Fisheries Commission is the lead agency responsible for the implementation of the Plan. In doing so, it would collaborate with a broad spectrum of public and private institutions through a variety of institutional arrangements including subcontracts and public-private partnerships (PPPs).

This five-year medium-term plan is expected to cost GHS 1,028,290,270.54 (US\$93,480,933.69) (Appendix 1) of which the government of Ghana would contribute GHS 348,055,188.70 (US\$ 31,641,380.79) representing 33.8% as public investment, while GHS 681,226,956.85 (US\$ 61,929,723.35) representing 66.2% will be raised as direct investment from the private sector (domestic and foreign).

The detailed Action Plan and the Monitoring Matrix are attached as Appendices 2 and 3 respectively.

CHAPTER ONE

INTRODUCTION

The Ghana National Aquaculture Development Plan (GNADP) is the pinnacle of work done to create a thorough framework for Ghana's aquaculture industry. The Norwegian Fish for Development Project, the Aquaculture Advisory Group, and the Food and Agriculture Organization of the United Nations Regional Office for Africa (FAO) contributed to the Plan, which was primarily created by the Fisheries Commission.

The Ghana's Aquaculture Strategic Framework, which was designed to make it easier to promote aquaculture served as the foundation for the creation of the GNADP under the following principles:

1. the best investments come from matching the appropriate aquaculture system and the prerequisite bio-physical and socio-economic requirements; and
2. support mechanisms or services for these 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 GNADP is divided into six chapters: An Introduction (Chapter One), the National Aquaculture Strategic Framework (Chapter Two), and the Development Plan (Chapter Three). Chapter three indicates the mission, vision, goal, objectives and activities to be carried out. Each operation is broadly stated and further broken down into activities. Costs and Time-frame for the activities are also outlined. Chapter Four tabulates the broad operations and action plan. Monitoring and Evaluation Arrangements and Communication Strategies are presented in Chapters Five and Six.

1.1. Overview of the Aquaculture Sector in Ghana

The fisheries sector plays a crucial role in the economy of Ghana, being the main source of fish food, raw material for fish feed for the aquaculture industry, income, employment, and livelihoods. It is also an important source of non-traditional export earnings; and provides the raw material base for tuna processing factories.

Additionally, fish makes a significant contribution to food and nutrition security by meeting more than 60% of the nation's needs for low-cost but high-quality protein as well as for key minerals, vitamins, and lipids. The average amount of fish consumed per person in Ghana during the past ten years has been between 20 and 25 kg, which is significantly more than the average of 14 kg for the ECOWAS region. About 10% of the population's active labour is typically employed in the sub-sector as fishers, processors, boat owners, boat builders, pond construction gangs, and other ancillary workers. Compared to the country's estimated 1,308,219.64 mt need for fish, the overall fish production in 2022 was approximately 657,472.31 mt showing a shortfall of 650,747.33mt. As a result, just 50.3% of the annual fish demand was satisfied by local producers (Fisheries Commission, 2022).

The percentage of GDP that the fisheries subsector represented decreased from 1.04% in 2021 to 0.94% in 2022. The loss could be linked to illicit fishing, low value addition, declining fish productivity, and the negative consequences of climate change. Due to the rebasing of the economy in 2013 as a result of commercial oil production, the Agriculture Sector has generally recorded the lowest share of GDP. The trend indicates that from 21.4% in 2013 to 19.1% in

2020, the share of GDP will have decreased by 2.4%. On average from 2013 to 2020, the marine subsector's GDP share was the greatest (0.67%), followed by inland (0.19%) and aquaculture (0.08%).

On a five-year average (2016 – 2020), aquaculture made up the least amount of the share (0.1%), followed by inland (0.23%) and marine (0.72%). Despite the fact that the economy's rebasing has had an impact on sectors and subsectors' contributions, there are difficulties unique to the fishing industry that have an impact on how well it performs in terms of GDP contribution. Overexploitation, poor fisheries governance for the capture fisheries sector, high production costs, outdated equipment, a lack of credit options, and disease outbreaks are just a few of the difficulties unique to the fisheries sub-sector.

The expectation has been that aquaculture will significantly help close the gap between fish demand and supply in the short, medium, and long term. This is especially true given that the biophysical and socioeconomic environment point to the subsector having a high development potential. In particular, Ghana is blessed with landscapes, soils with a high water-holding capacity, climatic conditions, and bodies of fresh, brackish, and marine water that offer opportunities for the development of aquaculture. Additionally, the massive national deficit, the nation's quickly expanding population, and the rising price of fish offer tremendous marketing prospects for the subsector's expansion.

Along the aquaculture value chain, aquaculture employed around 30,000 people in 2020 and contributed 64,004 mt to the entire national fish production. Although this output may seem modest compared to the total amount of fish produced in the country, recent data shows an impressively positive trend in culture fish output patterns, indicating a strong potential for the subsector's future development and expansion. Although several high performing commercial projects have lately developed, the subsector is still dominated by extremely underperforming non-commercial systems (extensive, small-scale, and subsistence), frequently using earthen ponds. In this regard, there are around six large, high-performing commercial farms, fourteen medium-sized farms, and over 2,300 small-scale farmers managing a total of 10,102 cages and 4,925 fish ponds.

The subsector is particularly faced with low adoption of aquaculture as a business, low investments from the private and public sectors, high attrition rate, and asymmetrical growth in fish output and value, relying heavily on the large-scale commercial cage subsector and leaving the extensive, small-scale pond subsector far behind. The small-scale sub-sector is nevertheless crucial for achieving the nation's socio-economic objectives of creating jobs, prosperity, and reducing poverty despite the asymmetrical growth.

The primary obstacles to the growth and successful operation of the aquaculture business include the following:

- Insufficient availability of quality fish feed and seed
- High cost fish farming inputs (e.g. fish seed and feed)
- Inadequate fish species for culturing
- Lack of financial resources for bringing about profitability of aquaculture operations
- Inadequate involvement of private sector in the development of the aquaculture industry
- Insufficient public sector institutional arrangements to provide organized and effective institutional support to aquaculture development

- Weak human resource base reflected in the lack of appropriate skills or trained persons at the different levels of the aquaculture subsector
- Lack of effective extension systems including personnel, tools, and mechanisms for technology transfer
- Absence of an in-country research agenda that is responsive to the needs of the aquaculture subsector even in the face of duplication of research efforts and sparse resources
- Short aquaculture value chain
- Weak public-private sector institutional linkages and national networks of fish farmers
- The country has not been appropriately zoned on the basis of comprehensive aquaculture related characteristics to rank potentials of production systems for each zone to guide investment and enable optimization of technical and economic efficiency
- Weak marketing systems for especially the small scale subsector
- Environmental sustainability and climate change issues
- Poor compliance to biosecurity measures at the farm levels leading to outbreak of aquatic animal diseases

The Ghanaian government has during the past few years provided significant support and created technical frameworks for the efficient planning, development, and regulation of the fisheries and aquaculture subsector in response to the difficulties and opportunities of improving Ghana's fisheries. Notable in particular are:

- Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (2014)
- ECOWAS Comprehensive Strategic Framework for Sustainable Fisheries and Aquaculture Development (CSFS FAD) – 2019
- African Union Agenda 2063: The Africa We Want (Framework, 2015)
- African Union Interafrican Bureau for Animal Resources (Strategic plan 2018-2023)
- The Code of Conduct for Responsible Fisheries of FAO (1995)
- Aquaculture Strategic Framework (2006)
- The Ghana National Aquaculture Development Plan (2012-2016)
- Medium-Term National Development Policy Framework (2010-2013)
- National Medium Term Development Policy Framework (2022-2025)
- Medium Term Agriculture Sector Improvement Program (2010)
- Fisheries Sector Medium Term Development Plan (2018-2021)
- Fisheries Sector Medium-Term Development Plan (2022-2025)
- National Fisheries and Aquaculture Policy (2008)
- National Fisheries and Aquaculture Policy (2022)
- Fisheries Act, 2002 (Act 625)
- Fisheries Regulations 2010 (L.I. 1968).
- The Ghana Aquatic Animal Health Policy (2021)

These have been important referenced materials in the preparation of the Ghana Aquaculture Development Plan (2024-2028).

Table 1 shows a matrix linkage between results, specific policy objectives (MOFAD) and adopted policy objective (National Document/ NFAP). Section 1.2 displays the achievements of the 2012-2016 Ghana National Aquaculture Development Plan.

1.2. Overview of the 2012 – 2016 Ghana National Aquaculture Development Plan

1.2.1 Result 1- Increased quantities of commercial farmed fish produced in high priority aquaculture-zones

- Technical assistance were provided to fish farmers, hatchery operators, fingerling producers, and grow-out operators and their associations, in land and water site selection for aquaculture development.
- A permit system was designed, established and operated, for certifying existing fish feed supply/production enterprises and for permitting establishment of start-up fish feed enterprises.
- Two (2) private large scale commercial fish-feed produces (Rannan Fish Feed Ltd and Beacon Hill Fish Feed) were established
- Forty-nine (49) commercial hatcheries were established
- Five (5) commercial grow-out farms were established
- A workshop was organized for 65 representatives of fish farmers, hatchery operators and grow-out enterprises on new improvements in the genetic quality of Tilapia and Catfish brood stocks.
- A training workshop was organized to equip 40 hatchery operators and 100 grow-out enterprises with skills for managing newly developed stocks of Tilapia and catfish.

1.2.2 Result 2 - Increased quantities of high-quality commercial farmed fish products sold at more competitive prices

- Three (3) training workshops were organized on value addition to enhanced marketing of farmed fish, targeting high value market niches. These workshops targetted at 50 enterprises opting to invest in value addition to improve on marketing of farmed fish.

1.2.3 Result 3 - Increased productivity and profitability of large, medium and small scale, existing and start-up, commercial fish farms in high priority aquaculture-zones and related aquaculture value chain enterprises

- No activity was carried out under this result

1.2.4 Result 4 - Increased compliance of (large, medium and small scale, existing and start-up) commercial fish farms in high priority aquaculture-zones with national environmental, fish health and food safety guidelines and regulations

- Aquaculture guidelines and code of practice developed
- Existing environmental permit system were rigorously enforced for existing and start-up fish farm/hatchery/nurseries/grow-out enterprises (Environmental Assessment Regulations 1999, LI 1652; Fisheries Regulations LI 1968).
- Four (4) diagnostic laboratories of the Veterinary Services Directorate were adopted, adapted, and re-equipped under WARFP for farmed fish health and fish food safety.

- A training course was organized for 20 veterinary technicians/doctors in testing farmed fish for fish health, fish food safety, and effects of climate change and pollution.
- 10 sensitization workshops organized for 400 leaders of aquaculture associations, on compliance with fish health and fish food safety guidelines and regulations.

1.2.5 Result 5 – Increased effectiveness and efficiency of public institutions in policy formulation, regulation and facilitating aquaculture development

- Institutional capacity needs assessment was conducted for the Fisheries Commission in respect of effective aquaculture development, policy formulation, and regulation.
- A national aquaculture-data collection system was designed but had crashed. 30 staff were trained in the management of the data base
- Aquaculture- records were routinely kept at enterprise level and field data was regularly transmitted to the Fisheries Commission.
- Additional ICT equipment was procured to enable the Fisheries Commission to effectively set up, operate, manage and regularly update the national aquaculture-database.
- Twenty-five (25) ICT equipment were procured for use by the Fisheries Commission for field visits for continuous quality assurance of aquaculture-data processes
- Two (2) stakeholder consultative workshop were organized on institutional roles, arrangements and mechanisms for coordination and networking among aquaculture-related public institutions.
- Ten (10) regular field visits were conducted to interrogate aquaculture business operators and inspect facilities, equipment and records on the implementation of the different activities of the GNADP.

Table 1: Linkages of policy objectives

S/N	RESULTS	SPECIFIC POLICY OBJECTIVE (MOFAD)	ADOPTED POLICY OBJECTIVE (NATIONAL DOCUMENT/ NFAP)
1	Increase Commercial farmed fish production and jobs for the youth and women	<ul style="list-style-type: none"> i. Ensure appropriate inputs for aquaculture operation, especially with regard to the quality of fish seeds or fingerlings and quality and cost of fish feed. ii. Provide education and training. iii. Strengthen extension and research iv. recognize the complementary role of private and public sectors and build strong partnerships among public and private institutions and civil society organizations 	<ul style="list-style-type: none"> i. Promote establishment of fish feed production facilities through greater awareness of cost and benefits, incentives and tax relief for inputs or production, and through other means. ii. 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.
2	Increased quantities of quality commercial farmed fish products sold at more competitive prices	<ul style="list-style-type: none"> i. Ensure appropriate inputs for aquaculture operation, especially with regard to the quality of fish seeds or fingerlings and quality and cost of fish feed. 	To ensure appropriate inputs for aquaculture operation, especially with regard to the quality of fish seeds or fingerlings and quality and cost of fish feed.
3	Increased productivity and profitability of small, medium and large-scale commercial fish farms and related aquaculture value chain enterprises	<ul style="list-style-type: none"> i. Ensure the production of safe and quality fish and fishery products Promote Co-management of Fisheries Aquatic Resources. ii. Promote community-based fisheries management Ensure sustainable development and management of aquaculture	<ul style="list-style-type: none"> i. To ensure appropriate inputs for aquaculture operation, especially with regard to the quality of fish seeds or fingerlings and quality and cost of fish feed. ii. 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.
4	Increased compliance of commercial fish farms with sustainable environmental, biosecurity, and food safety guidelines and regulations	<ul style="list-style-type: none"> i. Improve fisheries monitoring in all kinds of fisheries. ii. Ensure sustainable development and management of aquaculture iii. Promote and ensure the enforcement of User Rights regulations in fisheries 	<ul style="list-style-type: none"> i. In collaboration with appropriate institutions, establish standard procedure for the evaluation of the quality of feed produced by industry for fish farmers. ii. Promote the role of the private sector in fish seed, fingerlings or juvenile production, including capacity building of producers. iii. Establish guidelines for brood stock management and fish seed as quality control for operators.
5	Increased effectiveness and efficiency of public institutions in policy and regulation formulation to facilitate aquaculture development	<ul style="list-style-type: none"> i. Promote compliance with Fisheries Laws and Regulations that protect and conserve the Fisheries Resources ii. Promote adherence to enforcement of fisheries laws and regulations 	<ul style="list-style-type: none"> i. 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.

CHAPTER TWO

NATIONAL AQUACULTURE STRATEGIC FRAMEWORK

2.0 Introduction

Since facilitating the focused implementation of the National Aquaculture Strategic Framework (NASF) (2021) is the primary goal of developing the Ghana National Aquaculture Development Plan, this section highlights the strategic framework's essential components. The NASF is the result of extensive national consultations during which the opportunities, dangers, risks to the development of the nation's aquaculture subsector, and its strengths, weaknesses, and opportunities were all recognized and studied. The NASF's fundamental tenet is that the optimum investments result from aligning the proper aquaculture systems with the necessary biophysical and socioeconomic criteria. Additionally, private sector leadership of the support systems or services for these aquaculture firms is required, necessitating a change in the government's roles and responsibilities to focus more on facilitation, oversight, and control.

The thematic scope of the NASF covers:

1. availability and access to inputs for aquaculture operations;
2. complementary roles of public and private sectors in aquaculture;
3. education and training;
4. extension and outreach;
5. research;
6. partnerships;
7. aquatic animal health,
8. value addition and marketing,
9. environment, social and
10. production systems.

2.1. Availability and access to Aquaculture inputs

Government would:

- i. Compile information on fish seed producers and potential producers
- ii. Establish guidelines on brood stock management and fish seed production as quality control for operators
- iii. Establish an evaluation procedure for feed produced by industry in collaboration with appropriate institutions.
- iv. Create incentives for relevant inputs for fish feed producers for some years.

Further Government, NGOs, and private aquaculture/fish farmers associations would:

- i. Create awareness of commercial fish feed industry
- ii. Encourage and assist the private sector to play a major role in fish seed production
- iii. Encourage partnerships and collaborative investments between public institutions with tested fish feed formulations mainly from agro-industrial by-products for the fish farming industry
- iv. Sensitize financial institutions about the potential profitability of aquaculture
- v. Link farmers' to credit facilities
- vi. Educate fish farmers on what is required of them to obtain credit
- vii. Establish revolving funds for aquaculture operators along the value chain

- viii. Establish community-based capital generation systems among community members to support aquaculture activities.
- ix. Further, private entrepreneurs would be encouraged to produce and market fish feed, seed and cultured fish

2.2. Complementary roles of the public and private sectors in aquaculture development

Government would:

- i. Strengthen the capacity of the Fisheries Commission for policy and regulation development
- ii. Develop and disseminate regulations and standards (code of practice) regarding aquaculture operations and products
- iii. Identify public and private sector institutions that perform or could perform roles in aquaculture development and invite them to do so
- iv. Encourage public sector institutions to limit their role to monitoring and evaluation
- v. Establish formal arrangements and encourage specialization among aquaculture-related public institutions;
- vi. Review public sector owned aquaculture facilities including demonstration stations to allow for better definition of function, shared private and public sectors or complete private ownership
- vii. Encourage entrepreneurs to supply aquaculture inputs

2.3. Education and Training in Aquaculture

Government, NGOs and aquaculture/fish farmer associations would:

- i. Conduct training needs assessment for members of existing fish farmer associations and request responses to identified needs through the public sector
- ii. Formalize collaborations between public sector training institutions to ensure complementarities of their programs
- iii. Establish collaborative relationships between public and private sector institutions (e.g. fish farmer associations) to facilitate training
- iv. Develop basic and comprehensive curricula for aquaculture education and training at all levels
- v. Involve experienced personnel, private and public sector institutions in the training programs
- vi. Establish specialized practical/applied programs to produce urgently needed aquaculture extension agents
- vii. Institute a monitoring and evaluation system on all aspects of aquaculture to generate information for entrepreneurs and decision-makers
- viii. Initiate educational campaign on aquaculture as a business

2.4. Extension

Government would:

- i. Establish formal linkages between aquaculture training and tertiary institutions offering aquaculture extension courses on one hand and fish farmers and other related

institutions on the other hand, in order to incorporate the latter's facilities and personnel in the former's training programs

- ii. Develop trainers in aquaculture extension in appropriate institutions
- iii. Establish mechanisms that would ensure higher interaction between extension agents and fish farmers, sufficient to improve upon farmers' operations
- iv. Institute a crash program to train aquaculture extension agents
- v. Involve private sector personnel in technology transfer
- vi. Institute refresher courses for aquaculture extension agents
- vii. Establish information support unit to facilitate reporting and information dissemination on aquaculture
- viii. Establish strong research-extension linkages to ensure timely dissemination of research findings

2.5. Research

Government would:

- i. Establish a national body to determine demand driven aquaculture research agenda
- ii. Identify sustained sources of research funding to support local aquaculture research
- iii. Mainstream social and economic research into the national aquaculture research agenda

2.6. Partnerships

Government would:

- i. Encourage aquaculture-related public institutions to formalize linkages and networks
- ii. Encourage public sector institutions to adopt areas of specialization with respect to aquaculture
- iii. Encourage budding fish farmer groups to affiliate with a national aquaculture association

Stakeholders in aquaculture including Government, NGOs and private aquaculture/fish farmer associations would:

- i. Train members of fish farmer associations in group formation and group dynamics
- ii. Bring private sector institutions into partnerships in aquaculture
- iii. Encourage Aquaculture/Fish farmer Associations to seek partnerships with other sector institutions

2.7. Production Systems

Government would:

- i. Seek development partner support for the characterization of high aquaculture potential zones
- ii. Publish high aquaculture potential zones with their characteristics as public sector support to potential aquaculture entrepreneurs
- iii. Promote the use of improved and emerging fish culture production systems.
- iv. Identify suitable coastal areas for mariculture
- v. Sensitize local authorities on potential impacts of aquaculture on land and water on their local livelihoods and the environment

Government and private entrepreneurs or investors in aquaculture would involve local and traditional authorities in the acquisition of land or water body for aquaculture.

2.8. Value Addition and Marketing

Government would:

- i. Provide basic marketing infrastructure such as roads, electricity, and water
- ii. Promote aquaculture products through aquaculture fairs
- iii. Encourage and enable commercial producers to develop marketing channels which can be accessed by smaller producers
- iv. Encourage and support research into tastes and preferences of the different segments of the local and export markets
- v. Disseminate aquaculture value chain information to the different value chain operators
- vi. Establish and enforce aquaculture certification and standards across the entire value chain
- vii. Prepare, publish and regularly monitor guidelines on the implementation of quality standards of aquatic products to protect the public health as well as improve acceptability of aquaculture products
- viii. Protect fish farmers from unfair practices by middlemen
- ix. Negotiate favourable bilateral and multilateral trade agreements
- x. Protect local fish farmers from unfair foreign competition, provided that protective measures used conform to international trade conventions/agreements
- xi. Encourage research institutes to disseminate market and value addition information to fish farmers (on fish retail prices, preservation and processing, packaging, consumer tastes and preferences in different market segments including export markets).

Private sector would:

- i. Adhere to aquaculture certification and standards
- ii. Provide uniform quality products according to requirements of different market niches
- iii. Provide market guarantees for smaller producers
- iv. Embrace value addition in processing and packaging

2.9. Environmental and Social Concerns

Government would:

- i. Conduct environmental strategic assessment
- ii. Establish structures for co-management of land and water resources
- iii. Provide guidelines to prevent environmental degradation
- iv. Research on climate change and its effects on aquaculture
- v. Through water resources commission facilitate formation of users association
- vi. Enforce laws and regulations on water bodies and land use
- vii. Through Water Resources Commission sensitize relevant institutions and the population on sustainable land and water use, and formation of user associations
- viii. Educate and train aquaculture operators on environmental issues

Private sector would:

- i. Comply with laws and regulations regarding land and water resources
- ii. Adopt sustainable land and water use practices including site selection

- iii. Facilitate formation of water users association, where applicable
- iv. Conduct sustainability related feasibility studies during site selection
- v. Communicate early warning information to members

CHAPTER THREE

THE DEVELOPMENT PLAN

3.0 Introduction

In 2019, Ghana and Norway signed a technical cooperation agreement for sustainable fisheries and aquaculture development in Ghana under a programme dubbed “Fish for Development (FfD)”. Recognizing that the Ghana National Aquaculture Development Plan (2012 – 2016) has been inadvertently extended over its duration, Fisheries Commission requested the assistance of the Programme to review it for implementation in 2024 – 2028.

The current Ghana National Aquaculture Development Plan (GNADP) aims to properly structure and flesh out the strategic framework in order to promote its efficient execution. Thus, the National Aquaculture Strategic Framework (NASF) has served as the primary planning reference (Chapter Two). The Ghana National Aquaculture Development Plan (2012 – 2016), the Fisheries Sector Medium Term Development Plan (SMTDP, 2018-2021), Medium-Term Development Plan (2022-2025), the National Fisheries and Aquaculture Policy (2022), the Fisheries Act, 2002 (Act 625) and the Fisheries Regulations 2010 (L.I., 1968) were among others also mentioned because they provide the overarching national development and legal frameworks under which the aquaculture sub-sector is subsumed. Additionally, care was taken to make sure the GNADP adhered to the FAO's Code of Conduct for Responsible Fisheries (CCRF, 1995).

Participation from stakeholders was crucial aspect to the planning process. In this regard, the National Association of Fish Processors and Traders (NAFPTA), Chamber of Aquaculture, Ghana Aquaculture Association (GAA), Ghana National Association of Fish Pond Farmers (GNAFPF), Research Institutions, Universities, Water Resources Commission (WRC), Environmental Protection Agency (EPA), FAO, Fish Farmer NGOs and CSOs, as well as private fish farmers, were engaged.

3.1 Vision

Accelerate development of a private-led aquaculture that enables it to contribute sustainably to fish food and nutrition security, employment creation, increase income, economic growth and poverty alleviation.

3.2 Mission

To create an enabling environment that would facilitate and attract public and private investments into the aquaculture value chain on a sustainable basis.

3.3 Goal

The goal is to improve the practice, management and sustainable development of aquaculture as a viable business for all stakeholders.

3.4 Long Term Objective

The GNADP seeks to contribute significantly to improvements in aquaculture production, marketing, social acceptability, environmental sustainability, food and nutrition security, poverty alleviation, wealth and job creation.

3.5 Medium Term Objectives

The following interrelated objectives would be accomplished within the medium term:

1. Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.
2. Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$132,863,646.07 in 2021 to US\$314,704,672.47 in 2028.
3. Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 60% within the plan period of 5 years.
4. Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products.
5. Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation.

3.6 Expected Results

The following are the results expected from the implementation of the GNADP (2024 – 2028):

1. Increased quantities of commercial farmed fish production and jobs for the youth and women
2. Increased quantities of high quality commercial farmed fish products and sold at more competitive prices
3. Increased productivity and profitability of fish farms and their related aquaculture value chain enterprises
4. Increased compliance of commercial fish farms to national environmental and food safety policies, standards and regulations
5. Increased effectiveness and efficiency of public institutions in policy and regulation formulation to facilitate aquaculture development

3.7 Key Operations

The National Aquaculture Strategic Framework made institutional duties and responsibilities a central tenet, hence activities in this sub-subsection were specifically developed with institutional functions in mind. Additionally, predicted results are listed alongside the activities. Each operation is presented in general terms and then broken down into smaller tasks. Typically, the principal agency for implementing the GNADP would be the Fisheries Commission. The Fisheries Commission would interact with other public partner institutions through subcontract agreements as the lead Agency. In order to achieve the plan, the Fisheries Commission will work with private sector partners through subcontracting and Public-Private Partnership (PPP) agreements. The sub-activities specify the Fisheries Commission's partner institutions for plan implementation.

3.7.1. Result 1 - Increased commercial farmed fish production and jobs for the youth and women

Operation 1 - Establish potential commercial aquaculture zones

- i. Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.
- ii. Take inventory of all reserved areas for aquaculture in all existing National Irrigation Schemes and also ensure that new schemes follow suit.
- iii. Conduct assessment of the suitability of the reserved areas for aquaculture.
- iv. Demarcate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.
- v. Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MOFAD), Fisheries Commission (FC) and Ghana Investment Promotion Centre (GIPC).
- vi. Collaborate with relevant agency (GIDA) for the review of the implementation of the National Irrigation policy
- vii. Develop a national aquaculture spatial plan covering the entire geographical space of Ghana (marine and Inland), with a focus on aquaculture production systems and prerequisite bio-security, bio-physical and socio-economic requirements..
- viii. Map out and characterize zones of high aquaculture potential using remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).
- ix. Provide technical assistance to fish farmers, hatchery operator sand their associations and cooperatives.
- x. Stock community-owned and public reservoirs with suitable fish species and facilitate its management to enhance fish production on suitable basis.

Operation 2 – Promote aquatic animal health management

- i. Improve data collection (e.g. mortality) for effective surveillance and monitoring in hatcheries and grow-out facilities.
- ii. Establish functioning quarantine centers at Kotoka International Airport and other designated centers
- iii. Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.
- iv. Enhance field and laboratory diagnosis of diseases
- v. Develop an emergency plan and early warning systems for disease detection, control and prevention.

Operation 3 – Facilitate sustainable investment into aquaculture by the private sector

- i. Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.
- ii. Facilitate access to land, capital, skill labour, etc. and also provide incentives, e.g. tax waivers to investors.
- iii. Create a one-stop-shop permitting system for aquaculture operations.

Operation 4 – Facilitate increased supply of quality fish feed to fish farmers

- i. Support research into feed and raw materials availability and their appropriateness for culture of diverse species.
- ii. Design, establish and operate a permit system for locally produced and imported fish feed based on validated laboratory analysis and certification.
- iii. Establish standard procedure for the evaluation of the quality of feed produced by industry for fish farmers.

Operation 5 - Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers

- i. Enforce the ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission.
- ii. Promote value chain segmentation and specialization of fish seed production.
- iii. Evaluate the current Akosombo strain of *Oreochromis niloticus* and Clarias species.
- iv. Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and broodstock multiplication centers)
- v. Establish guidelines for brood stock management and fish seed as quality control for operators.
- vi. Enforce certification protocols across the value chain and promote voluntary compliance.

Operation 6 – Facilitate access to investment funds

- i. Facilitate the establishment of aquaculture research and development fund.
- ii. Facilitate access to aquaculture investment fund operated by local agencies and projects for small scale farmers,
- iii. Facilitate the establishment of aquaculture insurance scheme
- iv. Facilitate aquaculture investment fora to link the industry to existing and potential investment funds

Operation 7 – Explore the feasibility of other culturable species in different environments

- i. Conduct technical and economic feasibility studies on other culturable freshwater fish species.
- ii. Conduct feasibility studies on mariculture.
- iii. Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc.
- iv. Develop suitable business models for promoting the culture of the selected culturable fish species

3.7.2. Result 2 - Increased quantities of quality commercial farmed fish products sold at more competitive prices

Operation 1 - Establish appropriate infrastructure for farmed fish value addition and marketing

- i. Conduct needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places.

- ii. Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.
- iii. Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites
- iv. Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.
- v. Facilitate the provision of fish market centers, equipped with water and sanitation facilities.
- vi. Conduct training in post-harvest handling of farmed fish and fish products in accordance with set guidelines.
- vii. Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.

Operation 2 - Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively

- i) Conduct feasibility assessment for developing new products for all farmed aquatic animals
- ii) Facilitate the diversification of aquatic animal products such as fillets, fish nuggets, fish fingers with relevant agencies
- iii) Facilitate the training of farmers to utilize fish waste into other products e.g. fish meal, fish oil, fertilizer and biogas
- iv) Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products.
- v) Create awareness on value addition and marketing options for farmed fish products
- vi) Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain
- vii) Facilitate the establishment of a fish processing plant to produce different farmed fish products such as fillets, fish nuggets, fish fingers with the fish waste used in the production of fish meal and fertilizers.
- viii) Ensure the production of good quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.

3.7.3. Result 3 - Increased productivity and profitability of commercial fish farms and related aquaculture value chain enterprises

Operation 1 – Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis

- i. Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses.
- ii. Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural colleges (government and private) regarding aquaculture extension.
- iii. Collaborate with Anomabo Fisheries College to produce skilled personnel to meet the industry needs.
- iv. Collaborate with the National Aquaculture Center and Commercial Farms at Amrahia to render practical vocational hands-on training and aquaculture services along the value chain.

- v. Upgrade existing public hatcheries to aquaculture training centers.
- vi. Conduct refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations to upgrade their skills in new trends and emerging technologies.
- vii. Enhance capacity of private hatchery and nursery operators to provide after-sales extension services to fish farmers.
- viii. Prepare and disseminate national guidelines and regulations to guide and regulate private participation in aquaculture-extension services.

Operation 2 - Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.

- i) Organize workshops for commercial fish feed producers on enhanced management and technological related issues.
- ii) Organize workshops for private fish hatchery, nursery, and grow-out enterprises on enhanced management and technology.
- iii) Conduct training for staff of commercial fish farm enterprises, with special attention to the small scale sub-sector and start-up firms, on aquaculture business management.

Operation 3 - Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.

- i) Publish the list of aquaculture associations in national websites and brochures.
- ii) Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.
- iii) Facilitate the establishment of national umbrella aquaculture association and cooperatives, particularly for small scale fish farmers.
- iv) Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.
- v) Facilitate the publication of bulletins/newsletters by the aquaculture associations and cooperatives.
- vi) Enhance collaboration with relevant institutions to deliver the needed services to the aquaculture industry.

3.7.4. Result 4 - Increased compliance of commercial fish farms with sustainable environmental, biosecurity and food safety guidelines and regulations

Operation 1 – Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production

- i) Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate environmental safeguards.
- ii) Strengthen inter institutional collaboration to provide technical assistance to fish farm enterprises.
- iii) Develop, disseminate and distribute educational materials such as flyers, posters etc. on best aquaculture practices to stakeholders. Establish buffer zones around communal water bodies and aquaculture establishments

Operation 2 – Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms

- i) Sign a Memorandum of Understanding between the Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish health management purposes
- ii) Promote skill development for veterinarians, veterinary technicians, and fisheries officers in providing fish health and fish food safety services.
- iii) Develop and review regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.
- iv) Develop, implement, and enforce fish health and safety guidelines and regulations for farmed fish.
- v) Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.
- vi) Establish Research Extension and farmer linkage Systems-- to identify and address farmers' challenges.

3.7.5. Result 5 – Increased effectiveness and efficiency of public institutions in formulation of policy and regulation to facilitate aquaculture development

Operation 1 - Strengthen the capacity of staff in aquaculture policy formulation and enforcement

- i. Enhance the skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations.
- ii. Organize study tours for staff and stakeholders to understudy best practices in aquaculture.
- iii. Facilitate the development of policy and regulations on aquaculture business along the value chain.
- iv. Participate in international and regional programmes related to aquaculture
- v. Provide logistical support for enforcement of aquaculture regulations.

Operation 2 - Establish database for aquaculture and its related activities

- i. Develop and operationalize an Aquaculture Management Information System (record keeping, production, processing, transmission, management and dissemination of the data to relevant public and private institutions). This database will be updated routinely.
- ii. Build capacities of selected officers to manage the database system in the zonal, regional and national levels.
- iii. Sensitize and train fish farmers on aquaculture record keeping, data capture and transmission, as well as the importance of data-use for enterprise management, policy making, monitoring and evaluation.
- iv. Establish, manage and operate a national aquaculture website to disseminate aquaculture business information such as: investment opportunities, guidelines on establishment and operation of aquaculture, service provision in value addition, and marketing of farmed fish products.

Operation 3 - Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance

- i. Design and establish aquaculture monitoring and evaluation systems (National, Regional & Zonal).

Operation 4 – Evaluate GNADP implementation and performance of aquaculture businesses

- i) Conduct annual, mid-term and terminal evaluation on the implementation of GNADP.
- ii) Organize annual national dissemination and review workshops of GNADP.

CHAPTER FOUR

KEY OPERATIONS AND ACTION PLAN

4.0 Introduction

This Chapter focuses on operations and activities to be implemented by the Fisheries Commission for the period 2024 – 2028. The detailed activities to be implemented are outlined in APPENDICES 2 & 3.

CHAPTER FIVE

MONITORING AND EVALUATION

5.0 Introduction

The 2024 – 2028 Monitoring & Evaluation Framework of FC provides the tools, indicators, strategies, and approaches that will be used to monitor the progress of the Plan's implementation and sporadically evaluate/assess the Plan's overall performance in comparison to its stated Policy Objectives, Targets, Outputs, and Development Outcomes.

Mid-year, annual, and terminal M & E reports will be created to offer information for decision-making about policy that is based on evidence. The M & E Reports will include statistics for the aquaculture industry and other pertinent parties. All interested parties, including the Minister, Executive Director and Private Sector Fish Farming Associations, will receive copies of the M&E Reports.

Through data collection at operational program areas, data analysis, and the injection of correct measures (where appropriate), the GNADP 2024 – 2028 implementation will be monitored to guarantee the steady course of the Plan. On quarterly, mid-year, and annual basis, the Plan will be monitored. Reports will be created and sent to stakeholders. Three distinct types of indicators will be employed. The indicators included in this M & E Framework are 1) processes, 2) input, 3) output, and 4) outcome indicators. This will provide the current M & E Framework a strategic and all-encompassing perspective. As a general rule, monitoring of the Plan will start simultaneously with the commencement of its implementation.

5.1 Monitoring

While data collection and analysis are done at FC Headquarters, monitoring exercises will be carried out at the zonal, district, and regional levels, and monitoring reports will be created and sent to all stakeholders. Disaggregated indicators and data collection devices are two fundamental tools that should be used.

5.2 Evaluation

The performance of GNADP 2024 – 2028 would be evaluated on five (5) different frequency levels: (1) quarterly, (2) mid-year, (3) annually, (4) mid-term, and (5) terminal.

Periodic Plan evaluations are conducted primarily to determine whether the development techniques and interventions being used in the Plan are yielding or have yielded the desired results. Additionally, it is to look at why certain Plan targets were met earlier than others.

Performance monitoring will be aided by the M & E tools for sector-specific KPIs that are listed in APPENDIX 3. To assist Performance Measurement Results, this M & E process and input indicators are referred to as "Milestone Indicators" in this paradigm. The various programs and their corresponding indicators are displayed in APPENDIX 3.

5.3 Participatory Monitoring

The following stakeholders will support the M & E Unit of Fisheries Commission to track the implementation of the Plan and periodically assess its performance over time:

- a. Key industrial players,
- b. Technical officers from the Fisheries Commission's headquarters and regions and
- c. Relevant Non-Governmental Organizations and development partners (where necessary) engaged in the aquaculture sub-sector.

CHAPTER SIX

COMMUNICATION STRATEGY

6.0 Introduction

The Fisheries and Aquaculture Sector and Industry is given a "New development horizon" under the 2024 – 2028 Ghana National Aquaculture Development Plan (GNADP). The Plan's goal is to put the next five years' worth of development policies, initiatives, and programs into action. To allow effective stakeholder participation and reform the aquaculture sub-sector to increase its contribution to national development, the Ghana National Aquaculture Development Plan (GNADP) outlines essential plans.

6.1 Goal

The goal is to improve the practice, management and sustainable development of aquaculture as a viable business for all stakeholders. Hence, the communication strategy is to ensure adequate information is provided to all stakeholders in a clear and timely manner.

6.2 Purpose

The purpose of the plan is to increase fisheries sector visibility in the media landscape and create platforms for stakeholder engagements.

6.3 Objective

The GNADP seeks to contribute significantly to the improvement in aquaculture production, marketing, social acceptability, environmental sustainability, food and nutrition, security, poverty alleviation, wealth and job creation.

Specifically, the under listed objectives have been set to help achieve the goals of the communication strategy herein stated.

- i. Private sector participation and empowerment of key stakeholders
- ii. Ensure visibility of the sector programmes, policies and infrastructure
- iii. Foster information sharing and lessons learning culture to relevant stakeholders
- iv. Promote transparency and openness amongst partners.
- v. Ensure that implementing partners clearly understand GNADP goals and share same vision.
- vi. Promote effective, timely and consistent delivery of quality communication outputs.
- vii. Promote teamwork, joint effort and coordinated communication for the delivery of GNADP.
- viii. Ensure that implementing partners are aware of internal developments before they are made public.
- ix. Ensure consistent and effective communication among stakeholders.

6.4 Key Audience

- i. Presidency
- ii. Cabinet
- iii. Parliament
- iv. Navy
- v. Monitoring Control and Surveillance
- vi. Media
- vii. Stakeholder Institutions
- viii. Metropolitan, Municipal and District Assemblies
- ix. Aquaculture Associations
- x. Traditional authorities
- xi. Judiciaries
- xii. MoFAD/FC

6.5 Key Messages

- i. Transforming Economic, Social and Environmental Development
- ii. Modernization and Competitiveness of Ghanaian Aquaculture sector
- iii. Empowerment of the private sector institutions into partnerships in aquaculture
- iv. Enhancement of voluntary compliance of aquaculture rules and regulations
- v. Implement Emergency Planning and Response
- vi. Implementation, Coordination, Monitoring and Evaluation
- vii. Sustainable financing of aquaculture
- viii. Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.

6.6 Key Communication Activities

- i. Strategic and consistent messaging
- ii. Consultation and broad stakeholder engagement
- iii. Media and public broadcast
- iv. Training and capacity development
- v. Publication and information sharing Conduct more open sessions

Matrix on communication implementation stakeholders and roles is shown in Table 2 and Table 3 summarizes activities and expected results.

Table 2: Matrix on Communication Implementation Stakeholders and Roles

AUDIENCE	SUB MESSAGE
Ministry of Fisheries and Aquaculture Development/FC	We have a responsibility to develop policies that enable sustainable management of Ghana’s fisheries and aquaculture resources. Improve fisheries monitoring in all kinds of fisheries Ensure the production of safe and quality fish and fishery products Promote and ensure the enforcement of Use Rights regulations in fisheries Improve fisheries management and compliance systems
Government as a whole	The GNADP will guide Government investment and Development Partners support to revamp the aquaculture sub sector to increase its contribution to National Development.
Aquaculture operators	The Plan is meant to operationalize the development policies, strategies, and programmes to help improve the livelihood of aquaculture operators
NGOs/CSOs	This will allow them to identify their specific roles and responsibilities during the 2024 – 2028 GNADP implementation.
Media	Their support is needed to educate and inform all stakeholders in the implementation of the GNADP.

6.7 Channels and Tools

- i. Television/radio discussions and appearance
- ii. Press conference/Press Statements
- iii. Strategic meeting with key stakeholders
- iv. Social media
- v. Factsheets on the implemented policies and programmes
- vi. Newspaper publication
- vii. Power Points Presentations
- viii. Brochures
- ix. Banners
- x. Website
- xi. Documentaries
- xii. Infographics

Table 3: Activities and expected results

ACTIVITY	TIMELINE	EXPECTED RESULTS/ INDICATORS
<p>1. ENGAGEMENT</p> <p>a. Conduct media engagements on the implementation of the GNADP</p> <p>b. Dissemination on GNADP Document to regions, stakeholders and stations</p>	2024 – 2028	<p>i. Enhanced public awareness on the existence of the GNADP</p> <p>ii. Responses and feedback from the engagements monthly.</p> <p>iii. Increased media discussion on MoFAD policies and programmes captured in the GNADP annually</p> <p>iv. GNADP document disseminated for feedback yearly</p>
<p>2. NEWSPAPERS</p> <p>a. Develop articles from policies brief, and activities of GNADP to be published in the newspapers.</p> <p>b. Provide press release on the approved policies and programmes</p> <p>c. Develop aquaculture Newsletter</p>	2024 – 2028	<p>i. 2 Articles in 2 newspapers including Daily Graphic, Ghanaian Times and Daily Guide quarterly published</p> <p>ii. Press release published Monthly</p> <p>iii. Newsletter developed and printed out for distribution quarterly</p>
<p>3. RADIO</p> <p>a. Hold morning show discussions on the GNADP</p> <p>b. Radio talk shows on GNADP</p>	2024 – 2028	80% audience reached twice in a month
<p>4. ONLINE MEDIA</p> <p>Send articles, press releases and infographics for publication on online media</p>	2024 – 2028	Five (5) online media articles published monthly
<p>5. AQUACULTURE EXPOSITION</p> <p>a. Organize three (3) investment fora on Aquaculture investment</p>	2024 – 2028	<p>i. Media platforms provided to promote the Aquaculture Exposition yearly</p> <p>ii. Media platforms provided for the Aquaculture investment annually</p>
<p>6. TELEVISION</p> <p>a. Interview hosts from news and popular channels</p> <p>b. Develop documentaries on aquaculture related issues</p>	2024 – 2028	<p>i. Interviews on the GNADP sector organized quarterly</p> <p>ii. Aired developed documentaries on Aquaculture quarterly</p>
<p>7. INFORMATION KIT</p> <p>a. Develop information kits to inform the media</p> <p>b. Develop Brochures</p> <p>c. Update aquaculture activities on the Website FC</p>	2024 – 2028	<p>i. Information kits and abridged version printed and distributed.</p> <p>ii. Brochures printed and distribute annually</p> <p>iii. Feed the website with information Weekly</p>

ACTIVITY	TIMELINE	EXPECTED INDICATORS	RESULTS/
8. Engage stakeholders on the development and implementation of the GNADP	2024 – 2028	Platforms to launch the GNADP	
9. Develop documentary on aquaculture activities a. Workshop to develop magazine b. Grassroots media engagement	2024 – 2028	i. Documentary aired annually ii. Publish and distributed yearly iii. 80% media reached monthly	
10. Live Television Coverage	2024 – 2028	Create Public awareness of the launch and invite stakeholders actively to participate.	
11. Live Social Media updates: Facebook, Twitter and Instagram	2024 – 2028	Frequent update of aquaculture activities on various social media platform.	
12. Monitoring and Evaluation	2024 – 2028	Feedback from stakeholders	

APPENDICES

Appendix 1: GNADP (2024 – 2028) Budget Summary

Objective	Operation/Operation	Public	DP/Private	Total Cost (GHS)	US\$*
Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	27,856,644.06	27,345,286.88	55,201,930.94	5,018,357.36
	1.2 Promote aquatic animal health management	10,450,690.94	14,833,238.75	25,283,929.69	2,298,539.06
	1.3 Facilitate sustainable investment into aquaculture by the private sector	4,345,428.75	35,011,906.25	39,357,335.00	3,577,939.55
	1.4 Facilitate increased supply of quality fish feed to fish farmers	2,681,952.50	27,981,573.13	30,663,525.63	2,787,593.24
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	10,145,854.46	24,843,334.38	34,989,188.84	3,180,835.35
	1.6 Facilitate access to investment funds	18,306,915.71	18,311,048.75	36,617,964.46	3,328,905.86
	1.7 Explore the feasibility of other culturable species in different environments	9,527,048.13	19,552,905.63	29,079,953.75	2,643,632.16
	Total	83,314,534.55	167,879,293.75	251,193,828.30	22,835,802.57
Increase the market share of commercially farmed fish from 20% in 2024 to 30% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028	2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	32,544,025.31	46,082,097.50	78,626,122.81	7,147,829.35
	2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively	33,260,382.81	84,011,899.87	117,272,282.68	10,661,116.61
Total					
	3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	65,804,408.13	130,093,997.37	195,898,405.49	17,808,945.95
	3.2 Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.	45,465,112.98	89,600,350.14	135,065,463.12	12,278,678.47
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years	3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.	31,756,240.00	42,949,017.52	74,705,257.52	6,791,387.05
		12,439,000.63	25,335,203.33	37,774,203.96	3,434,018.54
	Total	89,660,353.61	157,884,570.98	247,544,924.59	22,504,084.05
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	11,794,000.63	21,279,082.06	21,279,082.06	2,916,473.43
	4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	19,274,262.81	32,403,153.94	51,677,416.75	4,697,946.98
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	Total	31,068,263.44	53,682,236.00	83,758,624.44	7,614,420.40
	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	27,159,572.81	83,132,566.52	110,292,139.33	10,026,558.12
	5.2 Establish and update database on aquaculture and its related activities	28,766,906.25	58,813,496.56	87,580,402.81	7,961,854.80
	5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance	13,044,429.38	13,084,842.54	26,129,271.92	2,375,388.36
	5.4 Monitor and evaluate GNADP implementation and performance of aquaculture businesses	7,759,400.54	14,705,953.13	22,465,353.66	2,042,304.88
5.5 Develop GNADP Implementation Plan	1,477,320.00	1,950,000.00	3,427,320.00	311,574.55	
	Total	78,207,628.97	171,686,858.75	249,894,487.72	22,717,680.70
	GRAND TOTAL	348,055,188.70	681,226,956.85	1,028,290,270.54	93,480,933.69

Appendix 2: Annual Action Plan (2024 – 2028)

Objective	Operation/ aquaculture zones	Time Frame					Total Cost (GHS)	Expected Result	Implementing Institution	
		2024	2025	2026	2027	2028			Lead	Collaborating
Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	√	√	√	√	√	55,201,930.94	Increased commercial farmed fish production and jobs for the youth and women	FC	MoFAD, GIDA, WRC, MMDAs, WRI, EPA, FBO's, GIPC, LUSPA, Traditional authorities, Attorney General, Academia (CERGIS), Land Commission
	1.2 Promote aquatic animal health management	√	√	√	√	√	25,283,929.69		FC	MoFAD, WRC, EPA, CAPS, MMDAs
	1.3 Facilitate sustainable investment into aquaculture by the private sector	√	√	√	√	√	39,357,335.00		FC	MoFAD, GIPC, Website, Lands Commission, MMDAs, Traditional Authorities, Financial institutions, Parliament, Attorney General's Department
	1.4 Facilitate increased supply of quality fish feed to fish farmers	√	√	√	√	√	30,663,525.63		FC	Animal Research Institute (CSIR), GSA, FDA, VSD, GIPC
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	√	√	√	√	√	34,989,188.84		FC	FBOs, WRI(ARDEC), Input Dealers, MOFAD
	1.6 Facilitate access to investment funds	√	√	√	√	√	36,617,964.46		FC	MOFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD), Insurance Agencies, GIPC, FBOs, Farmers
	1.7 Explore the feasibility of other culturable species in different environments	√	√	√	√	√	29,079,953.75		FC	WRI, Academia, Farmers, MOFAD
Increase the market share of commercially farmed fish from 20% in 2024 to 30% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028	Total		√	√	√	√	251,193,828.30	Increased quantities of quality commercial farmed fish products sold at more competitive prices	FC	MoFAD, Private/Local/International Consultancy Firms/MMDA's, GIPC, NGO's, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCo, ECG, MoTI, MoRT, MOWS, MMDA's, Telco's, MOE, MOWH, Private Institution, GWC, Private ICT Companies, Farmers, MLGRD
	2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	√	√	√	√	√	78,626,122.81		FC	MoFAD, Private/Local/International Consultancy Firms/MMDA's, GIPC, NGO's, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCo, ECG, MoTI, MoRT, MOWS, MMDA's, Telco's, MOE, MOWH, Private Institution, GWC, Private ICT Companies, Farmers, MLGRD
	2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively	√	√	√	√	√	117,272,282.68		FC	FRI(CSIR), FFA, FPA, Academia, Private Sector, MOFAD, GSA
Improve the performance of 50% of fish farms and related aquaculture value	Total		√	√	√	√	195,898,405.49	Increased productivity and profitability of commercial fish farms	FC	ACADEMIA, AGRIC. COLLEGES/ TRAINING INSTITUTIONS, MANAGEMENT
	3.1 Increase the number of skilled personnel at the different levels of	√	√	√	√	√	135,065,463.12		FC	ACADEMIA, AGRIC. COLLEGES/ TRAINING INSTITUTIONS, MANAGEMENT

Objective	Operation/ the aquaculture business value chain on a sustainable basis	Time Frame				Total Cost (GHS)	Expected Result	Implementing Institution Collaborating	
		2024	2025	2026	2027			2028	Lead
chain enterprises by at least 80% within the plan period of 5 years							and related aquaculture value chain enterprises		OF AMRAHIA TRAINING CENTER, DP, WRI-ARDEC, GES-ACADEMIA, MIMDA's Input Dealers (FEED MAN), MEDIA, NGOs
	3.2 Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.		√	√	√	74,705,257.52		FC	WRI-ARDEC, INPUT DEALERS (FEED MAN), DP, WRI-ARDEC, MIMDA's, FBO's, FEED, MOFA, CSO, MEDIA, ACADEMIA, FEED PRODUCERS
	3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.		√	√	√	37,774,203.96		FC	DP, NGO, CSO, MMDA's, MEDIA, ACADEMIA, EPA, WRI, WRC
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	Total					247,544,924.59			
	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	√	√	√	√	32,081,207.69	Increased compliance of commercial fish farms with sustainable environmental, biosecurity and food safety guidelines and regulations	FC	EPA, WRC, VRA, WRI-ARDEC, DP, NGO, ACADEMIA, MMDA's, MEDIA
	4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	√	√	√	√	51,677,416.75		FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, MMDA's, SECURITY PERSONNEL, Input Dealers, FBO's, CSIR
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	Total					83,758,624.44			
	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	√	√	√	√	110,292,139.33	Increased effectiveness and efficiency of public institutions in formulation of policies and regulations to facilitate aquaculture development	FC	EPA, WRC, FDA, FRI, WRI-ARDEC, VRA, DP, FBO's, GIPC, GSA
	5.2 Establish and update database on aquaculture and its related activities	√	√	√	√	87,580,402.81		FC	CONSULTANT (IT), MEDIA, GIPC, DP, MMDA's, CSO, NGO, FBO's, CONSULTANT(S)
	5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance	√	√	√	√	26,129,271.92		FC	DP, NGO
	5.4 Monitor and evaluate GNADP implementation and performance of aquaculture businesses	√	√	√	√	22,465,353.66		FC	
	5.5 Develop GNADP Implementation Plan	√	√	√	√	3,427,320.00		FC	DP, NGO
	Total					249,894,487.72			
	GRAND TOTAL					1,028,290,270.54			

* Exchange rate US\$1 = GHS11.00

Appendix 2.1: 2024 Action Plan

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1.1 Establish potential aquaculture zones	1.1.1 Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.														150,000.00			150,000.00	The use of the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA implemented.	FC	GIDA, WRC, MMDAs,	
	1.1.2 Take inventory of all reserved areas for aquaculture in all existing National Irrigation Schemes and also ensure that new schemes follow suit.															250,000.00			250,000.00	Inventory of all reserved areas for aquaculture in all existing and new National Irrigation Schemes documented.	FC	GIDA, WRC, MMDAs,
	1.1.3 Conduct assessment of the suitability of the reserved areas for aquaculture.															250,000.00		350,000.00	600,000.00	Assessment of the suitability of the reserved areas for aquaculture conducted.	FC	WRI, GIDA, WRC, EPA

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	1.1.4 Delineate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.													150,000.00			150,000.00	Map for reserved aquaculture areas documented and prospective farmers linked	FC	MMDAs, FBOs,
	1.1.5 Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MoFAD), Fisheries Commission (FC) and Ghana Investment Promotion Centre (GIPC) and the Mass Media													100,000.00		250,000.00	350,000.00	Inventory of aquaculture reserved areas published on MoFAD and GIPC websites	FC	MoFAD, GIPC
	1.1.6 Collaborate with relevant agency (GIDA) for the implementation of the National Irrigation policy													250,000.00		500,000.00	750,000.00	Collaboration with GIDA for the review of the implementation of the National Irrigation policy done.	FC	GIDA, WRC

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency				
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
	1.1.7 Develop a national aquaculture spatial plan covering the entire geographical space of Ghana (marine and inland), with a focus on aquaculture production systems and pre-requisite bio-security, bio-physical and socio-economic requirements.																		National aquaculture spatial plan covering the entire geographical space of Ghana, with a focus on aquaculture production systems and pre-requisite bio-security, bio-physical and socio-economic requirements developed.	FC	LUSPA/MMDA, Traditional authorities,			
	1.1.8 Map out and characterize zones of high aquaculture potential using and remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).																		High aquaculture potential zones mapped out and characterize using remote sensing and geographical information and position systems	FC	MoFAD, Attorney General, Academia (CERGIS), Land Commission			
																			50,000.00		550,000.00	600,000.00		
																			200,000.00		1,000,000.00	1,200,000.00		

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
	1.1.9 Provide technical assistance to fish farmers, hatchery operators and their associations and cooperatives.														200,000.00		300,000.00	500,000.00	500,000.00	FC	FBO's	Technical assistance to fish farmers, hatchery operators and their associations and cooperatives provided.
	1.1.10 Stock community-owned and public reservoirs with suitable fish species and facilitate fish management to enhance fish production on suitable basis.														1,000,000.00		2,000,000.00	5,000,000.00	5,000,000.00	FC	GIDA, Traditional Authorities, WRC, MMDAs	Community-owned and public reservoirs stocked with suitable fish species and fish production enhanced on "suitable" basis
	Total														2,600,000.00	2,000,000.00	4,950,000.00	9,550,000.00				
1.2 Promote aquatic animal health management	1.2.1 Improve data collection for effective surveillance and monitoring in hatcheries and grow-out facilities.														300,000.00		300,000.00	600,000.00	600,000.00	FC	Veterinary Services, WRC, EPA	Data collection for effective surveillance and monitoring in hatcheries and grow-out facilities improved.

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	1.2.2 Establish functional quarantine centers at Kotoka International Airport and other designated centers														50,000.00	850,000.00	200,000.00	1,100,000.00	Functioning quarantine centers at Kotoka International Airport and other designated centers established	FC	CEPS, Veterinary Service
	1.2.3 Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.														250,000.00		1,500,000.00	1,750,000.00	Disease prevention and control through effective biosecurity measures at farm and quarantine centers improved.	FC	CEPS, Veterinary Service, MMDAs
	1.2.4 Enhance field and laboratory diagnosis of disease														100,000.00		200,000.00	300,000.00	Field and laboratory diagnosis of disease enhanced	FC	Veterinary Service Department
	Total														700,000.00	850,000.00	2,200,000.00	3,750,000.00			
1.3 Facilitate sustainable investment into aquaculture by the private sector	1.3.1 Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.														100,000.00		500,000.00	600,000.00	Aquaculture investments and related supporting services through technical bulletins and flyers as a business promoted.	FC	MoFAD, GIPC website

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	1.3.2 Facilitate/provide access to land, capital, skill labour, incentives (e.g. tax waivers to investors).													500,000.00		4,500,000.00	5,000,000.00	Access to land, capital, skill labour, and provision of incentives e.g. tax waivers to investors facilitated.	FC	Land Commission, MoFAD, MMDAs, Traditional Authorities, Financial Institutions, Parliament, Ministry of Finance
	1.3.3 Create a one-stop-shop permitting system for aquaculture operations.													100,000.00		1,000,000.00	1,100,000.00	A one-stop-shop permitting system for aquaculture operations created.	FC, MOFA D, EPA, WRC	Attorney General's Department
	1.3.4 Publish and Launch the GNADP to attract investor, donor and public attention													200,000.00		300,000.00	500,000.00	GNADP launched to attract investor, donor and public awareness created.	FC	MoFAD
	Total													900,000.00	-	6,300,000.00	7,200,000.00			
1.4 Facilitate increased supply of quality fish feed to fish farmers	1.4.1 Support research into fish feed formulation and raw materials availability and their appropriateness for culture of diverse species.													100,000.00		400,000.00	500,000.00	Research into feed and raw materials availability and their appropriateness for culture of diverse species supported.	FC	Animal Research Institute (CSIR), GSA, FDA, VSD

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
	1.4.2 Design, establish and operate a permit system for locally produced and imported fish feed based on validated laboratory analysis and certification.																		200,000.00		300,000.00	500,000.00	A permit system for locally produced and imported fish feed based on validated laboratory analysis and certification designed, established and in operation.	FC	Animal Research Institute (CSIR), GSA, FDA, VSD
	1.4.3 Establish standard operating procedure for the evaluation of the quality of fish feed produced by industry for fish farmers.																		200,000.00		300,000.00	500,000.00	Standard procedure for the evaluation of the quality of feed produced by industry for fish farmers established	FC	Animal Research Institute (CSIR), GSA, FDA, VSD, GIPC
	Total																		500,000.00	-	1,000,000.00	1,500,000.00			

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	1.5.1 Enforce the ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission.																	750,000.00	The ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission enforced.	FC		
	1.5.2 Promote value chain segmentation and specialization of fish seed production.																368,200.00	800,000.00	1,168,200.00	Value chain segmentation and specialization of fish seed production promoted	FC	FBOs,
	1.5.3 Evaluate and improve on the growth performance of Akosombo strain and Clarias and Gariepinus.																	500,000.00	1,000,000.00	1,500,000.00	The current Akosombo strain of Oreochromis niloticus and Clarias species evaluated.	FC

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	1.5.4 Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers)														500,000.00		1,000,000.00	1,500,000.00	The technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers) enhanced.	FC	FBOs, Input Dealers
	1.5.5 Establish guidelines for brood stock and fish seed management as quality control for operators.														300,000.00		600,000.00	900,000.00	Guidelines for brood stock and fish seed management as quality control for operators established.	FC	MoFAD,
	1.5.6 Enforce certification protocols across the value chain and promote voluntary compliance.														500,000.00		1,000,000.00	1,500,000.00	Certification protocols across the value chain and promote voluntary compliance enforced.	FC	MoFAD,
	Total														2,918,200.00		4,400,000.00	7,318,200.00			

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
1.6 Facilitate access to investment funds	1.6.1 Facilitate the establishment of aquaculture research and development fund.													300,000.00			300,000.00	FC	MOFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)	
	1.6.2 Facilitate access to aquaculture investment fund operated by local agencies and projects for small scale farmers													300,000.00			300,000.00	FC	MOFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)	
	1.6.3 Facilitate the establishment of aquaculture insurance scheme													300,000.00			300,000.00	FC	Insurance Agencies, MoFAD	

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	1.6.4 Facilitate aquaculture investment fora to link the industry to existing and potential investment funds													100,000.00		400,000.00	500,000.00		FC	MOFAD, GIPC, FBO's, Farmers and Input dealers
	Total													1,000,000.00	-	400,000.00	1,400,000.00			
1.7 Explore the feasibility of other culturable species in different environments	1.7.1 Conduct technical and economic feasibility studies on other culturable freshwater fish species.													100,000.00		500,000.00	600,000.00		FC	WRI, Academia
	1.7.2 Conduct feasibility studies on Mariculture.													500,000.00		1,500,000.00	2,000,000.00		FC	Academia, WRI.
	1.7.3 Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc.													100,000.00		500,000.00	600,000.00		FC	Academia, MoFAD Farmers, MoFAD

Operation	Key Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
	1.7.4 Develop suitable business models for promoting the culture of the selected culturable fish species																			Suitable business models for promoting the culture of the selected culturable fish species developed	FC	MoFAD			
	Total																			800,000.00	-	2,900,000.00	3,700,000.00		
2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	2.1.1 Conduct needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places.																			300,000.00	1,500,000.00	300,000.00	2,100,000.00	FC	Private/Local/International consultancy firms/MMDAs
	2.1.2 Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.																			300,000.00		1,200,000.00	1,500,000.00	FC	GIPC, NGO's, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCO, ECG, MoTI, MoRT, MOWS, MMDA's, Telco's, MOE, MOWH, Private Institution

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	2.1.3 Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites													150,000.00	1,000,000.00	850,000.00	2,000,000.00	FC	MoRT, MMDAs, ECG, GWC, Telcos,		
	2.1.4 Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.													200,000.00		1,250,000.00	1,450,000.00	FC	Private ICT Companies, MoCAD, Farmers		
	2.1.5 Facilitate the provision of fish market centers, equipped with water and sanitation facilities.													100,000.00	500,000.00	300,000.00	900,000.00	FC	MoFAD, MLGRD, MMDAs,		
	2.1.6 Conduct training in post-harvest handling of farmed fish and fish products in accordance with set guidelines.													200,000.00		800,000.00	1,000,000.00	FC	MoFAD, MMDAs, MLGRD		

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	2.1.7 Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.													100,000.00		500,000.00	600,000.00	FC	MMDAs, Private sector, Local/International Financial Institutions	
	Total													1,350,000.00	3,000,000.00	5,200,000.00	9,550,000.00			
2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively	2.2.1 Conduct feasibility assessment for developing new products for all farmed aquatic animals													200,000.00		600,000.00	800,000.00	FC	FRI (CSIR), FFA,FPA	
	2.2.2 Facilitate the diversification of aquatic animal products such as filets, fish nuggets, fish fingers with relevant agencies													150,000.00		600,000.00	750,000.00	FC	FRI (CSIR), FFA,FPA	
	2.2.3 Conduct training for fish farmers on the utilization of fish bi-products (e.g. fish meal, fish oil, fertilizer and biogas)													150,000.00		750,000.00	900,000.00	FC	FFA, Academia, Private sector	
	2.2.4 Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products.													100,000.00		500,000.00	600,000.00	FC	MoFAD	

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	2.2.5 Create awareness on value addition and marketing options for farmed fish products														100,000.00		809,000.00	909,000.00	909,000.00	FC	MoFAD,
	2.2.6 Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain														100,000.00		500,000.00	600,000.00	600,000.00	FC	FFA, MoFAD
	2.2.7 Facilitate/establish fish processing plant to produce different farmed fish products such as fillets, fish nuggets, fish fingers with the fish bi-product used in the production of fish meal and fertilizers.														100,000.00	1,000,000.00	5,000,000.00	6,100,000.00	6,100,000.00	FC	FFA, Academia, Private sector

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency			
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL			Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
	2.2.8 Enhance the production of quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.																	220,000.00	500,000.00	720,000.00	FC	FFA, GSA,	Good quality and safe farmed fish and fish products produced in collaboration with relevant authorities for local and export markets
	Total																	1,120,000.00	1,000,000.00	11,379,000.00			
3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	3.1.1 Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses.																	100,000.00	500,000.00	600,000.00	FC	ACADEMIA-	Curricula of aquaculture degree programs improved
	3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural colleges (government and private) regarding aquaculture extension.																	200,000.00	300,000.00	500,000.00	FC	AGRIC. COLLEGES/TRAINING INSTITUTIONS	Training needs assessment and curriculum review conducted
	3.1.3 Collaborate with Anomabo Fisheries College to produce skilled personnel to meet industry needs.																	100,000.00	200,000.00	300,000.00	FC	ACADEMIA (UCC) - GETFUND	Collaboration with Anomabo Fisheries College enhanced

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABEA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	3.1.4 Collaborate with the National Aquaculture Center and Commercial Farms at Amrahia to render practical vocational hands-on training and aquaculture services along the value chain.														200,000.00	2,000,000.00	1,300,000.00	3,500,000.00	Collaboration with the National Aquaculture Center and Commercial Farms	FC	MANAGEMENT OF AMRAHIA TRAINING CENTRE, DP
	3.1.5 Upgrade existing public hatcheries to aquaculture training centers.														500,000.00	2,000,000.00	2,500,000.00	5,000,000.00	Existing public hatcheries upgraded	FC	DP, WRI-ARDEC
	3.1.6 Conduct refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations to upgrade their skills in new trends and emerging technologies.														500,000.00		1,500,000.00	2,000,000.00	Refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations conducted	FC	WRI-ARDEC, GES, ACADEMIA, MMDAs
	3.1.7 Enhance capacity of private hatchery and nursery operators to provide after-sales extension services to fish farmers.														200,000.00		578,800.00	778,800.00	Capacity of private hatchery and nursery operators enhanced	FC	WRI-ARDEC, INPUT DEALERS (FEED MAN.)
	3.1.8 Prepare and disseminate national guidelines and regulations to guide and regulate private participation in aquaculture-extension services.														200,000.00		700,000.00	900,000.00	National guidelines and regulations prepared and disseminated	FC	ACADEMIA, MEDIA, DP, MMDAs, NGOs
															2,000,000.00	4,000,000.00	7,578,800.00	13,578,800.00			

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
3.2 Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.	3.2.1 Organize workshops for commercial fish feed producers on enhanced management and technological related issues.														300,000.00		600,000.00	900,000.00	Workshops for commercial fish feed producers organized	FC	DP,STAKEHOLDERS,VSD,MOFA,NGOs, MMDAs, FEED PRODUCERS, FBOs
	3.2.2 Organize workshops for private fish hatchery, nursery, and grow-out enterprises on enhanced management and technology.														300,000.00		500,000.00	800,000.00	Workshops for private fish hatchery, nursery, and grow-out enterprises organized	FC	WRL-ARDEC, DP, MMDAs, FBOs
	3.2.3 Conduct training for staff of commercial fish farm enterprises, with special attention to the small scale sub-sector and start-up firms, on aquaculture business management.														500,000.00		1,833,640.00	2,333,640.00	Staff of commercial fish farm enterprises trained	FC	MMDAs, MOFA, DP, CSO, NGO, MEDIA, ACADEMIA, FEED PRODUCERS, FBOs
3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.	3.3.1 Publish the list of aquaculture associations in national websites and brochures.														1,100,000.00	-	2,933,640.00	4,033,640.00	List of Aquaculture association published	FC	MEDIA
	3.3.2 Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.														200,000.00		700,000.00	900,000.00	viable associations and cooperatives of shell fish farmers organized	FC	DP, NGO, CSO, MMDAs
															100,000.00		400,000.00	500,000.00			

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL			Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
	3.3.3 Facilitate the establishment of national umbrella aquaculture association and cooperatives, particularly for small scale fish farmers.														300,000.00			300,000.00			FC	DP, NGO, CSO, MMDAs
	3.3.4 Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.														300,000.00		300,000.00	600,000.00			FC	DP, NGO, CSO, MMDAs
	3.3.5 Facilitate the publication of bulletins by the aquaculture associations and cooperatives.														100,000.00		200,000.00	300,000.00			FC	DP, NGO, CSO, MMDAs
	3.3.6 Enhance collaboration with relevant institutions (EPA, WRI, WRC, etc.) to deliver the needed services to the aquaculture industry.														300,000.00		500,000.00	800,000.00			FC	DP, MMDAs, ACADEMIA, NGO, EPA, WRI, WRC
	Total														1,300,000.00	-	2,100,000.00	3,400,000.00				

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABEA	DP/PRIVATE	TOTAL	Lead	Collaborating		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	4.1.1 Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate environmental safeguards.														200,000.00		620,000.00	820,000.00	Strategic environmental impact assessment for all identified aquaculture zones conducted and environmental safeguards formulated	FC	EPA, WRC, WRI-ARDEC
	4.1.2 Strengthen inter institutional collaboration to provide technical assistance to fish farm enterprises														300,000.00		450,000.00	750,000.00	Inter institutional collaboration	FC	EPA, WRC, WRI-ARDEC
	4.1.3 Develop, disseminate and distribute educational materials such as flyers, posters etc. on best aquaculture practices to stakeholders.														300,000.00		560,000.00	860,000.00	Educational materials on best aquaculture practices to stakeholders developed and distributed	FC	EPA, WRC, WRI-ARDEC, MEDJA, DP, NGO,ACADEMI A
	4.1.4 Facilitate the establishment of buffer zones around communal water bodies and aquaculture establishments														200,000.00		300,000.00	500,000.00	Buffer zones around communal water bodies and aquaculture establishments established	FC	EPA, WRC, VRA, WRI-ARDEC, DP, NGO,ACADEMI A, MMDAS
	Total														1,000,000.00	-	1,930,000.00	2,930,000.00			

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL			Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish health management purposes.														250,000.00			250,000.00	Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate signed	FC	VSD
	4.2.2 Promote skill development for veterinarians, veterinary technicians and fisheries officers in providing fish health and fish food safety services.														500,000.00		1,000,000.00	1,500,000.00	Skill development for veterinarians, veterinary technicians and fisheries officers provided	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI
	4.2.3 Develop and/or review regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.														500,000.00		1,000,000.00	1,500,000.00	Regulations and standards regarding aquaculture operations and products developed/reviewed	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, INPUT DEALERS
	4.2.4 Develop, implement and enforce fish health and safety guidelines and regulations for farmed fish.														500,000.00		800,000.00	1,300,000.00	Fish health and safety guidelines and regulations for farmed fish developed, implemented and enforced	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, MMDAS, SECURITY PERSONNEL

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency			
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	4.2.5 Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.														300,000.00		500,000.00	800,000.00	Voluntary compliance to fish health and fish food safety guidelines and regulations encouraged	FC	FDA, GSA, MMDAs
	4.2.6 Establish Research-Extension-Farmer Linkage Systems to identify and address farmers' challenges.														400,000.00		600,000.00	1,000,000.00	Research-Extension-Farmer Linkage Systems established	FC	ACADEMIA CSIR-WRIFBOS
	Total														2,450,000.00		3,900,000.00	6,350,000.00			
5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	5.1.1 Enhance the skills of staff of Fisheries Commission and stakeholder institutions on aquaculture policy formulation and regulations.														500,000.00		1,718,200.00	2,218,200.00	Skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations enhanced	FC	DP CONSULTANT(S)
	5.1.2 Organize study tours for staff and stakeholders to understand best practices in aquaculture.														700,000.00		4,300,000.00	5,000,000.00	Study tours for staff and stakeholders	FC	FBOs, DP

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL			Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	5.1.3 Facilitate the development of policy and regulations on aquaculture business along the value chain.														500,000.00		1,836,400.00	2,336,400.00	Policy and regulations on aquaculture business along the value chain developed	FC	EPA, WRC,FDA, FRI,WRI-ARDEC, VRA, DP
	5.1.4 Participate in international and regional programmes related to aquaculture														500,000.00		1,500,000.00	2,000,000.00		FC	GIPC, DP
	5.1.5 Provide logistical support for enforcement of aquaculture regulations.														500,000.00		1,000,000.00	1,500,000.00	Logistical support for enforcement of aquaculture regulations provided	FC	DP, FDA, GSA
	Total														2,700,000.00	-	10,354,600.00	13,054,600.00			
5.2 Establish and update database on aquaculture and its related activities	5.2.1 Develop and operationalize an Aquaculture Management Information System (record keeping, production, processing, transmission, management and dissemination of the data to relevant public and private institutions).														300,000.00		1,000,000.00	1,800,000.00	Aquaculture Management Information System (database) developed and operationalized	FC	DP, CONSULTANT(S)
	5.2.2 Build capacities of selected officers to manage the database system in the zonal, regional and national levels.														500,000.00		278,800.00	778,800.00	Capacities of selected officers enhanced	FC	DP, MMDAs

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	5.2.3 Sensitize and train fish farmers on aquaculture record keeping, data capture and transmission, as well as the importance of data-use for enterprise management, policy making, monitoring and evaluation.														500,000.00		668,200.00	1,168,200.00	FC	DP, MMDAs, FBOs
	5.2.4 Establish, manage and operate a national aquaculture website to disseminate aquaculture business information such as: investment opportunities, guidelines on establishment and operation of aquaculture, service provision in value addition, and marketing of farmed fish products.														400,000.00		700,000.00	1,100,000.00	FC	CONSULTANT (IT), MEDIA, GIPC, DP, MMDAs, CSO, NGO
	Total														1,700,000.00	1,000,000.00	2,147,000.00	4,847,000.00		
5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance	5.3.1 Design and establish aquaculture monitoring and evaluation systems (national, regional & zonal).														300,000.00		1,500,000.00	1,800,000.00	FC	
	Total														300,000.00	-	1,500,000.00	1,800,000.00		

Operation	Key Operation	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
		Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
5.4 Monitor and evaluate GNADP implementation and performance of aquaculture businesses	5.4.1 Conduct routine monitoring of the implementation of GNADP.														300,000.00			300,000.00	Routine monitoring of the implementation of GNADP	FC	
	5.4.2 Conduct annual, mid-term and terminal evaluation on the implementation of GNADP.														557,600.00		1,000,000.00	1,557,600.00	Annual, mid-term and terminal evaluation conducted	FC	
	5.4.3 Disseminate performance of GNADP to stakeholders annually.														278,800.00		500,000.00	778,800.00	Annual national dissemination and review workshops organized	FC	Stakeholders
	Total														1,136,400.00	-	1,500,000.00	2,636,400.00			
	Grand-Total														25,574,600.00	11,850,000.00	70,553,040.00	107,977,640.00			

Appendix 2.2: 2025 Action Plan

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency							
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL									
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	1.1.1 Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.																		172,500.00	-		172,500.00	The use of the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA implemented.	FC	GIDA, WRC, MMDAs,	
		1.1.3 Conduct assessment of the suitability of the reserved areas for aquaculture.																			287,500.00	402,500.00		690,000.00	Assessment of the suitability of the reserved areas for aquaculture conducted.	FC	WRI, GIDA, WRC, EPA
		1.1.4 Demarcate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.																			172,500.00	-		172,500.00	Map for reserved aquaculture areas documented and prospective farmers linked	FC	MMDAs, FBOs,
		1.1.5 Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MOFAD), Fisheries Commission (FC) and Ghana Investment Promotion Centre (GIPC).																			115,000.00	287,500.00		402,500.00	Inventory of aquaculture reserved areas published on MoFAD and GIPC websites	FC	MoFAD, GIPC
		1.1.8 Map out and characterize zones																		230,000.00	-	1,150,000.00	1,380,000.00	High aquaculture	FC	MoFAD, Attorney	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		of high aquaculture potential using remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).																		potential zones mapped out and characterize using remote sensing and geographical information and position systems	General, Academia (CERGIS), Land Commission	
		1.1.9 Provide technical assistance to fish farmers, hatchery operators and their associations and cooperatives.													230,000.00	-	345,000.00	575,000.00	FC	FBO's		
		1.1.10 Stock community-owned and public reservoirs with suitable fish species and facilitate its management to enhance fish production on suitable basis.													1,150,000.00	2,300,000.00	2,300,000.00	5,750,000.00	FC	GIDA, Traditional Authorities, WRC, MMDA's		
		Total													2,357,500.00	2,300,000.00	4,485,000.00	9,142,500.00				
	1.2 Promote aquatic animal health management	1.2.1 Improve data collection (e.g. mortality) for effective surveillance and monitoring in													345,000.00	-	345,000.00	690,000.00	FC	Veterinary Services, WRC, EPA		

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		hatcheries and grow-out facilities.																	facilities improved.					
		1.2.2 Establish functioning quarantine centers at Kotoka International Airport and other designated centers																	57,500.00	977,500.00	230,000.00	1,265,000.00	FC	CEPS, Veterinary Service
		1.2.3 Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.																	287,500.00	-	1,725,000.00	2,012,500.00	FC	CEPS, Veterinary Service, MMDA's
		1.2.4 Enhance field and laboratory diagnosis of disease																	115,000.00	-	230,000.00	345,000.00	FC	Veterinary Service Department
		Total																	805,000.00	977,500.00	2,530,000.00	4,312,500.00		
	1.3 Facilitate sustainable investment into aquaculture by the private sector	1.3.1 Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.																	115,000.00	-	575,000.00	690,000.00	MoF AD/FC	GIPC website, Stakeholders
		1.3.2 Facilitate access to land, capital, skill labour, etc. and also provide incentives, e.g.																	575,000.00	-	5,175,000.00	5,750,000.00	FC	Land Commission, MOFAD, MMDA's, Traditional Authorities, Financial

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		tax waivers to investors.																	investors facilitated.	Institutions, Parliament, Ministry of Finance					
		Total																	690,000.00	-	5,750,000.00	6,440,000.00			
	1.4 Facilitate increased supply of quality fish feed to fish farmers	1.4.1 Support research into feed and raw materials availability and their appropriateness for culture of diverse species. 1.4.2 Design, establish and operate a permit system for locally produced and imported fish feed based on validated laboratory analysis and certification.																	115,000.00	-	460,000.00	575,000.00	FC	Animal Research Institute (CSIR), GSA, FDA, VSD	
		Total																	230,000.00	-	345,000.00	575,000.00	FC	Animal Research Institute (CSIR), GSA, FDA, VSD	
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	Total 1.5.1 Enforce the ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for research and ornamentals, for which special permit is required from the Fisheries Commission. 1.5.2 Promote value chain segmentation and																	345,000.00	-	805,000.00	1,150,000.00			
																			862,500.00	-	-	862,500.00	FC	The ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission enforced. Value chain segmentation and	FBO's,
		Total																	423,430.00	-	920,000.00	1,343,430.00	FC	FBO's,	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency							
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating						
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
		specialization of fish seed production.																									
		1.5.3 Evaluate the current Akosombo strain of Oreochromis niloticus and Clarias species.															575,000.00	-	1,150,000.00	1,725,000.00						FC	WRI (ARDEC)
		1.5.4 Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers)															575,000.00	-	1,150,000.00	1,725,000.00						FC	FBO'S. Input Dealers
		1.5.6 Enforce certification protocols across the value chain and promote voluntary compliance.															575,000.00	-	1,150,000.00	1,725,000.00						FC	MOFAD,
		Total															3,010,930.00	-	4,370,000.00	7,380,930.00							
	1.6 Facilitate access to investment funds	1.6.1 Facilitate the establishment of aquaculture research and development fund.															345,000.00	-	-	345,000.00						FC	MOFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)
		1.6.2 Facilitate access to aquaculture investment fund operated by local															345,000.00	-	-	345,000.00						FC	MOFAD, MASLOC, Social Investment Funds, IFC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
		agencies and projects for small scale farmers																		agencies and projects for small scale farmers facilitated			
		1.6.3 Facilitate the establishment of aquaculture insurance scheme													345,000.00	-	-	345,000.00	FC	Insurance Agencies, MOFAD			
		1.6.4 Facilitate aquaculture investment fora to link the industry to existing and potential investment funds													115,000.00	-	460,000.00	575,000.00	FC	MOFAD, GIFC, FBOs, Farmers and Input dealers			
		Total												1,150,000.00	-	460,000.00	1,610,000.00			Technical and economic feasibility studies on other culturable freshwater fish species conducted.			
1.7 Explore the feasibility of other culturable species in different environments		1.7.1 Conduct technical and economic feasibility studies on other culturable freshwater fish species.													115,000.00	-	575,000.00	690,000.00	FC	WRI, Academia			
		1.7.2 Conduct feasibility studies on Mariculture.														575,000.00	-	1,725,000.00	2,300,000.00	FC	Academia, WRI.		
		1.7.3 Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc.														115,000.00	-	575,000.00	690,000.00	FC	Academia, Farmers, MoFAD		
		1.7.4 Develop suitable business models for promoting the														115,000.00	-	460,000.00	575,000.00	FC	MoFAD		

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Lead	Collaborating			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL						
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		culture of the selected culturable fish species																		culture of the selected culturable fish species developed				
2.1 Establish appropriate infrastructure for farmed fish value addition and marketing																				Needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places conducted.				
Increase the market share of commercial farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028																				Private/Local /International consultancy firms/MMDD As	FC			
		2.1.1 Conduct needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places.																		345,000.00	1,725,000.00	345,000.00	2,415,000.00	
		2.1.2 Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.																		345,000.00	-	1,380,000.00	1,725,000.00	FC
		2.1.3 Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites																		172,500.00	1,150,000.00	977,500.00	2,300,000.00	FC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Collaborating					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Agency				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		2.1.4 Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.															230,000.00	-	1,437,500.00	1,667,500.00				FC	Private ICT Companies, MoCAD, Farmers
		2.1.5 Facilitate the provision of fish market centers, equipped with water and sanitation facilities.															115,000.00	575,000.00	345,000.00	1,035,000.00				FC	MoFAD, MLGRD, MMDA's,
		2.1.6 Conduct training in post-harvest handling of fish and fish products in accordance with set guidelines.															230,000.00	-	920,000.00	1,150,000.00				FC	MoFAD, MMDA's, MLGRD
		2.1.7 Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.															115,000.00	-	575,000.00	690,000.00				FC	MMDA's, Private sector, Local/Internal Financial Institutions
		Total															1,552,500.00	3,450,000.00	5,980,000.00	10,982,500.00					
	2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively	2.2.1 Conduct feasibility assessment for developing new products for all farmed aquatic animals															230,000.00	-	690,000.00	920,000.00				FC	FRI (CSIR), FFA, FPA
		2.2.2 Facilitate the diversification of aquatic animal products such as filets, fish nuggets, fish															172,500.00	-	690,000.00	862,500.00				FC	FRI (CSIR), FFA, FPA

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		fingers with relevant agencies																	agencies diversified			
		2.2.3 Facilitate the training of fish farmers to utilize fish waste into other products e.g. fish meal, fish oil, fertilizer and biogas															172,500.00	-	862,500.00	1,035,000.00	FFA, Academia, Private sector	FC
		2.2.4 Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products.															115,000.00	-	575,000.00	690,000.00	MoFAD	FC
		2.2.5 Create awareness on value addition and marketing options for farmed fish products															115,000.00	-	930,350.00	1,045,350.00	MoFAD,	FC
		2.2.6 Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain															115,000.00	-	575,000.00	690,000.00	FFA, MoFAD	FC
		2.2.7 Facilitate the establishment of a fish processing plant to produce different farmed fish products such as filets, fish nuggets, fish fingers with the fish waste used in the production of															115,000.00	1,150,000.00	5,750,000.00	7,015,000.00	FFA, Academia, Private sector	FC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		fish meal and fertilizers.																							
		2.2.8 Ensure the production of good quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.																		253,000.00	-	575,000.00	828,000.00	FC	FFA, GSA,
		Total																	1,288,000.00	1,150,000.00	10,647,850.00	13,085,850.00			
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years	3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	3.1.1 Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses.																	115,000.00	-	575,000.00	690,000.00	FC	ACADEMIA	
		3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural colleges (government and private) regarding aquaculture extension.																	230,000.00	-	345,000.00	575,000.00	FC	AGRIC. COLLEGES/ TRAINING INSTITUTIONS	
		3.1.3 Collaborate with Anomabo Fisheries College to produce skilled																	115,000.00	-	230,000.00	345,000.00	FC	ACADEMIA (UCC) - GETFUND	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency							
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating						
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
		personnel to meet industry needs.																									
		3.1.4 Collaborate with the National Aquaculture Center and Commercial Farms at Amrathia to render practical vocational hands-on training and aquaculture services along the value chain.																									
		3.1.5 Upgrade existing public hatcheries to aquaculture training centers.																									
		3.1.6 Conduct refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations to upgrade their skills in new trends and emerging technologies.																									
		3.1.7 Enhance capacity of private hatchery and nursery operators to provide after-sales extension services to fish farmers.																									
		Total																									
	3.2 Strengthen the capacity of existing fish seed and fish	3.2.1 Organize workshops for commercial fish feed producers on enhanced management and																									

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Collaborating			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Agency		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
	farm enterprises to manage their enterprises efficiently, effectively and competitively .	technological related issues.																		FEED PRODUCER S, FBOs			
		3.2.2 Organize workshops for private fish hatchery, nursery, and grow-out enterprises on enhanced management and technology.													345,000.00	-	575,000.00	920,000.00			FC	WRI-ARDEC, DP, MMDAs, FBOs	Workshops for private fish hatchery, nursery, and grow-out enterprises organized
		3.2.3 Conduct training for staff of commercial fish farm enterprises, with special attention to the small scale sub-sector and start-up firms, on aquaculture business management.														575,000.00	-	2,108,686.00	2,683,686.00			FC	MMDAs, MOFA, DP, CSO, NGO, MEDIA, ACADEMIA, FEED PRODUCER S, FBOs
3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.		Total												1,265,000.00	-	3,373,686.00	4,638,686.00					List of Aquaculture association published	
		3.3.1 Publish the list of aquaculture associations in national websites and brochures.													115,000.00	-	460,000.00	575,000.00			FC	MEDIA	
		3.3.2 Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.														230,000.00	-	805,000.00	1,035,000.00			FC	DP, NGO, CSO, MMDAs
		3.3.3 Facilitate the establishment of national umbrella aquaculture association and cooperatives, particularly for small scale fish farmers.													345,000.00	-	-	345,000.00			FC	DP, NGO, CSO, MMDAs	national umbrella aquaculture associations and cooperatives established

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Collaborating					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL							
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		3.3.4 Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.																		Leaders and members of the aquaculture associations and cooperatives trained	DP, NGO, CSO, MMDAs				
		3.3.5 Facilitate the publication of bulletins by the aquaculture associations and cooperatives.																		115,000.00	-	230,000.00	345,000.00	Bulletins by the aquaculture associations and cooperatives published	DP, NGO, CSO, MMDAs
		3.3.6 Enhance collaboration with relevant institutions to deliver the needed services to the aquaculture industry.																		345,000.00	-	575,000.00	920,000.00	Collaborations with relevant institution enhanced	DP, MMDAs, ACADÉMIA, NGO, EPA, WRI, WRC
																				1,495,000.00	-	2,415,000.00	3,910,000.00		
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	4.1.1 Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate environmental safeguards.																		230,000.00	-	713,000.00	943,000.00	Strategic environmental impact assessment for all identified aquaculture zones conducted and environmental safeguards formulated	EPA, WRC, WRI-ARDEC
		4.1.2 Strengthen inter institutional collaboration to provide technical assistance to fish farm enterprises																		345,000.00	-	517,500.00	862,500.00	Inter institutional collaboration	EPA, WRC, WRI-ARDEC
		4.1.3 Develop, disseminate and distribute																		345,000.00	-	644,000.00	989,000.00	Educational materials on best	EPA, WRC, WRI-ARDEC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		educational materials such as flyers, posters etc. on best aquaculture practices to stakeholders.																	aquaculture practices to stakeholders developed and distributed		MEDIA, DP, NGO, ACAD EMIA
		4.1.4 Establish buffer zones around communal water bodies and aquaculture establishments													230,000.00	-	345,000.00	575,000.00	FC	EPA, WRC, VRA, WRIL-ARDEC, DP, NGO, ACAD EMIA, MMDAs	
		Total												1,150,000.00	-	2,219,500.00	3,369,500.00				
4.2	Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish health management purposes													287,500.00	-	-	287,500.00	FC	VSD	
		4.2.2 Promote skill development for veterinarians, veterinary technicians and fisheries officers in providing fish health and fish food safety services.													575,000.00	-	1,150,000.00	1,725,000.00	FC	ACADEMIA, VSD, DP, FDA, GS-A, FRI	
		4.2.3 Develop and/or review regulations and standards regarding aquaculture operations and products, as code													575,000.00	-	1,150,000.00	1,725,000.00	FC	ACADEMIA, VSD, DP, FDA, GS-A, FRI, INPUT DEALERS	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		of practice to be widely disseminated to existing and potential operators.																						
		4.2.4 Develop, implement and enforce fish health and safety guidelines and regulations for farmed fish.																	575,000.00	920,000.00	-	1,495,000.00	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, MMDAS, SECURITY PERSONNEL
		4.2.5 Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.																	345,000.00	-	920,000.00	FC	FDA, GSA, MMDAS	
		4.2.6 Establish Research Extension and farmer linkage Systems-- to identify and address farmers' challenges.																	460,000.00	-	690,000.00	FC	ACADEMIA, CSIR-WRI, FBOs	
		Total																2,817,500.00	-	4,485,000.00	7,302,500.00			
5.1 Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	5.1.1 Enhance the skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations.																	575,000.00	-	1,975,930.00	2,550,930.00	FC	DP, CONSULTANT(S)
		5.1.2 Organize study tours for staff and																	805,000.00	-	4,945,000.00	5,750,000.00	FC	FBOs, DP

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Jan	Feb	Mar	Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF		ABFA	DPF	TOTAL	Lead	Collaborating		
		stakeholders to understand best practices in aquaculture.																								
		5.1.3 Facilitate the development of policy and regulations on aquaculture business along the value chain.																	2,111,860.00	-		2,686,860.00			FC	MoFAD, EPA, WRC, FDA, FRI, WRU, ARDEC, VRA, DP
		5.1.4 Participate in international and regional programmes related to aquaculture																	1,725,000.00	-		2,300,000.00			FC	GIPC, DP
		5.1.5 Provide logistical support for enforcement of aquaculture regulations.																	1,150,000.00	-		1,725,000.00			FC	DP, FDA, GSA
		Total																	3,105,000.00	-	11,907,790.00	15,012,790.00				
5.2 Establish and update database on aquaculture and its related activities		5.2.1 Develop and operationalize an Aquaculture Management Information System (record keeping, production, processing, transmission, management and dissemination of the data to relevant public and private institutions). This database will be updated routinely.																	1,150,000.00		575,000.00	2,070,000.00			FC	DP, CONSULTANTS(S)
		5.2.2 Build capacities of selected officers to manage the database system in the zonal.																	575,000.00	-	320,620.00	895,620.00			FC	DP, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Collaborating										
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating									
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																
		regional and national levels. 5.2.3 Sensitize and train fish farmers on aquaculture record keeping, data capture and transmission, as well as the importance of data-use for enterprise management, policy making, monitoring and evaluation.																												
		5.2.4 Establish, manage and operate a national aquaculture website to disseminate aquaculture business information such as: investment opportunities, guidelines on establishment and operation of aquaculture, service provision in value addition, and marketing of farmed fish products.																		575,000.00	-	768,430.00	1,343,430.00	FC	DP, MMDAs, FBOs					
																			460,000.00	-	805,000.00	1,265,000.00	FC	CONSULTANTS (IT), MEDIA, GIPC, DP, MMDAs, CSO, NGO						
		Total																	1,955,000.00	1,150,000.00	2,469,050.00	5,574,050.00								
	5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture	5.3.1 Design and establish aquaculture monitoring and evaluation systems (national, regional & zonal).																	345,000.00	-	1,725,000.00	2,070,000.00	FC							

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency Collaborating																	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating																
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																							
	business performance																																				
		Total																1,725,000.00			2,070,000.00																
	5.4 Evaluate GNADP implementation and performance of aquaculture businesses	5.4.1 Conduct routine monitoring of the implementation of GNADP.																	-			345,000.00										FC					
		5.4.2 Conduct annual, mid-term and terminal evaluation on the implementation of GNADP.																	-			641,240.00										FC					
		5.4.3 Organize annual national dissemination and review workshops of GNADP.																	-			320,620.00										FC					
		Total																	-			1,306,860.00															
	5.5 Develop GNADP Implementation Plan																		-			1,477,320.00											FC				
		Total																	-			1,477,320.00															
		Grand Total																	13,627,500.00			29,105,610.00															

Appendix 2.3: 2026 Action Plan

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	1.1.1 Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.														198,375.00	-	-	198,375.00	The use of the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA implemented.	FC	GIDA, WRC, MMDA's,
		1.1.3 Conduct assessment of the suitability of the reserved areas for aquaculture.														330,625.00	-	462,875.00	793,500.00	Assessment of the suitability of the reserved areas for aquaculture conducted.	FC	WRI, GIDA, WRC, EPA
		1.1.4 Demarcate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.														198,375.00	-	-	198,375.00	Map for reserved aquaculture areas documented and prospective farmers linked	FC	MMDA's, FBO's,
		1.1.5 Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MoFAD), Fisheries Commission (FC) and Ghana Investment Promotion Centre (GIPC).														132,250.00	-	330,625.00	462,875.00	Inventory of aquaculture reserved areas published on MoFAD and GIPC websites	FC	MOFAD, GIPC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		1.1.8 Map out and characterize zones of high aquaculture potential using remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).																		High aquaculture potential zones mapped out and characterize using remote sensing and geographical information and position systems	FC	MOFAD, Attorney General, Academia (CERGIS), Land Commission			
		1.1.9 Provide technical assistance to fish farmers, hatchery operators and their associations and cooperatives.																		Technical assistance to fish farmers, hatchery operators and their associations and cooperatives provided.	FC	FBO's			
		1.1.10 Stock community-owned and public reservoirs with suitable fish species and facilitate its management to enhance fish production on suitable basis.																		Community-owned and public reservoirs stocked with suitable fish species and fish production enhanced on "suitable" basis	FC	GIDA, Traditional Authorities, WRC, MMDA's			
		Total																		2,711,125.00	2,645,000.00	5,157,750.00	10,513,875.00		
	1.2 Promote aquatic animal health management	1.2.1 Improve data collection (e.g. mortality) for effective surveillance and monitoring in hatcheries and grow-out facilities.																		Data collection for effective surveillance and monitoring in hatcheries and grow-out facilities improved.	FC	Veterinary Services, WRC, EPA			
																				396,750.00	-	396,750.00	793,500.00		

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		1.2.2 Establish functioning quarantine centers at Kotoka International Airport and other designated centers																		66,125.00	1,124,125.00	264,500.00	1,454,750.00	FC	CEPS, Veterinary Service
		1.2.3 Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.																		330,625.00	-	1,983,750.00	2,314,375.00	FC	CEPS, Veterinary Service, MMDAs
		1.2.4 Enhance field and laboratory diagnosis of disease																		132,250.00	-	264,500.00	396,750.00	FC	Veterinary Service Department
		Total																		925,750.00	1,124,125.00	2,909,500.00	4,959,375.00		
1.3 Facilitate sustainable investment into aquaculture by the private sector		1.3.1 Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.																		132,250.00	-	661,250.00	793,500.00	FC	MoFAD, GIFC website
		1.3.2 Facilitate access to land, capital, skill labour, etc. and also provide incentives, e.g. tax waivers to investors.																		661,250.00	-	5,951,250.00	6,612,500.00	FC	Land Commission, MoFAD, MMDAs, Traditional Authorities, Financial Institutions, Parliament, Ministry of Finance
		Total																		793,500.00	-	6,612,500.00	7,406,000.00	FC	MoFAD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency								
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating							
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec														
	1.4 Facilitate increased supply of quality fish feed to fish farmers	<p>1.4.1 Support research into feed and raw materials availability and their appropriateness for culture of diverse species.</p> <p>1.4.2 Design, establish and operate a permit system for locally produced and imported fish feed based on validated laboratory analysis and certification.</p>																			Research into feed and raw materials availability and their appropriateness for culture of diverse species supported. A permit system for locally produced and imported fish feed based on validated laboratory analysis and certification designed, established and in operation.	FC	Animal Research Institute (CSIR), GSA, FDA, VSD					
															1,190,250.00	-	8,331,750.00	9,522,000.00										
		Total																				1,190,250.00	-	7,538,250.00	8,067,250.00			
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	<p>1.5.1 Enforce the ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission.</p> <p>1.5.2 Promote value chain segmentation and specialization of fish seed production.</p>																				661,250.00	-	1,322,500.00	1,983,750.00	FC	Animal Research Institute (CSIR), GSA, FDA, VSD	
																						991,875.00	-	-	991,875.00	FC	FBOs, Stakeholders	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		1.5.3 Evaluate the current Akosombo strain of Oreochromis niloticus and Clarias species.															486,944.50	-	1,058,000.00	1,544,944.50	FC	WRI (ARDEC)
		1.5.4 Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers)															661,250.00	-	1,322,500.00	1,983,750.00	FC	FBO'S, Input Dealers
		1.5.6 Enforce certification protocols across the value chain and promote voluntary compliance.															396,750.00	-	793,500.00	1,190,250.00	FC	MoFAD,
		Total															3,198,069.50	-	4,628,750.00	5,843,069.50		
	1.6 Facilitate access to investment funds	1.6.1 Facilitate the establishment of aquaculture research and development fund.															3,859,319.50	-	5,819,000.00	9,678,319.50	FC	MoFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)
		1.6.2 Facilitate access to aquaculture investment fund operated by local agencies and projects for small scale farmers															396,750.00	-	-	396,750.00	FC	MoFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency										
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating									
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																
																											nt (NORAD)			
		1.6.3 Facilitate the establishment of aquaculture insurance scheme																396,750.00	-	-	396,750.00			FC						
		1.6.4 Facilitate aquaculture investment fora to link the industry to existing and potential investment funds																396,750.00	-	-	396,750.00			FC						
		Total																4,652,819.50	-	5,025,500.00	9,678,319.50									
	1.7 Explore the feasibility of other culturable species in different environments	1.7.1 Conduct technical and economic feasibility studies on other culturable freshwater fish species.																1,322,500.00	-	529,000.00	1,851,500.00			FC						WRI, Academia
		1.7.2 Conduct feasibility studies on Mariculture.																132,250.00	-	661,250.00	793,500.00			FC						Academia, WRI,
		1.7.3 Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc																661,250.00	-	1,983,750.00	2,645,000.00			FC						Academia, Farmers, MoFAD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		oysters, shrimps etc.																				
		1.7.4 Develop suitable business models for promoting the culture of the selected culturable fish species													132,250.00	-	661,250.00	793,500.00	Suitable business models for promoting the culture of the selected culturable fish species developed	FC	MoFAD	
		Total													2,248,250.00	-	3,835,250.00	6,083,500.00				
Increase the market share of commercially farmed fish from 1.4% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028	2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	2.1.1 Conduct needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places.													1,058,000.00	-	3,835,250.00	4,893,250.00	Needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places conducted.	FC	Private/Local/International consultancy firms/MMDAs	
		2.1.2 Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.															1,983,750.00	396,750.00	2,777,250.00	Sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services organized.	FC	GIFC, NGOs, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCO, ECG, MoTI, MoRT, MoWS, MMDAs, Telco's, MOE, MOWH, Private Institution

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lend	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		2.1.3 Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites													396,750.00	-	1,587,000.00	1,983,750.00	Construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites facilitated	FC	MoRT, MMDA's, ECG, GWC, Telco's,
		2.1.4 Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.													198,375.00	1,322,500.00	1,124,125.00	2,645,000.00	Mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing developed.	FC	Private ICT Companies, MoCAD, Farmers
		2.1.5 Facilitate the provision of fish market centers, equipped with water and sanitation facilities.													264,500.00	-	1,653,125.00	1,917,625.00	Fish market centers, equipped with water and sanitation facilities established	FC	MoFAD, MLGRD, MMDA's,
		2.1.6 Conduct training in post-harvest handling of fish and fish products in accordance with set guidelines.													132,250.00	661,250.00	396,750.00	1,190,250.00	Training in post-harvest handling of fish and fish products in accordance with set guidelines conducted	FC	MoFAD, MMDA's, MLGRD
		2.1.7 Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.													264,500.00	-	1,058,000.00	1,322,500.00	Cold chain services at fish marketing centers in line with set guidelines established.	FC	MMDA's, Private sector, Local/International Financial Institutions
		Total													2,711,125.00	3,967,500.00	10,051,000.00	16,729,625.00			

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively		2.2.1 Conduct feasibility assessment for developing new products for all farmed aquatic animals													1,785,375.00	3,967,500.00	6,877,000.00	12,629,875.00	FC	FRI (CSIR), FFA, FPA	
		2.2.2 Facilitate the diversification of aquatic animal products such as fillets, fish nuggets, fish fingers with relevant agencies														264,500.00	-	793,500.00	1,058,000.00	FC	FRI (CSIR), FFA, FPA
		2.2.3 Facilitate the training of farmers to utilize fish waste into other products e.g. fish meal, fish oil, fertilizer and biogas														198,375.00	-	793,500.00	991,875.00	FC	FFA, Academia, Private sector
2.2.4 Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products														198,375.00	-	991,875.00	1,190,250.00	FC	MoFAD, stakeholder s		
2.2.5 Create awareness on value addition and marketing options for farmed fish products														132,250.00	-	661,250.00	793,500.00	FC	MoFAD,		
2.2.6 Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain														132,250.00	-	1,069,902.50	1,202,152.50	FC	MoFAD, FFA		

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		2.2.7 Facilitate the establishment of a fish processing plant to produce different farmed fish products such as filets, fish nuggets, fish fingers with the fish waste used in the production of fish meal and fertilizers.																		132,250.00	-	661,250.00	793,500.00	Fish processing plant to produce different farmed fish products such as filets, fish nuggets, fish fingers with the fish bi-product used in the production of fish meal and fertilizers established.	FC	FFA, Academia, Private sector
		2.2.8 Ensure the production of good quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.																		132,250.00	1,322,500.00	6,612,500.00	8,067,250.00	Good quality and safe farmed fish and fish products produced in collaboration with relevant authorities for local and export markets	FC	FFA, GSA,
		Total																		2,975,625.00	5,290,000.00	18,460,777.50	26,726,402.50			
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years	3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	3.1.1 Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses. 3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural																		1,481,200.00	1,322,500.00	12,245,027.50	15,048,727.50	Curricula of aquaculture degree programs improved in universities	FC	ACADEMI A-
		3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural																		132,250.00	-	661,250.00	793,500.00	Training needs assessment and curriculum review conducted	FC	AGRIC. COLLEGE S/TRAINING INSTITUTIONS

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency								
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating							
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec														
		colleges (government and private) regarding aquaculture extension.																										
		3.1.3 Collaborate with Anomabo Fisheries College to produce skilled personnel to meet industry needs.																	264,500.00	-	396,750.00	661,250.00				Collaboration with Anomabo Fisheries College enhanced	FC	ACADEMI A (UCC) - GETFUND
		3.1.4 Collaborate with the National Aquaculture Center and Commercial Farms at Amrahia to render practical vocational hands-on training and aquaculture services along the value chain.																	132,250.00	-	264,500.00	396,750.00				Collaboration with the National Aquaculture Center and Commercial Farms	FC	MANAGEMENT OF AMRAHIA TRAINING CENTRE, DP
		3.1.5 Upgrade existing public hatcheries to aquaculture training centers.																	264,500.00	2,645,000.00	1,719,250.00	4,628,750.00				Existing public hatcheries upgraded	FC	DP, WRI-ARDEC
		3.1.6 Conduct refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations to upgrade their skills in new trends and emerging technologies.																	661,250.00	2,645,000.00	3,306,250.00	6,612,500.00				Refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations conducted	FC	WRI-ARDEC, GES-ACADEMI A, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency									
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating								
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec															
		3.1.7 Enhance capacity of private hatchery and nursery operators to provide after-sales extension services to fish farmers.																							Capacity of private hatchery and nursery operators enhanced	FC	WRI-ARDEC, INPUT DEALERS (FEED MAN.)		
		Total																											
3.2	Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.	3.2.1 Organize workshops for commercial fish feed producers on enhanced management and technological related issues.																								Workshops for commercial fish feed producers organized to address technical related issues	FC	DP, STAKEHOOLDERS, VSD, MOFA, NGOs, MMDAs, FEED PRODUCE RS, FBOs	
		3.2.2 Organize workshops for private fish hatchery, nursery and grow-out enterprises on enhanced management and technology.																								Workshops for private fish hatchery, nursery, and grow-out enterprises organized on improved technologies	FC	WRI-ARDEC, DP, MMDAs, FBOs	
		3.2.3 Conduct training for staff of commercial fish farm enterprises, with special attention to the small scale sub-sector and start-up firms, on aquaculture business management.																								Staff of commercial fish farm enterprises trained	FC	MMDAs, MOFA, DP, CSO, NGO, MEDIA, ACADEMIA, FEED PRODUCE RS, FBOs	
		Total																											
3.3	Strengthen the capacity	3.3.1 Publish the list of aquaculture associations in																								List of Aquaculture	FC	MEDIA	
		Total																											

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency							
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating						
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
	of aquaculture associations to deliver improved services and advocacy.	national websites and brochures.																									
		3.3.2 Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.													132,250.00	-	529,000.00	661,250.00						FC	DP, NGO, CSO, MMDAs		
		3.3.3 Facilitate the establishment of national umbrella aquaculture association and cooperatives, particularly for small scale fish farmers.													264,500.00	-	925,750.00	1,190,250.00						FC	DP, NGO, CSO, MMDAs		
		3.3.4 Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.													396,750.00	-	-	396,750.00						FC	DP, NGO, CSO, MMDAs		
		3.3.5 Facilitate the publication of bulletins by the aquaculture associations and cooperatives.													396,750.00	-	396,750.00	793,500.00						FC	DP, NGO, CSO, MMDAs		
		3.3.6 Enhance collaboration with relevant institutions to deliver the needed services to the aquaculture industry.													132,250.00	-	264,500.00	396,750.00						FC	DP, MMDAs, ACADEMI A, NGO, EPA, WRI, WRC		
		Total													2,777,250.00	-	5,995,738.90	8,772,988.90									

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	4.1.1 Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate environmental safeguards.																	FC	Strategic environmental impact assessment for all identified aquaculture zones conducted and environmental safeguards formulated	EPA, WRC, WRI-ARDEC		
	4.1.2 Strengthen inter institutional collaboration to provide technical assistance to fish farm enterprises	4.1.3 Develop, disseminate and distribute educational materials such as flyers, posters etc. on best aquaculture practices to stakeholders.																	FC	Inter institutional collaboration	EPA, WRC, WRI-ARDEC		
	4.1.4 Establish buffer zones around communal water bodies and aquaculture establishments	4.1.4 Establish buffer zones around communal water bodies and aquaculture establishments																	FC	Buffer zones around communal water bodies and aquaculture establishments established	EPA, WRC, WRI-ARDEC, DP, NGO, ACADEMI A, MMDAs		
		Total																	2,777,250.00	-	4,932,925.00	6,718,300.00	
4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish																	FC	Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate signed	VSD		
																				1,322,500.00	-	2,552,425.00	3,874,925.00

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency										
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating									
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																
		health management purposes																												
		4.2.2 Promote skill development for veterinarians, veterinary technicians and fisheries officers in providing fish health and fish food safety services.																				330,625.00	-	-	330,625.00				FC	ACADEMI A, VSD, DP, FDA, GSA, FRI
		4.2.3 Develop and/or review regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.																				661,250.00	-	1,322,500.00	1,983,750.00				FC	ACADEMI A, VSD, DP, FDA, GSA, FRI, INPUT DEALERS
		4.2.4 Develop, implement and enforce fish health and safety guidelines and regulations for farmed fish.																				661,250.00	-	1,322,500.00	1,983,750.00				FC	ACADEMI A, VSD, DP, FDA, GSA, FRI, MMDAS, SECURITY PERSONNEL
		4.2.5 Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.																				661,250.00	-	1,058,000.00	1,719,250.00				FC	FDA, GSA, MMDAS

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPF	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		4.2.6 Establish Research Extension and farmer linkage Systems-- to identify and address farmers' challenges.															396,750.00	-	661,250.00	1,058,000.00		FC	ACADEMI A, CSIR-WRI, FBOs	
		Total															4,033,625.00	-	6,916,675.00	10,950,300.00				
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	5.1.1 Enhance the skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations.															3,240,125.00	-	5,157,750.00	8,397,875.00		FC	DP, CONSULT ANT(S)	
		5.1.2 Organize study tours for staff and stakeholders to understand best practices in aquaculture.																661,250.00	-	2,272,319.50	2,933,569.50		FC	FBO's, DP
		5.1.3 Facilitate the development of policy and regulations on aquaculture business along the value chain.																925,750.00	-	5,686,750.00	6,612,500.00		FC	EPA, WRC, FDA, FRI, WRI-ARDEC, VRA, DP
		5.1.4 Participate in international and regional programmes related to aquaculture.																661,250.00	-	2,428,639.00	3,089,889.00		FC	GIFC, DP
		5.1.5 Provide logistical support for enforcement of aquaculture regulations.																661,250.00	-	1,983,750.00	2,645,000.00		FC	DP, FDA, GSA
		Total															6,149,625.00	-	17,529,208.50	23,678,833.50				

Appendix 2.4: 2027 Action Plan

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
Increase commercial farmed fish produced from 116,107,83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	1.1.1 Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.																			FC	GIDA, WRC, MMDAs,	
		1.1.3 Conduct assessment of the suitability of the reserved areas for aquaculture.													380,218.75	-	532,306.25	912,525.00				FC	WRI, GIDA, WRC, EPA
		1.1.4 Demarcate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.																					FC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency								
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating							
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec														
		1.1.5 Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MOFAD), Fisheries Commission (FC) and Ghana Investment Promotion Centre (GIPC).																		Inventory of aquaculture reserved areas published on MoFAD and GIPC websites	FC	MoFAD, GIPC						
		1.1.8 Map out and characterize zones of high aquaculture potential using remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).																		High aquaculture potential zones mapped out and characterize using remote sensing and geographical information and position systems	FC	MOFAD, Attorney General, Academia (CERGIS), Land Commission						
																									304,175.00	-	1,520,875.00	1,825,050.00

Objective	Operation	Sub-Activity	Time Frame													Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead		Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		1.1.9 Provide technical assistance to fish farmers, hatchery operators and their associations and cooperatives.																	304,175.00	-	456,262.50	760,437.50	FC	FBO's	Technical assistance to fish farmers, hatchery operators and their associations and cooperatives provided.
		1.1.10 Stock community-owned and public reservoirs with suitable fish species and facilitate its management to enhance fish production on suitable basis.																	1,520,875.00	3,041,750.00	3,041,750.00	7,604,375.00	FC	GIDA, Traditional Authorities, WRC, MMDA's	Community-owned and public reservoirs stocked with suitable fish species and fish production enhanced on "suitable" basis
		Total																	3,117,993.75	3,041,750.00	5,931,412.50	12,090,956.25			
	1.2. Promote aquatic animal health management	1.2.1 Improve data collection (e.g. mortality) for effective surveillance and monitoring in hatcheries and grow-out facilities.																	456,262.50	-	456,262.50	912,525.00	FC	Veterinary Services, WRC, EPA	Data collection for effective surveillance and monitoring in hatcheries and grow-out facilities improved.
		1.2.2 Establish functioning quarantine centers at Kotoka International Airport and other																	76,043.75	1,292,743.75	304,175.00	1,672,962.50	FC	CEPS, Veterinary Service, Civil Aviation Authority	Functioning quarantine centers at Kotoka International Airport and other designated centers established

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		designated centers																								
		1.2.3 Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.																380,218.75	-	2,281,312.50	2,661,531.25			FC	CEPS, Veterinary Service, MMDAs	
		1.2.4 Enhance field and laboratory diagnosis of disease																152,087.50	-	304,175.00	456,262.50			FC	Veterinary Service Department	
		Total																1,064,612.50	1,292,743.75	3,345,925.00	5,703,281.25					
	1.3 Facilitate sustainable investment into aquaculture by the private sector	1.3.1 Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.																152,087.50	-	760,437.50	912,525.00			FC	MoFAD, GIPC website	
		1.3.2 Facilitate access to land, capital, skill labour, etc. and also provide incentives, e.g. tax waivers to investors.																760,437.50	-	6,843,937.50	7,604,375.00			FC	Land Commission, MoFAD, MMDAs, Traditional Authorities, Financial Institutions, Parliament,	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
																				Ministry of Finance	
		Total													912,525.00	-	7,604,375.00	8,516,900.00		FC	MoFAD
	1.4 Facilitate increased supply of quality fish feed to fish farmers	1.4.1 Support research into feed and raw materials availability and their appropriateness for culture of diverse species.													1,368,787.50	-	9,581,512.50	10,950,300.00		FC	Animal Research Institute (CSIR), GSA, FDA, VSD
		1.4.2 Design, establish and operate a permit system for locally produced and imported fish feed based on validated laboratory analysis and certification.													152,087.50	-	608,350.00	760,437.50		FC	Animal Research Institute (CSIR), GSA, FDA, VSD
		Total													1,368,787.50	-	8,668,987.50	9,277,337.50			

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	1.5.1 Enforce the ban on importation of live fish (eggs, milk, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission.																		760,437.50	-	1,520,875.00	2,281,312.50	The ban on importation of live fish (eggs, milk, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission enforced.	FC	Stakeholders
		1.5.2 Promote value chain segmentation and specialization of fish seed production.																		1,140,656.25	-	-	1,140,656.25	Value chain segmentation and specialization of fish seed production promoted	FC	FBOs, Stakeholders
		1.5.3 Evaluate the current Akosombo strain of <i>Oreochromis niloticus</i> and <i>Clarias</i> species.																		559,986.18	-	1,216,700.00	1,776,686.18	The current Akosombo strain of <i>Oreochromis niloticus</i> and <i>Clarias</i> species evaluated Value chain	FC	WRI (ARDEC)

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		1.5.4 Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers)																	760,437.50	-	1,520,875.00	2,281,312.50	The technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers) enhanced.	FC	FBO'S, Input Dealers
		1.5.6 Enforce certification protocols across the value chain and promote voluntary compliance.																	456,262.50	-	912,525.00	1,368,787.50	Certification protocols across the value chain and promote voluntary compliance enforced	FC	MofAD, Stakeholders
		Total																	3,677,779.93	-	5,323,062.50	6,719,529.93		FC	
	1.6 Facilitate access to investment funds	1.6.1 Facilitate the establishment of aquaculture research and development fund.																	4,438,217.43	-	6,691,850.00	11,130,067.43	Establishment of aquaculture research and development fund facilitated.	FC	MofAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)
		1.6.2 Facilitate access to aquaculture investment fund operated by local agencies and projects for small scale farmers																	456,262.50	-	-	456,262.50	Establishment of aquaculture research and development fund facilitated.	FC	MofAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		1.6.3 Facilitate the establishment of aquaculture insurance scheme													456,262.50	-	-	456,262.50	FC	Insurance Agencies, MOFAD	
		1.6.4 Facilitate aquaculture investment fora to link the industry to existing and potential investment funds													456,262.50	-	-	456,262.50	FC	MoFAD, GIPC, FBOs, Farmers and Input dealers	
		Total													5,350,742.43	-	5,779,325.00	11,130,067.43			
	1.7 Explore the feasibility of other culturable species in different environments	1.7.1 Conduct technical and economic feasibility studies on other culturable freshwater fish species.													1,520,875.00	-	608,350.00	2,129,225.00	FC	WRI, Academia	
		1.7.2 Conduct feasibility studies on mariculture.													152,087.50	-	760,437.50	912,525.00	FC	Academia, WRI,	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		1.7.3 Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc.																		760,437.50	-	2,281,312.50	3,041,750.00	Research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc implemented.	FC	Academia, Farmers, MoFAD
		1.7.4 Develop suitable business models for promoting the culture of the selected culturable fish species																		152,087.50	-	760,437.50	912,525.00	Suitable business models for promoting the culture of the selected culturable fish species developed	FC	MoFAD
		Total																		2,585,487.50	-	4,410,537.50	6,996,025.00			
Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to	2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	2.1.1 Conduct needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places.																		1,216,700.00	-	4,410,537.50	5,627,237.50	Needs and feasibility assessment for the provision of value addition and market infrastructure at suitable places conducted.	FC	Private/Local/international consultancy firms/MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
US\$314,704,672.47 in 2028		2.1.2 Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.														456,262.50	2,281,312.50	456,262.50	3,193,837.50	FC	GIPC, NGO's, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCo, ECG, MoTI, MoRT, MOWS, MMDAs, Telcos, MOE, MOWH, Private Institution
		2.1.3 Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites														456,262.50	-	1,825,050.00	2,281,312.50	FC	MoRT, MMDAs, ECG, GWC, Telcos,
		2.1.4 Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.														228,131.25	1,520,875.00	1,292,743.75	3,041,750.00	FC	Private ICT Companies, MoCAD, Farmers

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		2.1.5 Facilitate the provision of fish market centers, equipped with water and sanitation facilities.													304,175.00	-	1,901,093.75	2,205,268.75	Fish market centers, equipped with water and sanitation facilities established	FC	MoFAD, MLGRD, MMDAs,
		2.1.6 Conduct training in post-harvest handling of fish and fish products in accordance with set guidelines.													152,087.50	760,437.50	456,262.50	1,368,787.50	Training in post-harvest handling of fish and fish products in accordance with set guidelines conducted	FC	MoFAD, MMDAs, MLGRD
		2.1.7 Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.													304,175.00	-	1,216,700.00	1,520,875.00	Cold chain services at fish marketing centers in line with set guidelines established.	FC	MMDAs, Private sector, Local/International Financial Institutions
		Total													3,117,793.75	4,562,625.00	11,558,650.00	19,239,068.75			
	2.2 Strengthen the capacity of fish farmers and processors to add value and market	2.2.1 Conduct feasibility assessment for developing new products for all farmed aquatic animals													2,053,181.25	4,562,625.00	7,908,550.00	14,524,356.25	Feasibility assessment for developing new products for all farmed aquatic animals conducted	FC	FRI (CSIR), FFA, FPA

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1	Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
farmed fish more competitively		2.2.2 Facilitate the diversification of aquatic animal products such as filets, fish nuggets, fish fingers with relevant agencies														304,175.00	-	912,525.00	1,216,700.00	FC	FRU (CSIR), FFA, FPA
		2.2.3 Facilitate the training of farmers to utilize fish waste into other products e.g. fish meal, fish oil, fertilizer and biogas														228,131.25	-	912,525.00	1,140,656.25	FC	FFA, Academia, Private sector
		2.2.4 Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products.														228,131.25	-	1,140,656.25	1,368,787.50	FC	MoFAD
		2.2.5 Create awareness on value addition and marketing options for farmed fish products														152,087.50	-	760,437.50	912,525.00	FC	MoFAD,

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		2.2.6 Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain													152,087.50	-	1,230,387.88	1,382,475.38	Fish farmers' associations strengthened to play their respective roles effectively in the development of the fish value chain	FC	FFA, MoFAD
		2.2.7 Facilitate the establishment of a fish processing plant to produce different farmed fish products such as fillets, fish nuggets, fish fingers with the fish waste used in the production of fish meal and fertilizers.													152,087.50	-	760,437.50	912,525.00	Fish processing plant to produce different farmed fish products such as fillets, fish nuggets, fish fingers with the fish bi-product used in the production of fish meal and fertilizers established.	FC	FFA, Academia, Private sector
		2.2.8 Ensure the production of good quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.													152,087.50	1,520,875.00	7,604,375.00	9,277,337.50	Good quality and safe farmed fish and fish products produced in collaboration with relevant authorities for local and export markets	FC	FFA, GSA,
		Total													3,421,968.75	6,083,500.00	21,229,894.13	30,735,362.88			

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years	3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	3.1.1 Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses.																	1,703,380.00	1,520,875.00	14,081,781.63	17,306,036.63	Curricula of aquaculture degree programs improved	FC	ACADEMIA-	
		3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural colleges (government and private) regarding aquaculture extension.																		152,087.50	-	760,437.50	912,525.00	Training needs assessment and curriculum review conducted	FC	AGRIC. COLLEGES/T RAINING INSTITUTIONS
		3.1.3 Collaborate with Anomabo Fisheries College to produce skilled personnel to meet industry needs.																		304,175.00	-	456,262.50	760,437.50	Collaboration with Anomabo Fisheries College enhanced	FC	ACADEMIA (UCC) - GETFUND

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		3.1.4 Collaborate with the National Aquaculture Center and Commercial Farms at Anraha to render practical vocational hands-on training and aquaculture services along the value chain.																	152,087.50	-	304,175.00	456,262.50	FC	MANAGEMENT OF AMRAHIA TRAINING CENTRE, DP
		3.1.5 Upgrade existing public hatcheries to aquaculture training centers.																	304,175.00	3,041,750.00	1,977,137.50	5,323,062.50	FC	DP, WRI-ARDEC
		3.1.6 Conduct refresher courses for Aquaculture Extension Agents of the Fisheries Commission and Non-Governmental Organizations to upgrade their skills in new trends and emerging technologies.																	760,437.50	3,041,750.00	3,802,187.50	7,604,375.00	FC	WRI-ARDEC, GES - ACADEMIA, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead		Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		3.1.7 Enhance capacity of private hatchery and nursery operators to provide after-sales extension services to fish farmers.																	760,437.50	-	2,281,312.50	3,041,750.00	FC	WRI-ARDEC, INPUT DEALERS (FEED MAN.)
		Total																	4,440,955.00	7,604,375.00	24,543,576.58	35,404,449.13		
	3.2 Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.	3.2.1 Organize workshops for commercial fish feed producers on enhanced management and technological related issues.																	3,041,750.00	6,083,500.00	11,526,407.45	20,651,657.45	FC	DP, STAKEHOLDERS, VSD, MoFAD, NGOs, MMDAs, FEED PRODUCERS, FBOs
		3.2.2 Organize workshops for private fish hatchery, nursery, and grow-out enterprises on enhanced management and technology.																	456,262.50	-	912,525.00	1,368,787.50	FC	WRI-ARDEC, DP, MMDAs, FBOs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		3.2.3 Conduct training for staff of commercial fish farm enterprises, with special attention to the small-scale sub-sector and start-up firms, on aquaculture business management.																		456,262.50	-	760,437.50	1,216,700.00	Staff of commercial fish farm enterprises trained	FC	MMDAs, MoFAD, DP, CSO, NGO, MEDIA, ACADEMIA, FEED PRODUCERS, FBOs
		Total																		3,650,100.00	6,083,500.00	12,134,757.45	21,868,357.45		FC	MEDIA
	3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.	3.3.1 Publish the list of aquaculture associations in national websites and brochures.																		1,672,962.50	-	4,461,699.74	6,134,662.24	List of Aquaculture association published	FC	
		3.3.2 Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.																		152,087.50	-	608,350.00	760,437.50	viable associations and cooperatives of shell fish farmers organized	FC	DP, NGO, CSO, MMDAs
		3.3.3 Facilitate the establishment of national umbrella aquaculture association and cooperatives, particularly for small scale fish farmers.																		304,175.00	-	1,064,612.50	1,368,787.50	national umbrella aquaculture associations and cooperatives established	FC	DP, NGO, CSO, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		3.3.4 Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.																		456,262.50	-	-	456,262.50	Leaders and members of the aquaculture associations and cooperatives trained	FC	DP, NGO, CSO, MMDAs
		3.3.5 Facilitate the publication of bulletins by the aquaculture associations and cooperatives.																		456,262.50	-	456,262.50	912,525.00	Bulletins by the aquaculture associations and cooperatives published	FC	DP, NGO, CSO, MMDAs
		3.3.6 Enhance collaboration with relevant institutions to deliver the needed services to the aquaculture industry.																		152,087.50	-	304,175.00	456,262.50	Collaborations with relevant institution enhanced	FC	DP, MMDAs, ACADEMIA, NGO, EPA, WRI, WRC
		Total																		3,193,837.50	-	6,895,099.74	10,088,937.24			

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	4.1.1 Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate environmental safeguards.													1,977,137.50	-	3,193,837.50	5,170,975.00	Strategic environmental impact assessment for all identified aquaculture zones conducted and environmental safeguards formulated	FC	EPA, WRC, WRI-ARDEC	
															304,175.00	-	942,942.50	1,247,117.50	Inter institutional collaboration	FC	EPA, WRC, WRI-ARDEC	
																456,262.50	-	684,393.75	1,140,656.25	Educational materials on best aquaculture practices to stakeholders developed and distributed	FC	EPA, WRC, WRI-ARDEC, MEDIA, DP, NGO, ACADE MIA
																456,262.50	-	851,690.00	1,307,952.50	Buffer zones around communal water bodies and aquaculture establishments established	FC	EPA, WRC, WRI-ARDEC, DP, NGO, ACADE MIA, MMDAs
		Total												3,193,837.50	-	5,672,863.75	8,866,701.25					

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish health management purposes													1,520,875.00	-	2,935,288.75	4,456,163.75	Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate signed	FC	VSD	
		4.2.2 Promote skill development for veterinarians, veterinary technicians and fisheries officers in providing fish health and fish food safety services.														380,218.75	-	-	380,218.75	Skill development for veterinarians, veterinary technicians and fisheries officers provided	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI
		4.2.3 Develop and/or review regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.														760,437.50	-	1,520,875.00	2,281,312.50	Regulations and standards regarding aquaculture operations and products developed/revised	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, INPUT DEALERS

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		4.2.4 Develop, implement and enforce fish health and safety guidelines and regulations for farmed fish.																	760,437.50	-	1,520,875.00	2,281,312.50	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, MMDAs, SECURITY PERSONNEL
		4.2.5 Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.																	760,437.50	-	1,216,700.00	1,977,137.50	FC	FDA, GSA, MMDAs
		4.2.6 Establish Research Extension and farmer linkage Systems--to identify and address farmers' challenges.																	456,262.50	-	760,437.50	1,216,700.00	FC	ACADEMIA, CSIR-WRI,FBOs
		Total																	4,638,668.75	-	7,954,176.25	12,592,845.00		

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	5.1.1 Enhance the skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations.													3,726,143.75	-	5,931,412.50	9,657,556.25	Skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations enhanced	FC	DP, CONSULTANT(S)	
		5.1.2 Organize study tours for staff and stakeholders to understand best practices in aquaculture.													760,437.50	-	2,613,167.43	3,373,604.93	Study tours for staff and stakeholders	FC	FBOs, DP	
		5.1.3 Facilitate the development of policy and regulations on aquaculture business along the value chain.														1,064,612.50	-	6,539,762.50	7,604,375.00	Policy and regulations on aquaculture business along the value chain developed	FC	EPA, WRC,FDA, FRI,WRI-ARDEC,VRA, DP
		5.1.4 Participate in international and regional programmes related to aquaculture														760,437.50	-	2,792,934.85	3,553,372.35		FC	GIPC, DP
		5.1.5 Provide logistical support for enforcement of aquaculture regulations.														760,437.50	-	2,281,312.50	3,041,750.00	Logistical support for enforcement of aquaculture regulations provided	FC	DP, FDA, GSA
		Total													7,072,068.75	-	20,158,589.78	27,230,658.53				

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
	5.2 Establish and update database on aquaculture and its related activities	5.2.1 Develop and operationalize an Aquaculture Management Information System (record keeping, production, processing, transmission, management and dissemination of the data to relevant public and private institutions). This database will be updated routinely.													4,106,362.50	-	15,748,052.28	19,854,414.78	Aquaculture Management Information System (database) developed and operationalized	FC	DP, CONSULTANT(S)
		5.2.2 Build capacities of selected officers to manage the database system in the zonal, regional and national levels.													456,262.50	1,520,875.00	760,437.50	2,737,575.00	Capacities of selected officers enhanced	FC	DP, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Sources of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		5.2.3 Sensitize and train fish farmers on aquaculture record keeping, data capture and transmission, as well as the importance of data-use for enterprise management, policy making, monitoring and evaluation.															760,437.50	-	424,019.95	1,184,457.45	FC	DP, MMDAs, FBOs
		5.2.4 Establish, manage and operate a national aquaculture website to disseminate aquaculture business information such as: investment opportunities, guidelines on establishment and operation of aquaculture, service provision in value addition, and marketing of farmed fish products.															760,437.50	-	1,016,248.68	1,776,686.18	FC	CONSULTANT (IT), MEDIA, GIPC, DP, MMDAs, CSO, NGO
		Total															6,083,500.00	1,520,875.00	17,948,758.40	25,553,133.40		
	5.3 Establish monitoring and evaluation system for	5.3.1 Design and establish aquaculture monitoring and evaluation															2,585,487.50	1,520,875.00	3,265,318.63	7,371,681.13	FC	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead		Collaborating						
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																
	GNADP implementation on and aquaculture business performance	systems (national, regional & zonal).																					designed and established				
		Total													2,585,487.50	1,520,875.00	3,265,318.63	7,371,681.13									
	5.4 Evaluate GNADP implementation on and performance of aquaculture businesses	5.4.1 Conduct routine monitoring of the implementation of GNADP.													456,262.50	-	2,281,312.50	2,737,575.00								FC	
		5.4.2 Conduct annual, mid-term and terminal evaluation on the implementation of GNADP.													456,262.50	-	-	456,262.50								FC	
		5.4.3 Organize annual national dissemination and review workshops of GNADP.													848,039.90	-	1,520,875.00	2,368,914.90								FC	
		Total													1,760,564.90	-	3,802,187.50	5,562,752.40									
		Grand-Total													61,236,511.00	31,710,243.75	176,227,497.19	264,948,044.49									

Appendix 2.6: 2028 Action Plan

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
Increase commercial farmed fish produced from 116,107.83 mt in 2023 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%.	1.1 Establish potential commercial aquaculture zones	1.1.1 Collaborate with Ghana Irrigation Development Authority (GIDA) to implement the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA.																262,350.94	-	-	262,350.94	The use of the 5% of the national irrigation schemes for aquaculture activities as stated in the National Irrigation Policy of GIDA implemented.	FC	GIDA, WRC, MMDAs,	
		1.1.3 Conduct assessment of the suitability of the reserved areas for aquaculture.																	437,251.56	-	612,152.19	1,049,403.75	Assessment of the suitability of the reserved areas for aquaculture conducted.	FC	WRI, GIDA, WRC, EPA
		1.1.4 Delineate and link up prospective fish farmers to the areas reserved for aquaculture through PPP or any other arrangement.																	262,350.94	-	-	262,350.94	Map for reserved aquaculture areas documented and prospective farmers linked	FC	MMDAs, FBOs,
		1.1.5 Publish the inventory of aquaculture reserved areas on websites of Ministry of Fisheries and Aquaculture Development (MOFAD), Fisheries Commission (FC) and Ghana																	174,900.63	-	437,251.56	612,152.19	Inventory of aquaculture reserved areas published on MoFAD and GIPC websites	FC	MoFAD, GIPC

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Implementing Institution/Agency									
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating								
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec															
		Investment Promotion Centre (GIPC).																											
		1.1.8 Map out and characterize zones of high aquaculture potential using remote sensing and geographical information and position systems (Appropriate policies and legislation formulated, enacted and promulgated to facilitate acquisition of suitable sites and to guarantee the security of tenure of legally acquired sites).															1,749,006.25			349,801.25			2,098,807.50		High aquaculture potential zones mapped out and characterize using remote sensing and geographical information and position systems		FC	MOFAD, Attorney General, Academia (CERGIS), Land Commission	
		1.1.9 Provide technical assistance to fish farmers, hatchery operators and their associations and cooperatives.																								Technical assistance to fish farmers, hatchery operators and their associations and cooperatives provided.		FC	FBO's
																				349,801.25			874,503.13						

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output		Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		1.1.10 Stock community-owned and public reservoirs with suitable fish species and facilitate its management to enhance fish production on suitable basis.																	1,749,006.25	3,498,012.50	3,498,012.50	8,745,031.25	FC	GIDA, Traditional Authorities, WRC, MMDA's
		Total																	3,585,462.81	3,498,012.50	6,821,124.38	13,904,599.69		
	1.2 Promote aquatic animal health management	1.2.1 Improve data collection (e.g. mortality) for effective surveillance and monitoring in hatcheries and grow-out facilities.																	524,701.88	-	524,701.88	1,049,403.75	FC	Veterinary Services, WRC, EPA
		1.2.2 Establish functioning quarantine centers at Kotoka International Airport and other designated centers																	87,450.31	1,486,655.31	349,801.25	1,923,906.88	FC	CEPS, Veterinary Service
		1.2.3 Improve disease prevention and control through effective biosecurity measures at farm and quarantine centers.																	437,251.56	-	2,623,509.38	3,060,760.94	FC	CEPS, Veterinary Service, MMDA's

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		1.2.4 Enhance field and laboratory diagnosis of disease																		174,900.63	-	349,801.25	524,701.88	FC	Veterinary Service Department
		Total																		1,224,304.38	1,486,655.31	3,847,813.75	6,558,773.44		
	1.3 Facilitate sustainable investment into aquaculture by the private sector	1.3.1 Promote aquaculture investments and related supporting services through technical bulletins and flyers as a business.																		174,900.63	-	874,503.13	1,049,403.75	FC	MoFAD, GIPC website
		1.3.2 Facilitate access to land, capital, skill labour, etc. and also provide incentives, e.g. tax waivers to investors.																		874,503.13	-	7,870,528.13	8,745,031.25	FC	Land Commission, MoFAD, MMDAs, Traditional Authorities, Financial Institutions, Parliament, Ministry of Finance
		Total																		1,049,403.75	-	8,745,031.25	9,794,435.00		
	1.4 Facilitate increased supply of quality fish feed to fish farmers	1.4.1 Support research into feed and raw materials availability and their appropriateness for culture of diverse species.																		1,574,105.63	-	11,018,739.38	12,592,845.00	FC	Animal Research Institute (CSIR), GSA, FDA, VSD
		1.4.2 Design, establish and operate a permit system for locally produced and imported fish feed based on validated																		174,900.63	-	699,602.50	874,503.13	FC	Animal Research Institute (CSIR), GSA, FDA, VSD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		laboratory analysis and certification.																							
		Total													1,574,105.63	-	9,969,335.63	10,668,938.13							
	1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers	1.5.1 Enforce the ban on importation of live fish (eggs, milt, fry, fingerlings, brood stock, etc.) except for purposes of research and ornamentals, for which special permit is required from the Fisheries Commission.																	874,503.13	-	1,749,006.25	2,623,509.38		FC	
		1.5.2 Promote value chain segmentation and specialization of fish seed production.																	1,311,754.69	-	-	1,311,754.69		FC	FBO's,
		1.5.3 Evaluate the current Akosombo strain of Oreochromis niloticus and Clarias species.																	643,984.10	-	1,399,205.00	2,043,189.10		FC	WRI (ARDEC)

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
		1.5.4 Enhance the technical capacity of all players in the seed value chain (input dealers, nurseries, hatcheries and brood stock multiplication centers)																874,503.13	-	1,749,006.25	2,623,509.38	FC	FBO'S, Input Dealers
		1.5.6 Enforce certification protocols across the value chain and promote voluntary compliance.																524,701.88	-	1,049,403.75	1,574,105.63	FC	MOFAD,
		Total																4,229,446.91	-	6,121,521.88	7,727,459.41		
	1.6 Facilitate access to investment funds	1.6.1 Facilitate establishment of aquaculture research and development fund.																5,103,950.04	-	7,695,627.50	12,799,577.54	FC	MoFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)
		1.6.2 Facilitate access to aquaculture investment fund operated by local agencies and projects for small scale farmers																524,701.88	-	-	524,701.88	FC	MOFAD, MASLOC, Social Investment Funds, IFC (World Bank), Norwegian Agency for Development (NORAD)

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		1.6.3 Facilitate the establishment of aquaculture insurance scheme													524,701.88	-	-	524,701.88	Aquaculture insurance scheme established	FC	Insurance Agencies, MoFAD
		1.6.4 Facilitate aquaculture investment fora to link the industry to existing and potential investment funds													524,701.88	-	-	524,701.88	Aquaculture investment fora organized and industry linked to existing and potential investment funds.	FC	MOFAD, GPC, FBO's, Farmers and Input dealers
		Total													6,153,353.79	-	6,646,223.75	12,799,577.54			
	1.7 Explore the feasibility of other culturable species in different environments	1.7.1 Conduct technical and economic feasibility studies on other culturable freshwater fish species.													1,749,006.25	-	699,602.50	2,448,608.75	Technical and economic feasibility studies on other culturable freshwater fish species conducted.	FC	WRI Academia
		1.7.2 Conduct feasibility studies on mariculture.													174,900.63	-	874,503.13	1,049,403.75	Feasibility studies on mariculture conducted.	FC	Academia, WRI.
		1.7.3 Facilitate the implementation of research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc.													874,503.13	-	2,623,509.38	3,498,012.50	Research results from universities and research institutions on brackish water fish culture e.g. clam, oysters, shrimps etc implemented.	FC	Academia, Farmers, MoFAD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec							
		1.7.4 Develop suitable business models for promoting the culture of the selected culturable fish species													174,900.63	-	874,503.13	1,049,403.75	FC	MOFAD	
		Total													2,973,310.63	-	5,072,118.13	8,045,428.75			
	2.1 Establish appropriate infrastructure for farmed fish value addition and marketing	2.1.1 Conduct feasibility assessment for the provision of value addition and market infrastructure at suitable places.													1,399,205.00	-	5,072,118.13	6,471,323.13	FC	Private/Local/international consultancy firms/MMDAs	
Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028		2.1.2 Organize sensitization workshops (bi-annually) for relevant investor institutions on the economic value chain management of extending their services.													524,701.88	2,623,509.38	524,701.88	3,672,913.13	FC	GIPC, NGO's, Donor Partners, Financial Institutions, Private Sector, VRA, GRIDCO, ECG, MoTI, MoRT, MOWS, MMDAs, Telco's, MOE, MOWH, Private Institution	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency		
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
		2.1.3 Facilitate the construction of relevant infrastructure (e.g. motorable road, electricity, water treatment and pumping stations and ICT) in aquaculture sites															524,701.88	-	2,098,807.50	2,623,509.38	FC	MoRT, MMDAs, ECG, GWC, Telcos,
		2.1.4 Develop a mobile application in collaboration with the appropriate institutions to enhance online farmed fish marketing.															262,350.94	1,749,006.25	1,486,655.31	3,498,012.50	FC	Private ICT Companies, MoFAD, Farmers
		2.1.5 Facilitate the provision of fish market centers, equipped with water and sanitation facilities.															349,801.25	-	2,186,257.81	2,536,059.06	FC	MoFAD, MLGRD, MMDAs,
		2.1.6 Conduct training in post-harvest handling of fish and fish products in accordance with set guidelines.															174,900.63	874,503.13	524,701.88	1,574,105.63	FC	MoFAD, MMDAs, MLGRD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency				
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		2.1.7 Facilitate the provision of cold chain services at fish marketing centers in line with set guidelines.																	349,801.25	-	1,399,205.00	1,749,006.25	FC	MMDA's, Private sector, Local/International Financial Institutions
		Total																	3,585,462.81	5,247,018.75	13,292,447.50	22,124,929.06		
		2.2.1 Conduct feasibility assessment for developing new products for all farmed aquatic animals																	2,361,158.44	5,247,018.75	9,094,832.50	16,703,009.69	FC	FRI (CSIR), FFA, FPA
	2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively	2.2.2 Facilitate the diversification of aquatic animal products such as filets, fish nuggets, fish fingers with relevant agencies																	349,801.25	-	1,049,403.75	1,399,205.00	FC	FRI (CSIR), FFA, FPA
		2.2.3 Facilitate the training of farmers to utilize fish waste into other products e.g. fish meal, fish oil, fertilizer and biogas																	262,350.94	-	1,049,403.75	1,311,754.69	FC	FFA, Academia, Private sector
		2.2.4 Facilitate the organization of annual fish fairs/festivals to publicize new and existing farmed fish products.																	262,350.94	-	1,311,754.69	1,574,105.63	FC	MoFAD

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output		Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
		2.2.5 Create awareness on value addition and marketing options for farmed fish products													174,900.63	-	874,503.13	1,049,403.75	FC	MoFAD,	Awareness on value addition and marketing options for farmed fish products created		
		2.2.6 Strengthen fish farmers' associations to play their respective roles effectively in the development of the fish value chain													174,900.63	-	1,414,946.06	1,589,846.68	FC	FFA, MoFAD	Fish farmers' associations strengthened to play their respective roles effectively in the development of the fish value chain		
		2.2.7 Facilitate the establishment of a fish processing plant to produce different farmed fish products such as filets, fish nuggets, fish fingers with the fish waste used in the production of fish meal and fertilizers.													174,900.63	-	874,503.13	1,049,403.75	FC	FFA, Academia, Private sector	Fish processing plant to produce different farmed fish products such as filets, fish nuggets, fish fingers with the fish bi-product used in the production of fish meal and fertilizers established.		
		2.2.8 Ensure the production of good quality and safe farmed fish and fish products in collaboration with relevant authorities for local and export markets.													174,900.63	1,749,006.25	8,745,031.25	10,668,938.13	FC	FFA, GSA,	Good quality and safe farmed fish and fish products produced in collaboration with relevant authorities for local and export markets		
		Total													3,935,264.06	6,996,025.00	24,414,378.24	35,345,667.31					

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output		Implementing Institution/Agency											
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL			Lead	Collaborating											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																			
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years	3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis	<p>3.1.1 Facilitate improvement in curricula of aquaculture degree programs in public and private Universities in Ghana to include practical entrepreneurial skills and industry-oriented courses.</p> <p>3.1.2 Conduct training needs assessment and curriculum review on the education and training programs for selected agricultural colleges (government and private) regarding aquaculture extension.</p> <p>3.1.3 Collaborate with Anomabo Fisheries College to produce skilled personnel to meet industry needs.</p> <p>3.1.4 Collaborate with the National Aquaculture Center and Commercial Farms at Amrahia to render practical vocational</p>																															
																		1,958,887.00	1,749,006.25	16,194,048.87	19,901,942.12	FC		ACADEMIA-		Curricula of aquaculture degree programs improved							
																		174,900.63	-	874,503.13	1,049,403.75	FC		AGRIC. COLLEGES/TRAINING INSTITUTIONS		Training needs assessment and curriculum review conducted							
																		349,801.25	-	524,701.88	874,503.13	FC		ACADEMIA (UCO) - GETFUND		Collaboration with Anomabo Fisheries College enhanced							

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Implementing Institution/Agency					
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
	efficiently, effectively and competitively	3.2.2 Organize workshops for private fish hatchery, nursery, and grow-out enterprises on enhanced management and technology.																	524,701.88	-	1,049,403.75	1,574,105.63	Workshops for private fish hatchery, nursery, and grow-out enterprises organized	FC	WRLARDEC, DP, MMDAs, FBOs
		3.2.3 Conduct training for staff of commercial fish farm enterprises, with special attention to the small scale sub-sector and start-up firms, on aquaculture business management.																	524,701.88	-	874,503.13	1,399,205.00	Staff of commercial fish farm enterprises trained	FC	MMDAs, MOFA, DP, CSO, NGO, MEDIA, ACADEMIA, FEED PRODUCERS, FBOs
		Total																	4,197,615.00	6,996,025.00	13,954,971.07	25,148,611.07	List of Aquaculture association published	FC	MEDIA
	3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.	3.3.1 Publish the list of aquaculture associations in national websites and brochures.																	1,923,906.88	-	5,130,954.70	7,054,861.57			
		3.3.2 Facilitate the organization of shell fish (e.g. clam & oyster) farmers into viable associations and cooperatives.																	174,900.63	-	699,602.50	874,503.13	viable associations and cooperatives of shell fish farmers organized	FC	DP, NGO, CSO, MMDAs
		3.3.3 Facilitate the establishment of national umbrella aquaculture association and cooperatives.																	349,801.25	-	1,224,304.38	1,574,105.63	national umbrella aquaculture associations and cooperatives established	FC	DP, NGO, CSO, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output		Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		particularly for small scale fish farmers.																							
		3.3.4 Facilitate training for leaders of the aquaculture associations and cooperatives and their member associations in group dynamics, leadership, communication and negotiation skills, etc.																	524,701.88	-	-	524,701.88		FC	DP, NGO, CSO, MMDAs
		3.3.5 Facilitate the publication of bulletins by the aquaculture associations and cooperatives.																	524,701.88	-	524,701.88	1,049,403.75		FC	DP, NGO, CSO, MMDAs
		3.3.6 Enhance collaboration with relevant institutions to deliver the needed services to the aquaculture industry.																	174,900.63	-	349,801.25	524,701.88		FC	DP, MMDAs, ACADEMIA, NGO, EPA, WRI, WRC
		Total																3,672,913.13	-	7,929,364.70	11,602,277.82				
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products	4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production	4.1.1 Collaborate with relevant agencies to conduct strategic environmental impact assessment for all identified aquaculture zones and formulate																2,273,708.13	-	3,672,913.13	5,946,621.25		FC	EPA, WRC, WRI-ARDEC	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Implementing Institution/Agency							
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Expected Output	Lead	Collaborating						
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
		environmental safeguards.																									
		4.1.2 Strengthen inter institutional collaboration to provide technical assistance to fish farm enterprises																1,084,383.88						Inter institutional collaboration	FC	EPA, WRC, WRI-ARDEC	
		Total																787,052.81	-	524,701.88	1,311,754.69						
		4.1.3 Develop, disseminate and distribute educational materials such as flyers, posters etc. on best aquaculture practices to stakeholders. Establish buffer zones around communal water bodies and aquaculture establishments																							Educational materials on best aquaculture practices to stakeholders developed and distributed	FC	EPA, WRC, WRI-ARDEC, MEDIA, DP, NGO, ACADE MIA
		Total																6,523,793.31	-	3,672,913.13	10,196,706.44						
	4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms	4.2.1 Sign a Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate to adopt the VSD's diagnostic laboratories for fish health management purposes																							Memorandum of Understanding between Fisheries Commission and Veterinary Service Directorate signed	FC	VSD
																		3,375,582.06		1,749,006.25	5,124,588.31						

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DPPRIVATE	TOTAL	Expected Output	Lead	Collaborating				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec											
		4.2.2 Promote skill development for veterinarians, veterinary technicians and fisheries officers in providing fish health and fish food safety services.																	437,251.56	-	-	437,251.56	Skill development for veterinarians, veterinary technicians and fisheries officers provided	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI
		4.2.3 Develop and/or review regulations and standards regarding aquaculture operations and products, as code of practice to be widely disseminated to existing and potential operators.																	874,503.13	-	1,749,006.25	2,623,509.38	Regulations and standards regarding aquaculture operations and products developed/revised	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, INPUT DEALERS
		4.2.4 Develop, implement and enforce fish health and safety guidelines and regulations for farmed fish.																	874,503.13	-	1,749,006.25	2,623,509.38	Fish health and safety guidelines and regulations for farmed fish developed, implemented and enforced	FC	ACADEMIA, VSD, DP, FDA, GSA, FRI, MMDAs, SECURITY PERSONNEL
		4.2.5 Encourage voluntary compliance to fish health and fish food safety guidelines and regulations among fish farmers and stakeholders along the aquaculture value chain.																	874,503.13	-	1,399,205.00	2,273,708.13	Voluntary compliance to fish health and fish food safety guidelines and regulations encouraged	FC	FDA, GSA, MMDAs

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output	Implementing Institution/Agency			
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead		Collaborating			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
		4.2.6 Establish Research Extension and farmer linkage Systems-- to identify and address farmers' challenges.																	524,701.88	-	874,503.13	1,399,205.00	FC	ACADEMIA, CSIR-WRI, FBOs
		Total																	5,334,469.06	-	9,147,302.69	14,481,771.75		
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation	5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement	5.1.1 Enhance the skills of staff of Fisheries Commission and stakeholder institutions on policy formulation and regulations.																	4,285,065.31	-	6,821,124.38	11,106,189.69	FC	DP, CONSULTANTS(S)
		5.1.2 Organize study tours for staff and stakeholders to understand best practices in aquaculture.																	874,503.13	-	3,005,142.54	3,879,645.66	FC	FBO's, DP
		5.1.3 Facilitate the development of policy and regulations on aquaculture business along the value chain.																	1,224,304.38	-	7,520,726.88	8,745,031.25	FC	EPA, WRC, FDA, FRI, WRI-ARDEC, VRA, DP
		5.1.4 Participate in international and regional programmes related to aquaculture																	874,503.13	-	3,211,875.08	4,086,378.20	FC	GIPC, DP
		5.1.5 Provide logistical support for enforcement of aquaculture regulations.																	874,503.13	-	2,623,509.38	3,498,012.50	FC	DP, FDA, GSA

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding				Expected Output	Implementing Institution/Agency						
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL		Lead	Collaborating					
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
		5.2.4 Establish, manage and operate a national aquaculture website to disseminate aquaculture business information such as: investment opportunities, guidelines on establishment and operation of aquaculture, service provision in value addition, and marketing of farmed fish products.																			874,503.13	-	1,168,685.98	2,043,189.10	FC	CONSULTANT (IT), MEDIA, GIFC, DP, MMDAs, CSO,NGO
		Total																			6,996,025.00	1,749,006.25	20,641,072.16	29,386,103.41		
	5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance	5.3.1 Design and establish aquaculture monitoring and evaluation systems (national, regional & zonal).																			2,973,310.63	1,749,006.25	3,755,116.42	8,477,433.29	FC	
	Total	Total																			2,973,310.63	1,749,006.25	3,755,116.42	8,477,433.29		
	5.4 Evaluate GNADP implementation and performance of	5.4.1 Conduct routine monitoring of the implementation of GNADP.																			524,701.88	-	2,623,509.38	3,148,211.25	FC	

Objective	Operation	Sub-Activity	Time Frame												Indicative Cost/Source of funding					Expected Output	Implementing Institution/Agency	
			Quarter 1			Quarter 2			Quarter 3			Quarter 4			IGF	ABFA	DP/PRIVATE	TOTAL	Lead		Collaborating	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
	aquaculture businesses	5.4.2 Conduct annual, mid-term and terminal evaluation on the implementation of GNADP.													524,701.88	-	-	524,701.88	Annual, mid-term and terminal evaluation conducted	FC		
		5.4.3 Organize annual national dissemination and review workshops of GNADP.													975,245.89	-	1,749,006.25	2,724,252.14	Annual national dissemination and review workshops organized	FC		
		Total													2,024,649.64	-	4,372,515.63	6,397,165.26				
		Grand-Total													70,421,987.65	36,466,780.31	202,661,621.76	304,090,251.16				

Appendix 3: Monitoring and Evaluation Matrix

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
OBJECTIVE 1:											
Increase commercial farmed fish produced from 116,107.83 mt in 2021 to 238,655.49 mt by the end of 2028 with an average annual growth of 15.5%											
1.1 Establish potential commercial aquaculture zones											
Operation											
MoU signed	Develop an MOU with GIDA for the use of 5%	Output	At least 7 sites developed	MOU developed and signed					Project sites	Once	IFMD / GIDA / MoFAD
Number of reserved areas documented	Inventory of all reserved areas of aquaculture	Output	List of dams / dugouts	Inventory completed					Regional / district	Quarterly	IFMD / GIDA / MoFAD
i. Number of assessments conducted	Number of reserved areas suitable for aquaculture	Output	List of dams / dugouts	4	25%	4	25%	4	i. Regional / district ii. Suitable / unsuitable	Quarterly	IFMD / GIDA / MoFAD / MMDAS
ii. Number of Suitable reserved areas documented											
i. Number of farmers linked	Number of farmers benefiting from the reserved areas	Output	N/a		20	20	20	20	Regional / district	Quarterly	IFMD / GIDA / MMDAS
ii. Sizes/number of areas reserved for aquaculture	ii. Total surface area reserved (acres)	Output	N/a		20	20	20	20	Regional / district	Quarterly	IFMD / GIDA / MMDAS
Inventory of reserved areas published	Inventory of all reserved areas of aquaculture hosted on webpage	Output	List of dams / dugouts		Yes	Yes	Yes	Yes	National	Quarterly	IFMD / IT / MoFAD / GIPC
% change of reviewed policy	Report on review of implementation of national irrigation policy on 5%	Output	5%		10%				Regional / district	Once	IFMD / F&A

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, bi-quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
Aquaculture special plan	Report on aquaculture special plan	Output	Report on Zonation of Volta Lake			Spatial plan in place			Once	IFMD / FHU / F&A	
Map of aquaculture zones	Map showing aquazones	Output	Report on Zonation of Volta Lake		Map developed				Once	IFMD / FHU / F&A	
i. Number of trainings carried out for aquaculture operators	No of targeted supported provided to operators with developmental needs or problems		378 trained under TISeed project	50	200	200	200	200	Quarterly	IFMD / FHU	
ii. Number of aquaculture operators trained			100								
Community-owned and public reservoirs	Community-owned and public reservoirs with suitable fish species stocked		100 dams/dugouts stocked with one million fingerlings	10 (100,000)	100 (1,000,000)	100 (1,000,000)	100 (1,000,000)	100 (1,000,000)	annually	IFMD / FHU	
1.2 Promote aquatic animal health management											
Operation											
i. Number of staff trained in data collection			378 trained under TISeed project	50	200	200	200	200	Quarterly	IFMD / FHU	
ii. No. of training conducted	No. of Staff trained in data collection	Output									
iii. % change in mortality											

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
Number of Functional quarantine stations	Functional quarantine centers KIA and other centers	Output	NA	2	2	2	2	National/Regional/District	Annually	FHU /FMD /F&A	
Number of farms implementing biosecurity measures	Count of farms implementing biosecurity measures	Output	15	15	20	20	20	i. number of farmers. ii. Regional / district	Quarterly	FHU / IFMD	
i. Number of field diagnoses carried out	Count of diagnostics at farm and lab carried out	Output	35	60	80	100	150	Regions	Quarterly	FHU / IFMD	
ii. Number of laboratory diagnoses carried out											
Operation 3: 1.3 Facilitate sustainable investment into aquaculture by the private sector											
Number of supporting services provided through bulletins and flyers	Count of technical bulletins and fliers developed and distributed	Output	Flyers on 10 subject areas	2000	2000	2000	2000	Subject area and no. of stakeholder	Quarterly	IFMD/FHU	
i. Number of facilitation carried out on access to land, etc.	Count of facilitation carried out and tax waivers for investors	Output	Policy on tax waivers	Fac. 50 TW -10	Fac. 100 TW -15	Fac. 150 TW -120	Fac. 200 TW -25	Fac. 250 TW -30	Service type and no. of stakeholder	Quarterly	IFMD / F&A/M&E
ii. Number and value of tax incentives provided											
iii. Number of											

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
investors provided with tax incentives											
One-stop-shop permitting system	Establishment of a one-stop-shop permitting system	Output	Draft permitting system	Permitting system in place				Production system	Once	IFMD / FHU/M&E	
i. GNADP launched	Launch of GNADP	Output	Draft GNADP (2023-2027)	Launching				Investor and donors	Once	IFMD/FHU/F&A	
ii. No. of investors and donors invited											
Operations	1.4 Facilitate increased supply of quality fish feed to fish farmers										
Number of research carried out	Count of research into feed and raw materials available and appropriateness for culture of diverse species	Output	i. On-farm floating feed formulation for growth and survival of tilapia (2018)	2	2				Annually	IFMD/FHU/Academia, Research institutions	
Permit systems established and functional	Permit system for locally and imported fish feed based on lab analysis and certification	Output	i. Permit system for production of aquaculture input (2010) ii. Permitting system for feed production &	Yes	Yes			Source & type of feed	Once	IFMD/FHU	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
Standard procedures established			importation (2010)								
Standard procedures for evaluation of quality of feed produced		Output	N/a	Yes					Once	FHU/IFMD	
1.5 Facilitate increased supply of quality aquatic animal seed by the public and private hatchery operators to fish farmers											
Number of enforcement/inspections carried out	Count of enforcement operations carried out to enforce ban on live fish	Output	N/A	4	4	4	4	4		MCSD/IFMD/FHU	
i. Number of training and sensitization carried out	Count of trainings and sensitization carried out	Output	Value chain segmentation	4	4	4	4	4	Quarterly	IFMD/FHU/WRI	
ii. Number of fry and fingerlings producers	Count of producers specialized in fry and fingerlings production	Output		20	20	20	20	20			
Number of evaluation reports generated	Count of evaluation carried out on current Akosombo strain of O niloticus	Output	i. Generation 11 of Akosombo Strain. ii. Hatchery bred of C. <i>garipepinus</i>		1				TBD	IFMD/FHU/WRI	
i. Number of training carried out	No. of actors (input dealers, nursery operators, hatchery operators and brood	Output	378 stakeholders trained under	200	200	200	200	200	Quarterly	IFMD/FHU/WRI	
ii. Number of				4	4	4	4	4			

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
actors participating in training	stocks multipliers) in value chain trained		TiSeed on fingerlings production and pond management (2019)								
Number of guidelines produced	No. of guidelines developed for brood stock, fish seed management	Output	Draft protocols		2					IFMD/FHU/Stakeholders	
i. Number of inspections carried out on compliance	Count of inspections conducted to enforce compliance	Output	Draft protocols	4	4	4	4				
ii. Number of actors complying	Count of actors complying with voluntarily with protocols	Output		500	1,000	1,500	2,000	2,500	Quarterly	IFMD/FHU/MCS	
1.6 Facilitate access to investment funds											
Operation	Establishment of R&D fund for aquaculture	Output	N/A		1					IFMD/FHU/F&A/MoF/MoFAD	
i. No. of small scale farmers linked to aquaculture investment fund	No. of small scale farmers accessing investment funds and value	Output	N/A	20	20	20	20	20	Bi-annually	IFMD/FHU/M&E/MOF AD/FINANCIAL INSTITUTIONS	
ii. Value of investment fund accessed											

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
i. Aquaculture Insurance Scheme (AIS) exist	Establishment of AIS and count of farmers insured	Output	N/A	Yes	10	20	50	100	200	Quarterly	IFMD/FHU/MoFAD/IN SURERS/FINANCIAL INSTITUTIONS
ii. No. of farmers insured											
i. No. of investment fora organized	No. of fora on investment in aquaculture	Output	IFC aquaculture investment forum	1	1	1	1	1	1	Annually	IFMD/FHU/MoFAD
ii. Count of farmers linked to investment funds											
Operation											
1.7 Explore the feasibility of other culturable species in different environments											
Number of technical and economic studies carried out	No. of technical and economic studies conducted on other culturable freshwater fish	Output	N/A	1			1		1	TBD	IFMD/FHU/WRI/ACAD EMIA
Number of feasibility studies conducted	No. of feasibility studies conducted on mariculture	Output	N/A	Yes		Yes			Yes	TBD	IFMD/FHU/Academia, Research/Donor partners
i. Number of research results facilitated											
ii. Number of universities collaborated in area of research findings	N/A	Output	Research findings		1		1	1	1	Annually	IFMD/FHU/Research Institution/Academia/Donor Partners

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
Number of business models developed	Count of business models developed to promote culturing of selected fish species	Output	Business models on tilapia, catfish and hatcheries	2	2	2	2	2	I. Fish spp ii. Technical iii. Economic	Annually	IFMD/FHU/Donor Partner/Financial Institutions
OBJECTIVE 2:	Increase the market share of commercially farmed fish from 14% in 2021 to 25% in 2028, and the value of farmed fish from US\$ 132,863,646.07 in 2021 to US\$314,704,672.47 in 2028										
Operation	2.1. Establish appropriate infrastructure for farmed fish value addition and marketing										
Number of needs and feasibility assessment conducted	Counts of needs and feasibility assessment conducted provision of infrastructure	Output	NA	1	1	1	1	1	Needs and Service type	Annually	IFMD/FHU/M&E/PHU/FRI/MMDAs
Number of sensitization workshop held	Counts of sensitization workshops carried out on economic value chain management	Output	NA	2	2	2	2	2		Annually	IFMD/FHU/M&E/MoF AD
i. Number of facilitation carried out	Count of facilitation/collaboration on construction of infrastructure in aquaculture sites	Output	NA	1	1	1	1	1	Type, number & value of infrastructure	TBD	IFMD/FHU/M&E/Transport/Ghana Water/Min. of Energy/MMDAs
ii. Number of relevant infrastructure constructed/added	Existence of mobile application and count of stakeholders accessing the mobile application	Output	Fish Tracker developed under TiSeed	1					i. Type of application ii. Collaborating institution	Once	IFMD/FHU/M&E/TISEE D
i. Mobile application developed											
ii. Number of stakeholder											

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
accessing online farmed fish marketing											
Number of markets centers equipped	No. of markets centers equipped with water and sanitation facilities	Output	Volta Catch	1	1	1	1	1	TBD	IFMD/FHU/MMMDAs/M in of water and sanitation	
i. Number of training conducted	Count of training conducted in fish handling and fish products with set guidelines by gender	Output	Trainings by Post-harvest unit	4	4	4	4	4	Quarterly	PH/IFMD/FHU/FRI	
ii. Number of participants trained by gender											
Number of cold chain services provided	Count of cold chain services provided at fish marketing centers	Output	Janet to respond	2	2	2	2	2	Once	FC/MoFADS/Donor partners/ MMDAs	
Operation	2.2 Strengthen the capacity of fish farmers and processors to add value and market farmed fish more competitively										
i. No. of feasibility assessment conducted	Count of feasibility assessment conducted for new fish products for farmed fish	Output	30 processors & staff trained in product development at FRI under TAAT	2	2	2	2	2	Fish spp. & product type	PHU/IFMD/FHU/FRI/Stateholders	
Number of diversified animal products	Count of animal products diversified	Output	30 processors & staff trained in product	2	30	30	30	30	Fish spp & product type	PHU/IFMD/FHU	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
			development at FRI under TAAAT								
i. Number of training carried out	No. of training of fish farmers to utilize fish bi-products and number of training conducted	Output	NA	1(50)	1(50)	1(50)	1(50)	1(50)	Quarterly	PHU/IFMD/FHU	
ii. Number of farmers trained											
No. of fish festivals	No. of fish festival/ fish fair hosted	Output	3	1	1	1	1	National	Annually	MoFAD/FC/Stakeholders/DP	
No. of sensitization	No. of sensitization and adverts created on value addition and marketing	Output	Awareness created under TAAAT 1 & during NFD celebrations	4	4	4	4	Product type & no. of sensitization	Quarterly	PHU/IFMD/FHU	
No. of associations	No. of fish farmer associations strengthened through training, workshops and provision of logistics	Output	List of FFAs	3	3	3	3	Ass	Bi-annually	PHU/IFMD/FHU/FRI/G EA/Stakeholders	
i. Number of facilitation/collaboration	No. of fish processing plant established through facilitation or collaboration	Output	NA	4	4	4	4	No. of processing plants and product type	Quarterly	MoFAD/FC/MMMDAs/DP/FFAs	
ii. Number of processing plants established											

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
i. Number of training conducted	No. of training conducted for operators on good quality and safe fish and export of farmed fish to external markets	Output	4	4	4	4	4	National by gender	Quarterly	PHU/IFMD/FHU/FRI/G EA/Stakeholders	
iii. Number of farmers sensitized on farmed fish export			300	300	300	300	300				
OBJECTIVE 3:											
Improve the performance of 50% of fish farms and related aquaculture value chain enterprises by at least 80% within the plan period of 5 years											
Operation											
3.1 Increase the number of skilled personnel at the different levels of the aquaculture business value chain on a sustainable basis											
Number of institutions (private & public) collaborated with	Count of signed MOU with institutions in development of curricula of aquaculture degree programmes	Output	MoU signed with UESD	5	5	5	5	Institution and number of MOUs signed	Annually	MoFAD/FC/Universities	
i. Number of training needs assessment	Count of training needs assessment conducted,	under training	NA	1	1	1	1	Institution and no. of MOUs signed	Annually	MoFAD/FC/MoFA/MOE	
ii. Number of curricula reviewed	curricula reviewed for selected colleges collaborated with										
iii. Number of colleges collaborated with											
Number of skilled personnel produced	Count of skilled personnel produced from Anomabo college annually	Output	N/A	100	100	100	100	i. Year ii. Subject area iii. No. of skilled personnel	Annually	UCC/Anomabo College/MoFAD/FC/DEP	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
i. Number of training carried out	Count of trainings and persons trained along the value chain at Amrahia farms	Output	1	4	4	4	4	4	Annually	IFMD/F&A/FHU	
ii. Number of persons trained			30	140	140	140	140	140			
Number of public hatcheries upgraded	Count of public hatcheries upgraded	Output	2	1	1	1	1	1	Annually	IFMD/F&A/FHU/DP	
i. Number of refresher courses conducted											
ii. Number of officers trained	Count of refresher courses for officers and NGO persons trained	Output	Please refer to APR 2022	4	4	4	4	4	Annually	IFMD/F&A/FHU/WRI/Academia/DP	
iii. Number of NGO persons trained				100	100	100	100	100			
i. Number of training conducted				5	5	5	5	5			
ii. Number of hatcheries operators capacity enhanced	Count of trainings, private hatchery, and operators trained	Output	25 hatchery & 11 nursery operators trained under Tiseed	4	4	4	4	4	Annually	IFMD/F&A/FHU	
iii. Number of private hatchery and nursery operators trained				20	20	20	20	20			

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, bi-quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
i. Number of guidelines prepared and disseminated ii. Number of regulations prepared	Count of guidelines and regulations prepared and disseminated	Output	National Aquaculture Guidelines & Code of practice	1	1	1	1	1	National	Biennially	IFMD/FHU/M&E
3.2 Strengthen the capacity of existing fish feed, fish seed and fish farm enterprises to manage their enterprises efficiently, effectively and competitively.											
i. Number of workshop held	count of workshop for commercial fish feed producers on enhanced management carried out	Output	N/A	1	1	1	1	1	Type of commercial fish feed producers	annually	IFMD/FHU
ii. Number of commercial fish feed producers				15	15	15	15	15			
i. Number of workshops organized	Count of workshops for private fish hatchery, nursery and grow-out operators carried out on enhanced management & technology	Output	i. 5 ii. 25 iii.11 iv. 378	i. 5	i. 5	i. 5	i. 5	i. 5	i. Type of workshops	annually	IFMD/FHU/WRI/DP
ii. Number of private hatcheries operators participating				ii. 25	ii. 25	ii. 25	ii. 25	ii. 25	ii. Category of hatchery operators		
iii. Number of nursery operators participating				iii.11	iii.12	iii.12	iii.12	iii.12	iii. Category of nursery operators		
iv. Number of				iv. 400	iv. 400	iv. 400	iv. 400	iv. 400	iv. Type of grow-out operators		
of									v. Gender		

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
grow-outs participating											
i. No. of training conducted	No. of training conducted for staff of commercial fish farm enterprises and number training organized	Output		1(100)	1(100)	1(100)	1(100)	1(100)	i. Type of training ii. No. of participants iii. Gender	Annually IFMD/FHU	
ii. No. of staff trained											
Operation	3.3 Strengthen the capacity of aquaculture associations to deliver improved services and advocacy.										
List of aquaculture associations published	Count of aquaculture associations published on national websites and brochures	Output	List of Regional & district Associations	Yes	Yes	Yes	Yes	Yes	Regional & district	Annually IFMD/IT/DP	
i. Number of shell fish farmer associations and cooperatives organized	Count of shell fisher associations formed and count of association members trained	Output	Oyster & Clam Pickers Ass @ Coastal regions clam farmer association @ Adrafoah	2	2	2	2	2	Regions & types of associations	Annually IFMD/RDs/NGOs/DP	
ii. Number of association members trained				60	60	60	60	60			
Apex aquaculture association established	Formation of overall governing of aquaculture associations	Output	Splinter groups @ Nat/Reg/District levels	Yes					National	Once IFMD / FHU	
i. Number of trainings held	Count of aquaculture associations/cooperatives executives trained	Output	N/A	2	2	2	2	2	National, Regional & district	Biannually IFMD / FHU/NGOs/DP	
ii. Number of				14	14	14	14	14			

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
executive members trained											
Number of bulletins published	Counts of published bulletins	Output	NA	4	4	4	4	4	Annually	IFMD / FHU/Associations/NGOs/DP	
Number of collaborations with institutions enhanced	Count of MOU/correspondence to collaborate with relevant institutions on service provision	Output	Collaboration with EPA / WRI / WRC / VRA	5	5	5	5	5	Annually	FC/Stakeholders	
OBJECTIVE 4											
Sustainably improve the environment for aquaculture production, aquatic animal health standards and social acceptability of aquaculture products											
4.1 Strengthen the inter-institutional collaboration for ensuring sustainable use of land and water resources in aquaculture production											
Number of Environmental Impact Assessment (EIA) carried out	Count of EIA carried out at aquaculture sites	Output	Collaboration with EPA on EIA	10	10	10	10	10	Annually	IFMD/EPA/WRI	
Number of inter institution strengthened	Count of institutions collaboration established	Output	Collaboration with EPA / WRI / WRC / VRA	4	4	4	4	4	Annually	IFMD / FHU/NGOs	
Number of educational manuals developed and distributed	Count of educational materials developed and distributed	Output	Flyers on 10 subject areas	2000	2000	2000	2000	2000	Annually	IFMD	
Number of buffer zones established	Count of buffer zones established	Output	N/A	2	2	2	2	2		IFMD / M&E	
4.2 Strengthen the national capacity for ensuring health and safety of cultured aquatic organisms											
Operation	Count of MOUs signed between FC and VSD in	Output	0	2	2	2	2	2	Once	FHU / IFMD / MoFAD	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
	the use of Labs for fish health management										
i. Number of veterinarians, technicians & FC staff trained	Count of stakeholders trained in providing services in fish health safety services as well as count. of training held	Output	212 6	100 4	200 4	200 4	200 4	National	Annually	FHU/IFMD/HRD/DP	
ii. Number of training held											
i. Reviewed guidelines & code of practice	Guidelines and code of practice reviewed	Output	Aquaculture Guidelines and Code of Practice (2015)	Yes	Yes			Subject area	Once	IFMD / FHU/DP	
ii. Regulations and standards developed											
i. Fish health and safety guidelines developed	Development of guidelines on fish health and safety & regulation	Output	i. Aquaculture Biosecurity guidelines and checklists ii. 3-Tiered certification protocol for fish farms	draft guidelines	Final Guidelines developed			Subject area	Once	FHU/IFMD/DP	
ii. Fish health and safety regulations developed											
i. Number of workshops held	Count of workshops conducted	Output	4 160	4 160	4 160	4 160	4 160	Subject area	Quarterly	FHH / IFMD/DP	
ii. Number of farmers complying	No. of farmers sensitized	Output	160	160	160	160	160				

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
voluntary iii. Number of farmers implementing VC on farms	in voluntary compliance and implementing VC										
Number of research-extension farmer linkages conducted	Count of workshops on research -extension farmer linkages	Output	NA	1	1	1	1	1	Annually	IFMD	
OBJECTIVE 5											
Improve the effectiveness and efficiency of public sector institutions in aquaculture development, regulation and policy formulation											
5.1 Strengthen the capacity of staff in aquaculture policy formulation and enforcement											
Operation											
Number of staff and stakeholder capacity enhanced	No. of staff and stakeholders' capacity enhanced	Output	Some staff involved in NF&A Policy preparation	10	10	10	10	10		HR / IFMD	
i. Number of study tour carried out	Count of study tours carried out for staff and stakeholders and number of stakeholders participating in tour	Output		4	4	4	4	4	Annually	TBD	
ii. Number of stakeholders participating in tour	Count of study tours carried out for staff and stakeholders and number of stakeholders participating in tour	Output		40	40	40	40	40			
Policy and regulation on aquaculture businesses developed	Development of policy and regulations on aquaculture businesses	Output	Fisheries & Aquaculture Policy	zero draft	Final policy				Once	IFMD/DP/AG's Dept.	
i. Number of international and	Count of times and number of people	Output		4	4	4	4	4	Annually	HRD/IFMD/DP	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, bi-quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
regional programmes attended ii. Number of staff attending international and regional programmes	attending international and regional aquaculture related programs			8	8	8	8	8			
i. Number of vehicles procured ii. No. of multi-probes procured	Count of logistics (e.g. vehicles, multi-probes, computers and accessories) procured to enhance aquaculture regulations	Output	MCS D exists	TBD	TBD	TBD	TBD	TBD	Types	Annually FC/DP	
Operation	5.2 Establish and update database on aquaculture and its related activities										
Aquaculture MIS developed	Development of an aquaculture MIS	Output	Draft AMIS	Final AMIS						Once Inland/IFMD/M&E/DP	
i. Number of staff trained ii. Number of trainings carried out	Count of staff trained on database system and training held	Output	NA		30	30	30	30	Regions and district	Annually Inland/Aquaculture/M&E/DP	
i. Number of fish farmers sensitized & trained ii. No. of training carried out	Count of fish farmers sensitized/trained on record keeping, data capture, etc and number of training held	Output	378 farmers trained under TiSeed	400 8	400 8	400 8	400 8	400 8	Regions and district	Annually IFMD/M&E/DP	

Key Indicator	Indicator Definition	Indicator Type	Baseline	Target					Disaggregation	Monitoring Frequency (Monthly, quarterly, bi-annually, annually)	Responsibility
				2024	2025	2026	2027	2028			
Aquaculture website established and managed	Development of aquaculture website	Output	NA	Draft	final				Once	IFMD/DP/NITA/IT	
Operation	5.3 Establish monitoring and evaluation system for GNADP implementation and aquaculture business performance										
Aquaculture M&E system established	Development of an Aquaculture M&E system	Output		Yes					Monthly	IFMD/M&E/Divisions/units	
Operation	5.4 Monitor and evaluate GNADP implementation and performance of aquaculture businesses										
Number of Monitoring carried out	Count of monitoring exercises of activities in the plan conducted	Output	NA	1	5	5	5	5	Quarterly & annual	M&E, Divisions/units	
Number of evaluation carried out	Annual, mid-term, and terminal evaluation of plan	Output	NA	A	Yes	Yes	Yes	Yes	Annual, mid-term, terminal evaluation	IFMD/M&E/DP	
Operation	5.5 Develop GNADP Implementation Plan										
Implementation plan developed	Existence of implementation plan	Output	N/a	Yes					Once	M&E, Divisions/units	



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