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PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN AN AMOUNT OF
SDR 31.1 MILLION (US\$50.3 MILLION EQUIVALENT)

AND A PROPOSED GRANT

FROM THE GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN AN AMOUNT EQUAL TO US\$3.5 MILLION

TO THE

REPUBLIC OF GHANA

FOR THE

GHANA PROJECT

UNDER THE FIRST PHASE OF THE WEST AFRICA REGIONAL FISHERIES PROGRAM

June 17, 2011

Sustainable Development Department
Environment and Natural Resources Management Unit
Africa Region

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CURRENCY EQUIVALENTS

Currency Unit = SDR
0.62 SDR = US\$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AAP	African Action Plan
APL	Adaptable Program Loan
CAADP	Comprehensive Africa Agriculture Development Program
CAS	Country Assistance Strategy
CEM	Country Economic Memorandum
CPAR	Country Procurement Assessment Review
CSRP	Sub-Regional Fisheries Commission (<i>Commission Sous-Régionale des Pêches</i>)
DFID	United Kingdom Department for International Development
DPO	Development Policy Operation
ECOWAS	Economic Community of West African States
EEZ	Exclusive Economic Zone
EITI	Extractive Industries Transparency Initiative
ESA	Environmental and Social Assessment
ESMP	Environmental and Social Management Plan
ESW	Economic and Sector Work
EU	European Union
FAO	Food and Agriculture Organization
FEU	Fisheries Enforcement Unit
FMP	Fisheries Management Plan
FY	Fiscal Year
GDP	Gross Domestic Product
GEF	Global Environment Facility
GPRSII	Ghanaian Poverty Reduction Strategy II
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
ICCAT	International Commission for the Conservation of Atlantic Tunas
IDA	International Development Association
IRR	Internal Rate of Return
ISN	Interim Strategy Note
LME	Large Marine Ecosystem
MITEP	Minimum Integrated Trade Expansion Platform
MOFA	Ministry of Food and Agriculture
MCS	Monitoring, Control, and Surveillance
M&E	Monitoring & Evaluation
MTR	Mid Term Review
NAFAG	National Fisheries Association of Ghana

NCB	National Competitive Bidding
NEPAD	New Partnership for Africa's Development
NPV	Net Present Value
ORAF	Operational Risk Assessment Framework
PAD	Project Appraisal Document
PDO	Project Development Objective
PF	Process Framework
PPO	Policy and Planning Office
RCU	Regional Coordination Unit
RPF	Resettlement Policy Framework
SBD	Standard Bidding Documents
TAC	Total Allowance Catch
UNDB	United Nations Development Business
USAID	United States Agency for International Development
VMS	Vessel Monitoring System
WARFP	West Africa Regional Fisheries Program
WSSD	World Summit on Sustainable Development

Vice President:	Obiageli K. Ezekwesili
Country Director:	Ishac Diwan
Sector Director:	Jamal Saghir
Sector Manager:	Idah Pswarayi-Riddihough
Task Team Leader:	John Fraser Stewart, John Virdin

PAD DATA SHEET

Republic of Ghana
Ghana Project under the First Phase of the West Africa Regional Fisheries
Program

PROJECT APPRAISAL DOCUMENT

Africa
AFTEN

Date: June 17, 2011 Country Director: Ishac Diwan Sector Director: Jamal Saghir Sector Manager: Idah Z. Pswarayi-Riddihough Team Leader(s): John Fraser Stewart, John Virdin Project ID: P124775, P124812 Lending Instrument: Specific Investment Loan	Sector(s): General agriculture, fishing and forestry sector (100%) Theme(s): Other environment and natural resources management (67%); Environmental policies and institutions (33%) EA Category: B- Partial Assessment
Project Financing Data:	
Proposed terms: IDA Credit in the amount of US\$50.3 million on standard terms; GEF Grant in the amount of US\$3.5 million.	
<input type="checkbox"/> Loan <input checked="" type="checkbox"/> Credit <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:	
Source	Total Amount (US\$M)
Total Project Cost:	53.8
Cofinancing (GEF):	3.5
Borrower:	50.3
Total Bank Financing:	
IBRD	
IDA	50.3
New	
Recommitted	
Borrower: Republic of Ghana Responsible Agency: Secretariat to the Fisheries Commission, Ministry of Food and Agriculture Contact Person: Mr. Samuel Quaaty Telephone No.: 233 208163412 Fax No.: 233 12668245 Email: samquaaty@yahoo.com	

Estimated Disbursements (Bank FY/US\$ m)							
FY	12	13	14	15	16	17	18
Annual	2.5	5.0	10.0	15.0	15.0	2.8	0
Cumulative	2.5	7.5	17.5	32.5	47.5	50.3	50.3
Estimated GEF Disbursements (Bank FY/US\$ m)							
FY	12	13	14	15	16	17	18
Annual	0.5	0.5	1.0	1.0	0.5	0	0
Cumulative	0.5	1.0	2.0	3.0	3.5	3.5	3.5
Project Implementation Period: 6 years Expected effectiveness date: September 1, 2011 Expected closing date: December 31, 2017							
Does the project depart from the CAS in content or other significant respects?						<input type="radio"/> Yes <input checked="" type="radio"/> No	
If yes, please explain:							
Does the project require any exceptions from Bank policies? Have these been approved/endorsed (as appropriate by Bank management)? Is approval for any policy exception sought from the Board?						<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	
If yes, please explain:							
Does the project meet the Regional criteria for readiness for implementation?						<input checked="" type="radio"/> Yes <input type="radio"/> No	
If no, please explain:							
<p>The Project Development Objective is to support the sustainable management of Ghana's fish and aquatic resources by: (i) strengthening the country's capacity to sustainably govern and manage the fisheries; (ii) reducing illegal fishing; (iii) increasing the value and profitability generated by the fish resources and the proportion of that value captured by the country; and (iv) developing aquaculture.</p>							

Project description

The project will have five components:

Component 1: Good Governance and Sustainable Management of the Fisheries. This component aims to build the capacity of the Government and stakeholders to develop and implement policies through a shared approach that would ensure that the fish resources are used in a manner that is environmentally sustainable, socially equitable and economically profitable.

Component 2: Reduction of Illegal Fishing. The component aims to reduce the illegal fishing activities threatening the sustainable management of the country’s fish resources.

Component 3: Increasing the Contribution of the Fish Resources to the National Economy. The component aims to identify and implement measures to increase the benefits to Ghana from the fish resources, by increasing the share of the value-added captured in the country.

Component 4: Aquaculture Development. The component aims to set the framework for increased investment in inland aquaculture.

Component 5: Regional Coordination, Monitoring and Evaluation and Project Management. The component aims to support project implementation and regional coordination with the WARFP, ensuring that regular monitoring and evaluation is conducted, and the results are fed back into decision-making and project management.

Safeguard policies triggered?	
Environmental Assessment (OP/BP 4.01)	X Yes o No
Natural Habitats (OP/BP 4.04)	o Yes o No
Forests (OP/BP 4.36)	o Yes o No
Pest Management (OP 4.09)	o Yes o No
Physical Cultural Resources (OP/BP 4.11)	o Yes o No
Indigenous Peoples (OP/BP 4.10)	o Yes o No
Involuntary Resettlement (OP/BP 4.12)	X Yes o No
Safety of Dams (OP/BP 4.37)	o Yes o No
Projects on International Waterways (OP/BP 7.50)	X Yes o No
Projects in Disputed Areas (OP/BP 7.60)	o Yes o No

Conditions and Legal Covenants:

Financing Agreement Reference	Description of Condition/Covenant	Date Due
5.01 (a)	The Recipient has adopted the Fisheries and Aquaculture Sector Development Plan in form and substance satisfactory to the Association	By Effectiveness
5.01 (b)	The Subsidiary Grant Agreement, in form and substance satisfactory to the Association, has been executed on behalf of the Recipient and CSRP.	By Effectiveness
5.01 (c)	The Recipient shall have adopted the Project Implementation Manual in form and substance satisfactory to the Association	By Effectiveness

5.01 (d)	The GEF Trust Fund Grant Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of the Financing Agreement) have been fulfilled	By Effectiveness
Schedule 2, Section II, C.4	The Recipient shall: (i) appoint or recruit an accountant for the Project Management Team on the basis of terms of reference and with qualifications and experience satisfactory to the Association; and (ii) adopt, through the Secretariat, a Project accounts and financial management manual in form and substance satisfactory to the Association	Not later than three (3) months after the Effective Date
Schedule 2, Section I.K 1 (a)	The Recipient shall complete the registration and licensing of all existing industrial and semi-industrial fishing vessels, all in a manner satisfactory to the Association	Not later than twelve (12) months after the Effective Date
Schedule 2, Section I.K.1 (b)	The Recipient shall place a moratorium in effect on the issue of new licenses in the industrial and semi-industrial sub-sectors	Not later than twelve (12) months after the Effective Date
Schedule 2, Section I.K.1 (c)	The Recipient shall make the Fisheries Enforcement Unit operational pursuant to the provisions of the Fisheries Act	Not later than twelve (12) months after the Effective Date
Schedule 2, Section I.K.2 (a)	The Recipient shall complete the registration of the entire existing marine canoe fleet and close the registration of new entrants to the sector, all in a manner satisfactory to the Association	Not later than twenty-four (24) months after the Effective Date
Schedule 2, Section I.K.2 (b)	The Recipient shall ensure the entire active licensed industrial trawl fleet is in full compliance with the Fisheries Act, safety and health regulations, and all applicable license conditions	Not later than twenty-four (24) months after the Effective Date
Schedule 2, Section IV, B.1 (a)	No funds will be disbursed for works, goods and consultants' services for the fish landing site clusters under component 3.1 of the Project, until and unless the Recipient shall have prepared, and properly consulted upon, and disclosed the Resettlement Action Plan for the site in relation to which the disbursements are required	Disbursement conditions (ongoing)

Schedule 2, Section IV, B. 1 (b)	No funds will be disbursed for works, goods and consultants' services for the Aquaculture Development Fund under component 4.5 of the Project, until and unless the Recipient shall have adopted the Grant Manual of Procedures for this Fund in form and substance satisfactory to the Association	Disbursement Condition (ongoing)
Schedule 2, Section IV, B.1 (c)	No funds will be disbursed for compensation under component 1.3.2 of the Project, until and unless the Recipient shall have adopted the Compensation Manual in form and substance satisfactory to the Association	Disbursement Condition (ongoing)
Schedule 2, Section I. G.2	The Recipient shall ensure that all works, goods, services, Operating Costs, Operating Costs of Vessels, Hours of Aerial Surveillance and Lease Payments financed out of the proceeds of the Credit are used exclusively by, or under the control of, civilian authorities for the purposes of the Project, and not for any military purpose, or for any criminal investigation, prosecution or proceedings, or for any other purposes unrelated to the objectives of the Project	Ongoing
Schedule 2, Section I,I	The Recipient shall cause the Secretariat of the Fisheries Commission: (i) to employ, on a competitive basis, an entity specialized in job-training and placement, satisfactory to the Association, to be responsible for the carrying out of Part 1.3.2 of the Project; and (ii) to ensure the entity so employed: (A) applies at all times, in a manner satisfactory to the Association, the criteria set forth in the Compensation Manual to identify and confirm the eligibility of fisheries workers for Compensation; (B) monitor and evaluate the progress of the transitioning with each fisheries worker; and (C) conduct the re-training and job placement in consultation with the Recipient, ensuring in particular that the fisheries workers who received Compensation are not hired by the same enterprise or entity if the same remains in the sector or that they re-enter into another part of the sector.	Ongoing

Schedule 2, Section I, II.1	The Recipient shall ensure that, during Project implementation, no restriction to access to legally designated parks and/or protected areas under the Project is enforced until and unless the Association shall have approved the site-specific Plan of Action	Ongoing
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I. Strategic Context

A. Country Context

1. Ghana's current development trajectory, as outlined in its 2010 Medium Term Development Framework, *the Ghana Shared Growth and Development Agenda (2010-2013)*, seeks to surpass the Millennium Development Goals by halving poverty to 26 percent, and to achieve middle income status by 2015, through an annual sustained growth rate of six percent. Ghana continues to be in the top rankings within Africa on many performance and reform indicators, and the country of 24 million is widely seen as an example of successful political and economic performance in the West Africa region. However, despite decades of good but sometimes difficult progress, Ghana recognizes that it still faces important challenges in meeting its development goals.

2. GDP performance recorded over the period 2003-2009 is impressive; however, available data indicates that some areas of agriculture (which as a whole provides 30 percent of GDP and 50 percent of employment) did not perform well, such as fisheries for example, which has to date generated large scale employment opportunities. Many sectors such as fisheries are still constrained by low productivity, low technology, poor infrastructure and uncertain access to inputs. Traditional exports – cocoa, gold and other natural resources – still account for almost half of GDP, while the industrial sector remains relatively small and dominated by firms with low productivity. Foreign direct investment is relatively low for an economy of Ghana's potential.

3. While Ghana's growth in the last two decades was pro-poor overall, inequalities were not reduced and disparities in North-South poverty have persisted. Most of Ghana's growth and poverty reduction has been located in the South while in contrast, the North recorded slower growth and poverty reduction, despite some progress in education and health. Not surprisingly, poverty studies in Ghana indicate that while poverty has continued to fall in forest zones and cocoa producing communities, it has increased in food crop producing areas as well as in fishing communities. These fishing communities, particularly along the coast, constituted a powerful voting block in the most recent elections, and are considered by many to have been one of the deciding factors.

4. Projected to start flowing in 2011, oil revenues could be instrumental in supporting the growth and poverty reduction agenda. Efforts are ongoing to ensure a developmental use of oil revenues through sound legislation and strong institutions for effective, transparent and accountable use of these new resources. But pressures to increase public wages and subsidies, as well as the existing structural inefficiencies, if left unattended, may lead to use of oil revenues for consumption rather than to finance much needed investments. Furthermore, many of the coastal communities have raised questions about the costs and benefits to their activities as a result of oil development in or near fishing grounds.

B. Sectoral and Institutional Context

5. *Sector Importance.* Ghana is endowed with significant and valuable stocks of fish, leading to a tradition and culture of fishing as strong as any other nation in West Africa. Including aquaculture, the country produces on the average 440,000 tons of fish from its waters each year. This fish production is worth in excess of US\$1 billion in income annually. As many as 2.2 million people in Ghana are dependent on the fisheries sector for their livelihoods, including some 135,000 fishers in the marine sector (of which 92 percent are artisanal fishers). It is estimated that a further 71,000 artisanal fishers operate in Lake Volta. Additionally, women are estimated to be engaged full-time in fish processing, smoking and salting in an amount equivalent to roughly 27,000 full-time jobs. These figures underscore the prominent role that fisheries currently play in the Ghanaian economy, as they have for many generations past.

6. *Key Sector Issues and Institutional Constraints.* Many of Ghana's fish resources are heavily overexploited, and with the introduction of recovery measures could contribute far more than they currently do to the country's economic growth, food security and poverty reduction. Similarly, together with a recovery of Ghana's fisheries, the nascent aquaculture industry has the potential to make much greater contributions to domestic fish production. Including aquaculture, Ghana's fisheries sector has the potential to help the country meet its strategic objectives of generating an annual sustained growth rate of six percent. However, this potential will not be realized if current trends in overexploitation and subsequent decreasing profitability in the fisheries continue. Currently, the total fish catch from the marine fisheries has peaked and is declining, despite an expansion in the number of fishers. These fishers are experiencing a decline in their fish catch rates (fish catch per unit of fishing effort expended), a measure that is one of the more reliable proxies for the health of fish stocks and a signal of overexploitation. As a result, available evidence suggests that fish production costs approached or exceeded income in all inshore marine capture fisheries over recent years. Similarly, there is evidence that costs are increasing in inland fisheries and what profitability that remains is being rapidly dissipated. In total, there is little or no surplus of income over expenditure in Ghana's capture fisheries and where some profitability remains it is being lost.

7. As a result of the decreasing profitability of Ghana's fisheries, the 2.2 million people reliant on the sector for their livelihoods, and the communities in which they live, are getting steadily poorer. The average income received per canoe in Ghana's important artisanal fishery has dropped by as much as 40 percent over the last decade. These losses often fall on the most vulnerable, as many of the coastal communities are based in rural areas that have thus far remained at the margin of the country's economic growth.

8. The root cause of the declining profitability of Ghana's fisheries lies in the failure of the Government to control access to the resources, so that there are too many vessels competing to catch too few fish, with little incentive to invest in management and value addition. Controlling access requires effective resource management, however public sector investment to date has been negligible. Fisheries management expenditure in Ghana (0.2 percent of total income from the sector) is less than 2 percent of average expenditure in OECD countries (i.e. 17 percent of revenue).

9. In summary, the fishing industry in Ghana has reached a low level equilibrium that provides little prospect for improving the welfare of fishers and fishing communities in Ghana or contributing to the country's economic growth. However, the fisheries could contribute significantly more to growth and poverty reduction, but it will require investment to control access and reduce the overexploitation of the resource base. Best practice experience from around the world shows that recovery is possible if current pressures are reduced. Well-managed fisheries generally produce much higher profits - between 30 and 60 percent of revenues. Moreover, because of the renewable nature of this valuable resource, such profits may be generated in perpetuity. Ghana's marine fisheries are highly productive and resilient, and all evidence to date in similar fisheries in the world suggests that these resources could recover if current fishing pressure is reduced. In particular, the coastal demersal and inland fisheries targeted by this project are resources largely within the country's waters and would therefore be responsive to measures taken by the Government of Ghana. Thus, investment in the recovery of Ghana's fisheries could provide significant returns for the country. Similarly, development of the aquaculture sub-sector can complement (but not substitute for) this recovery by increasing domestic fish production, and in some cases potentially reducing fishing pressure.

10. *Regional and Government Responses to Key Sector Issues and Constraints.* Realizing this need to strengthen governance and management of the sector to control access and reduce overfishing, and thereby begin to restore profitability, in 2009 the Government prepared a draft Ghana Fisheries and Aquaculture Sector Development Plan (2011 – 2016), with support from DfID, NEPAD and the World Bank. The draft Plan aims to increase revenue and profitability in the capture fisheries by at least US\$50 million annually after five years of investment in governance to control access to the resources, notably through a freeze in the size of the artisanal fishing fleet and a phased reduction in the industrial trawl fleet, while maintaining current capture fisheries production levels and increasing aquaculture production levels. The draft Plan specifies a range of Government reforms and investments needed to meet the targets. Explicit tasks are phased across the five year timeframe of the draft Plan, as a first step in a longer program to ensure that the benefits realized from fisheries governance reforms can be captured, and to ensure that they will accrue to the artisanal sector and local communities as a priority.

11. The Government of Ghana's policy response is consistent with the emerging consensus throughout West Africa, that the marine fish resources are making a far smaller contribution to economic growth than they could be, due to a lack of governance allowing for overexploitation of the resource base, as well as a failure to add value locally to most of the fish caught in the region's waters. In addition to this proposed project, the coastal countries from Mauritania to Liberia (including Cape Verde) are expected to participate in the West Africa Regional Fisheries Program (WARFP), a regional investment by the World Bank and Global Environment Facility (GEF) aiming to help the countries sustainably increase the wealth generated from the use of the marine fish resources, and the portion of that wealth captured within the region. More specifically, the WARFP is a series of overlapping Adaptable Program Loans (APLs), each of which has two phases of five years. As such, the WARFP utilizes the World Bank's APL instrument: (i) horizontally, on a regional basis to support the countries through a series of overlapping APLs (i.e. APL-A for Cape Verde, Liberia, Senegal and Sierra Leone; APL-B for Guinea-Bissau, and APL-C for Mauritania and the other remaining countries); and (ii) vertically, in that each country can receive support from two phases or installments over the APL Program,

in order to deepen and expand the reforms supported in the first phase. The first of the overlapping APLs in the series, APL-A, was approved by the Board of Directors on October 20, 2009 for US\$55 million in IDA and GEF investments in the four countries of Cape Verde, Liberia, Senegal and Sierra Leone, as well as US\$10 million in grant funds from the Africa Catalytic Growth Fund (ACGF). This first APL currently under implementation was rated as ‘satisfactory’ in the most recent Implementation Status and Results Report. The second APL in the series was approved in March 2011, to add Guinea-Bissau to the Program. The project described in this Appraisal document, although designed to fit within the framework of the WARFP, is a stand-alone operation that is designed to be a national investment of the WARFP, complementary to the series of APLs described above. This investment would be the first of a series in Ghana, as per the model of the WARFP, to implement a long-term program of reforms. A subsequent ‘follow-on’ investment would be envisaged, either as a stand-alone project or as part of future phases of the WARFP. As such, the proposed project aims to enable the phased implementation of the Government’s draft Plan by investing in the first steps of a long-term program of fisheries governance and management, including enforcement systems (see Components 1 and 2) and value addition (see Component 3), together with increased aquaculture production (see Component 4).

C. Higher Level Objectives to which the Project Contributes

12. *Contribution to Governments’ Policies and Objectives for the Sector.* As noted previously, Ghana intends to achieve middle income status by 2015, and to surpass the Millennium Development Goals by halving poverty to 26 percent, according to the *Ghana Shared Growth and Development Agenda* (2010-2013). The Government is targeting the fisheries sector as one of the drivers of this advance (NDC Manifesto). However, under the current management regime, there is a real risk that current GDP contribution from this sector (roughly 2.4 percent) will continue to decline. This project aims to help secure the contribution of the sector to GDP, and lay the foundation for increased profitability and growth as a result, thereby supporting implementation of the country’s Shared Growth and Development Agenda.

13. *Contribution to the World Bank Country Assistance Strategy.* The proposed project is aligned with the FY08-11 Country Assistance Strategy (CAS), based around the broad objectives of increasing growth and decreasing poverty and inequality. These objectives are centered on three pillars: (i) to raise private sector competitiveness, (ii) to improve human development outcomes, and (iii) to strengthen governance. Current estimates show that the planned investments in Ghana’s fisheries sector could over a ten-year period generate as much as US\$200 to \$300 million in profits annually. Such profitability could be sustainable into the future, and the benefits generated could be targeted by Government to where they are needed most, and contribute substantially to the country’s growth agenda. To achieve this increased contribution to the economy from the fisheries, the project will focus on governance reforms as the driver of growth, thereby supporting the third pillar of the CAS in coastal areas. More specifically, the planned investments begin with a sector governance framework, to ensure Ghana’s fisheries can recover to more profitable levels. A strong governance component and establishment of robust governance institutions will compliment value added and aquaculture investments, to ensure a sustainable supply of fish, as well as the contribution of this fish to the local economy.

14. *Contribution to the World Bank Strategy for Africa.* The project builds on the foundation of the World Bank's new Africa Strategy, by focusing support on governance reforms in the fisheries sector in Ghana. Through implementation of these reforms, the project will help improve competitiveness in the country's fisheries, contributing to the first pillar of the Strategy.

15. *Linkages with complimentary initiatives.* The project has been prepared and will be implemented together with the series of Agriculture Development Policy Operations (AgDPOs) over the next three years, each of which includes policy triggers for the fisheries sector in support of the implementation of the Government's draft Plan. Additionally, the project has been prepared in close collaboration with other fisheries and coastal projects, and associated development partners, active in Ghana. In particular, the project was prepared with parallel financing from NEPAD, through the DfID-financed Partnership for African Fisheries. NEPAD will continue to be a partner going forward and will provide complementary financing to the Government for assistance in developing and implementing fisheries policy reform. Together with NEPAD's support and the African Union, this initiative would also be considered as a regional pilot for fisheries reform, monitored for lessons learned.

16. *Contribution to Relevant GEF Operational Program Goals.* The GEF co-financing will assist Ghana to carry out regulatory and institutional reforms to better collaborate with its neighbors to implement ecosystem-based approaches to fisheries resource management. More specifically, the proposed project will support the Strategic Objective 2, which aims at catalyzing transboundary actions that address issues such as overexploitation of fish stock and associated biodiversity, and are consistent with SP1 (Restoring and Sustaining Coastal and Marine Fish Stocks and Associated Biological Diversity) of the International Waters Focal Area, under the GEF-4. Lastly, this investment supports the development of sustainable fisheries in Ghana as part of the Strategic Partnership for Fisheries in Africa, approved in November 2005. The Strategic Partnership aims to promote the sustainable management of fisheries resources in the large marine ecosystems (LMEs) of Sub-Saharan Africa in order to assist coastal countries to make concrete progress towards achieving the fisheries and poverty reduction targets set by the WSSD.

17. *Compliance with the Eligibility Criteria of the GEF Strategic Partnership for Fisheries in Africa.* This project is in line with the Strategic Partnership's eligibility criteria:

- (i) Sectoral strategies will include a long-term approach to ensure the sustainability of the fishery sector, poverty alleviation measures and activities designed to achieve those aims.
- (ii) The proposed investment does not overlap with on-going activities, and is complementary to the Guinea Current Large Marine Ecosystem Program.
- (iii) GEF funding will cover the additional cost of activities providing environmental benefits extending beyond the countries' borders.
- (iv) The funding meets the minimum co-financing ratio of three donor dollars to one GEF dollar. The proposed sum of US\$ 3.5 million from the Partnership Investment Fund would complement the US\$50.3 million in IDA funding (see Annex 8).
- (v) The proposed investment is consistent with the Partnership's 10 operating principles.

II. Project Development Objectives

A. PDO

18. The **development objective** of the series of overlapping APLs in the West Africa Regional Fisheries Program, taken together, is to sustainably increase the overall wealth generated by the exploitation of the marine fisheries resources of West Africa, and the proportion of that wealth captured by West African countries.

19. The **development objective** of this project is to support the sustainable management of Ghana's fish and aquatic resources by: (i) strengthening the country's capacity to sustainably govern and manage the fisheries; (ii) reducing illegal fishing; (iii) increasing the value and profitability generated by the fish resources and the proportion of that value captured by the country; and (iv) developing aquaculture. Governance reforms and investments to reduce illegal fishing would help reduce fishing pressure on the resources to enable their recovery to more profitable levels, while investments in greater local value addition to fish products would allow the country to capture a greater share of the benefits of a rehabilitated resource base, together with enhanced local fish supplies from increased aquaculture production. While many of these activities will be sector-wide in scope in order to achieve the project's objective, the capture fisheries targeted include, among others: coastal demersal fish species (e.g. croakers, groupers, snappers, etc.), coastal shrimp and cephalopods (e.g. octopus and cuttlefish), as well as inland fisheries.

20. *Project Beneficiaries.* Direct project beneficiaries include the estimated 206,000 marine and Lake Volta fishers, at least 27,000 women fish processors and over 3,000 fish farmers.

21. *PDO Level Results Indicators.* The key results that the project aims to achieve are:

- Strengthened Governance Indicator: The overexploited canoe fisheries show signs of a recovery, as measured by a stabilization in total landings per unit of fishing capacity (e.g. number of fishing vessels);
- Reduced Illegal Fishing Indicator: A 40 percent increase in the total number of patrol days at sea each year in the coastal fisheries;
- Increased Value and Profitability Indicator: At least a stabilization in annual net economic benefits to Ghana from targeted fisheries; and
- Aquaculture Development Indicator: Total annual aquaculture production is increased to 35,000 tons.

These results reflect the fact that reforming the governance of fisheries (including strengthened compliance and enforcement to reduce illegal fishing) and increasing the value and profitability generated by the resources for the country, is a long-term process. This project represents the initial transition in this reform process based on the Government's draft Plan, and would be followed by subsequent investments through a phased approach.

III. Project Description

A. Project components

22. The project will have a total investment cost estimated at US\$53.8 million, of which IDA will finance US\$50.3 million and US\$3.5 million is being financed by the GEF. The project will comprise the following five components (see Annex 2 for a detailed project description):

23. **Component 1: Good Governance and Sustainable Management of the Fisheries. (US\$15.2 million IDA; US\$3.5 million GEF).** This component aims to build the capacity of the Government and stakeholders to develop and implement policies through a shared approach that would ensure that the fish resources are used in a manner that is environmentally sustainable, socially equitable and economically profitable. It will comprise the following four sub-components: (i) developing the legal and operational policy to enable the implementation of the Ghana Fisheries and Aquaculture Sector Development Plan; (ii) strengthening fisheries management, including fishing rights and stakeholder-based management and ensuring necessary research activities for sustainable exploitation; (iii) aligning fishing capacity and effort to sustainable catch levels; and (iv) social marketing, communication and transparency.

24. **Component 2: Reduction of Illegal Fishing (US\$10.9 million IDA).** The component aims to reduce the illegal fishing activities threatening the sustainable management of the country's fish resources by strengthening fisheries monitoring, control and surveillance (MCS) systems.

25. **Component 3: Increasing the Contribution of the Fish Resources to the National Economy (US\$12.1 million IDA).** The component aims to identify and implement measures to increase the benefits to Ghana from the fish resources, by increasing the share of the value-added captured in the country. It will comprise the following sub-components: (i) value chain development (fresh/frozen product/trade facilitation); and (ii) fish product trade and information systems.

26. **Component 4: Aquaculture Development (US\$8.0 million IDA).** This component aims to set the framework for increased investment in inland aquaculture. It will comprise the following sub-components (i) developing the aquaculture policy and legal framework; (ii) improving the genetic quality of Tilapia fingerlings and brood-stock; (iii) catalyzing aquaculture development for medium and large scale enterprises; (iv) marketing and technical studies; and (v) support for small-scale aquaculture development.

27. **Component 5: Project Management, Monitoring and Evaluation and Regional Coordination (US\$4.1 million IDA).** The component aims to support project implementation and regional coordination with the WARFP, ensuring that regular monitoring and evaluation is conducted, and the results are fed back into decision-making and project management.

B. Project Financing

28. *Lending Instrument.* Specific Investment Loan (co-financed by a GEF grant).

29. Project Financing Table.

Table 1: Project Financing

Component and/or Activity	Total (US \$million)
1. Good governance and sustainable management of the fisheries	18.7
2. Reduction of illegal fishing	10.9
3. Increasing the contribution of the fish resources to the national economy	12.1
4. Aquaculture development	8.0
5. Project management, monitoring and evaluation and regional coordination	4.1
TOTAL	53.8

IV. Implementation

A. Institutional and Implementation Arrangements

30. *Ministry of Food and Agriculture, Secretariat of the Fisheries Commission.* The Secretariat of the Fisheries Commission in the Ministry of Food and Agriculture will implement the project, housing a small Project Management Team (reporting to the Director of Fisheries) that will include: (i) a Project Coordinator responsible for overall implementation, monitoring and evaluation, and compliance with environmental and social safeguards; and (ii) a technical team that will include a Fisheries Governance and Management Specialist, an Aquaculture Specialist and a Value Addition Specialist. The Ministry of Food and Agriculture's Procurement Unit will be responsible for project procurement, and its Treasury Unit will be responsible for project financial management.

31. *Fisheries Commission.* The Fisheries Act in Ghana establishes a multi-stakeholder Fisheries Commission, with the legal responsibility to prepare and review plans for the management and development of fisheries in waters under the country's jurisdiction. The Ministry of Food and Agriculture currently houses the Secretariat of this Commission (formerly the Fisheries Department of the Ministry). As such, the Fisheries Commission, together with other relevant stakeholders, will serve as a steering committee for the project (with the Minister of Food and Agriculture chairing), and will review and approve annual work programs and budgets prior to their transmission to the World Bank for review. Both the Fisheries Commission and its Secretariat will work with the wider Ministry of Food and Agriculture to ensure coordination with other initiatives under the Comprehensive Africa Agriculture Development Program (CAADP). The Project Management will report at a minimum each six months to the Fisheries Commission.

32. *Regional Coordination Unit to the WARFP.* While the project is a national investment, it will be implemented within the framework of the WARFP, to draw upon the experiences of

neighboring countries and to capture economies of scale where possible. As such, the Government will provide funds to the Regional Coordination Unit of the WARFP, housed at the Sub-Regional Fisheries Commission in Dakar, Senegal, to support coordination of the project's activities with complementary investments of the WARFP in other countries in West Africa, and regional information-sharing and learning exchange.

B. Results Monitoring and Evaluation

33. The monitoring and evaluation (M&E) plan of the project is based on the key indicators detailed in the project's Results Framework in Annex 1. Overall achievement of the PDO will be measured through a combination of measures of: (i) the impacts of strengthened governance on the environmental health of the fish stocks, (ii) the efforts to patrol the coastal waters to reduce illegal fishing activities, (iii) the economic benefits the resources are generating for the country and (iv) the increase in aquaculture production to contribute towards reducing the domestic food fish production gap. The key indicators have been chosen taking into account the information they provide, as well as the costs and feasibility for any additional data gathering. The baselines for these indicators have been established on the best available data, but will in some cases be re-measured/refined over the first two years of implementation. Given the timeframe for recovery of the targeted fish stocks and subsequently the economic benefits that depend on them, this project aims to stop the current decline in fish catch rates and economic benefits, putting the country on a long-term path that is expected to lead to significant increases by year ten after project launch, compared to a continued decline in the absence of the project investment. For this reason, the targets for the key indicators aim at a stabilization over five years in the decline of the fish stocks and the economic benefits they provide, and an increase by year ten (see Annex 1 and Annex 7).

34. Responsibility for overall monitoring and evaluation of progress towards the project objectives and outcomes will lie with the Secretariat of the Fisheries Commission, based within the Ministry of Food and Agriculture. Currently, the sector monitoring system within the Secretariat lacks the resources needed to adequately report on progress according to the indicators in the Results Framework (see Annex 1). For this reason, the project will recruit and finance a Monitoring and Evaluation Specialist as part of the Project Management Team, to oversee and be responsible for M&E of the project. In addition, the M&E Specialist at the Regional Coordination Unit of the WARFP will provide training and ongoing support, as needed, to the Secretariat of the Fisheries Commission for monitoring and evaluation. Furthermore, the project will directly support the actual costs of data collection and analysis, as part of each of the three technical components. In particular, the project will support the establishment of an electronic 'dashboard' of key fisheries and community stakeholder monitoring statistics, linked to a regional node at the Regional Coordination Unit, in order to institutionalize the data collection and analysis needed to measure the key indicators in the Results Framework. As a result of this investment, by the end of the project, not only would implementation be managed based on publicly available data on key sector indicators and statistics, but overall decision-making would be linked to this M&E as well. The 'dashboard' will serve as the final repository for all data on key indicators in the Results Framework, as well as other key statistics on the sector, and the information will be presented regularly to the Fisheries Commission. This information will also form the basis of the M&E report submitted annually to the World Bank, together with an updated project work program and budget. The

project will report annually using the GEF 4 IW Tracking Tools and the results and lessons learned will be shared via the IW: LEARN program.

C. Sustainability

35. The project will invest significantly in building the capacity of the Secretariat of the Fisheries Commission of the Ministry of Food and Agriculture to sustainably govern and manage the country's fisheries. Emphasis will be placed on supporting the Secretariat to become a demand-based agency, which would enable fisheries users and stakeholders to take a greater responsibility in managing the sector. The Regional Coordination Unit of the WARFP will support the Secretariat in this effort, and will remain in place after the close of the project, to continue to provide any assistance needed in the governance and management of the sector. The Project will also invest in building capacity in up to 12 fisher communities for community management and monitoring of local fisheries resources. This effort aims directly at building local governance capacity and sustainability by engaging communities and fishers whose livelihoods will be most immediately impacted by changes in fish stocks. The Secretariat of the Fisheries Commission will provide ongoing support to this effort.

36. In terms of recurrent costs of the investment after the close of the project, the key additional fiscal responsibility will result from the implementation of additional fisheries surveillance systems and activities. For this reason, the project will support a pragmatic approach based on low-cost methods and technologies, with a minimum of recurrent costs. The project will support the Government to develop sustainable financing mechanism for surveillance operations, for example through a public expenditure review to demonstrate the economic benefits of these operations and the public revenues that they generate. The project will also support the Government to collaborate with other countries in the WARFP, to develop a low-cost regional surveillance network that could capture economies of scale, and pool scarce resources. Lastly, a 'follow-on' project is envisaged, to continue the reforms begun in the transition supported by this project, which could support recurrent costs if necessary.

V. Key Risks

37. The overall risk rating for this project is proposed as High, based on risks with potentially substantial impacts to the achievement of the development objective. The four key risks that have been considered during preparation and design, and will be monitored closely during implementation, are: (i) the risk that stakeholders who currently benefit from illegal and/or destructive fishing activities could exert significant influence over decision-makers to prevent the reduction of the semi-industrial and trawl fleets envisaged in the Government's draft Plan, (ii) the risk that negative social impacts that could be created as a result of the phased reduction in industrial and semi-industrial trawl vessels; (iii) the risk that small-scale fishers will not participate in registration and licensing efforts, nor recognize the benefits of controlled access to the fisheries; and (iv) the risk posed by low implementation capacity in the Secretariat of the Fisheries Commission within the Ministry of Food and Agriculture.

38. The first risk listed above is rated as 'high', because a lack of political to apply the existing regulations in order to reduce illegal fishing activities and particularly those of the semi-industrial and industrial trawl fleets, could prevent the reduction of fishing effort needed for the

project to be successful. To mitigate this risk, the project is supporting increased capacity of the Government to enforce the current laws and regulations, through the establishment of a Fisheries Enforcement Unit. This Unit would have a multi-agency steering committee to help monitor its performance, and the project will support the transparent publication of information on infractions and prosecutions, as well as wider public monitoring.

39. The second key risk is the potential negative social impacts from the phased reduction of industrial and semi-industrial fishing vessels that is targeted in the Government's draft Action Plan. The reduction of semi-industrial and industrial trawl vessels is estimated to gradually reduce employment in that fishery by 1,000 to 3,000 jobs over the next ten years. The impacts of the reduction of employment in the industrial and semi-industrial trawl fishery will be mitigated through the implementation of an alternative livelihoods fund in sub-component 1.3.2 to provide exit and re-training grants to those negatively impacted, according to defined eligibility criteria, as well as extensive communication and social marketing campaigns to raise public awareness about the need for fisheries management in sub-component 1.4. Nonetheless, because the industrial and semi-industrial fisheries would be reduced and bear the costs of the transition to a more profitable sector, there is a risk that they would bear high social impacts and resist any efforts towards reform or successful implementation, or that the Government would not be willing to carry out this reduction. Despite the inclusion of sub-component 1.3.2 as the tool to mitigate this risk, it will remain high throughout implementation.

40. The third risk concerns the perceptions of small-scale fishers that the Government's reforms to control access to the fisheries, via the introduction of registration and licensing requirements for all vessels, are a tax on their operations or a negative impact on their livelihoods. This risk will be mitigated through the detailed design of the licenses, which will act as transferable rights that would serve as capital assets for the fishers; and extensive communication and social marketing campaigns in sub-component 1.4 to present to fishers the benefits of registration and licensing (that current operators will have exclusive rights to fish that may not be available to prospective fishers in the future). In addition, sub-component 1.2.6 will pilot community-based management measures, with direct transfers to community groups who comply with registration and licensing requirements, in order to introduce further resource management and rehabilitation measures. The results of these pilots would also be communicated to neighboring communities and fishers, and gradually scaled up where possible. With the introduction of these mitigation measures, this risk is considered medium-likelihood during implementation.

41. The fourth risk arising from weak implementation capacity will be mitigated through significant technical assistance to the Secretariat via the project, as well as training. Furthermore, the Regional Coordination Unit of the WARFP will provide ongoing training and support to the Secretariat.

VI. Appraisal Summary

A. Economic and Financial Analysis

42. An economic and financial analysis of the project was conducted, based on a quantitative biological and economic model developed for the country's fisheries and the proposed investments. The model uses the most recent sector statistics available to calculate: (i) the current

net economic benefits from the fisheries, (ii) the expected net economic benefits from the fisheries over the next 30 years under a business-as-usual scenario, without the project, and (iii) the projected net economic benefits as a result of the project. The net economic benefits for the fisheries include net returns to: (i) vessel owners, (ii) labor and (iii) Government. On the basis of the results of the analysis, the net present value of the net economic benefits expected to result from the project over a period of 30 years totals more than US\$140 million, at an economic internal rate of return of 49.6 percent. Over a ten year period, the economic internal rate of return is estimated to be 17.9 percent. In terms of the distribution of the benefits, fishers and vessel owners in the marine canoe fisheries and freshwater fisheries would capture the majority of the benefits, together with a small percentage for Government, while industrial and semi-industrial fisheries would be reduced and bear the costs of this transition to a more profitable sector.

B. Technical

43. The project has been developed based on recent biological and economic research clearly demonstrating that levels of fishing exploitation that are environmentally sustainable (i.e. at levels below the maximum amount that can be harvested and still allow the stocks to regenerate to their previous size) are also much more economically profitable – providing higher levels of wealth for the country. In order to help Ghana capitalize on these findings and achieve levels of fishing exploitation that are both more environmentally friendly and economically profitable, the project’s approach builds upon global experiences with the promotion of fishing rights to control access to the fish resources, implemented through collaborative partnerships between resource users and the Government. These partnerships would be legally recognized and codified by the appropriate regulatory agency, clearly specifying the rights and management responsibilities of users. Results to date in both developed and developing countries have confirmed that this model is technically sound, and has generated both increased wealth from the resources, and helped reduce exploitation to more environmentally sustainable levels. Furthermore, the project builds on lessons learned in the Sustainable Management of Fish Resources Project in Senegal, suggesting that efforts to support recovery in overexploited fisheries such as in Ghana, should be accompanied by support to embark upon alternative livelihood strategies for those interested and/or affected.

C. Financial Management

44. The Overall financial management assessed risk for this project is **Medium-Likelihood** and further details of the arrangements for this project are included in Annex 3. To further strengthen the financial management arrangement, it has been agreed by the Government and MoFA that there is the need to prepare an Operational Manual which includes a section on project financial procedures not later than six months after effectiveness. Auditors for the project will be selected competitively in consultation with the Auditor-General of Ghana with the Terms of Reference being ready and agreed upon during negotiations. Similarly, the contents and formats for the Interim Financial Reports (IFRs) for the project were agreed during negotiations.

D. Procurement

45. An assessment of the capacity of the Ministry of Food and Agriculture to implement procurement actions for the project was conducted on January 18, 2011 and concluded that MoFA: (i) is in compliance with the procurement law; (ii) has a procurement unit in their permanent organization; (iii) has adequate internal technical and administrative controls and anti-corruption measures; (iv) has satisfactory appeal mechanisms for bidders; and (v) has sufficient knowledge and experience in World Bank procurement procedures to implement the project.

46. The overall procurement risk assessment is rated **Medium-Impact**. The key risks for procurement are: (i) since the central procurement unit handles procurement management for all directorates in the Ministry, there could be possible delays in processing procurement documents due to high volume of work; (ii) staff of the Secretariat of the Fisheries Commission and any procurement staff who are not yet conversant with Bank procurement may create delays due to their lack of knowledge in Bank procedures and processes; (iii) inadequate capacity to handle the anticipated volume of procurement at the procurement unit of MoFA under the project; (iv) possible delays in evaluation of bids and technical proposals leading to implementation delays and poor quality of contract deliverables; (v) inconsistencies between the National Procurement procedures and the Bank procurement guidelines in the use of National Competitive Bidding.

47. To address the above risk areas, the following actions are recommended: (i) appointment of a proficient and experienced procurement specialist to augment MoFA's Procurement Unit's present procurement capacity throughout project implementation; (ii) appointment of a focal person at the Secretariat of the Fisheries Commission to coordinate activities and follow up on all procurement issues with the procurement unit; (iii) preparation of an Operational Manual by the Secretariat with a section on procurement detailing out instructions for handling procurement, and which would be disseminated to all staff who will be involved in the project implementation at project launch; (iv) organization of procurement training workshops to explain/train/raise awareness of all staff involved in project implementation by first quarter of project implementation; (v) close monitoring of procurement plans on a monthly basis and closely monitor and exercise quality control on all aspects of the procurement process, including evaluation, selection and award; and (vi) preparation of standard bidding documents for NCB procurement under Bank Procurement Guidelines, that incorporate a list of identified exceptions to the National Procurement Procedures under the national procurement law (PPL) that take account of the Bank's fraud, anti-corruption and other procurement provisions.

48. Procurement for the project will be carried out in accordance with the World Bank's "*Guidelines: Procurement under IBRD Loans and IDA Credits*" dated January 2011 and "*Guidelines: Selection and Employment of Consultants by World Bank Borrowers*" dated January 2011 and the provisions stipulated in the Financing Agreement, as well as the "*Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants*", dated October 15, 2006, and revised in January 2011. For each contract to be financed by the project, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed in the Procurement Plan. This Plan will be updated at least annually or as required to reflect the project implementation needs and improvements in institutional capacity.

E. Social

49. The project focuses on improving governance in the sector, including, importantly, demand-side governance, and on ensuring more equitable distribution of the benefits of fisheries resources. With regard to demand-side governance, the project works to strengthen artisanal fishers' rights to access the fish resources and to sustainably manage the use of these resources. As such, the key stakeholders in the project are the coastal and Lake Volta fishing communities. These key stakeholders will be integral partners in collaboratively managing the fisheries with the Government, through the reforms introduced in Component 1 to create secure fishing rights, establish openness and transparency in the allocation of such rights as well as in the management of the sector in general, and in piloting the establishment of formal partnerships between the Government and fishing communities to manage targeted fishing areas. Thus, a good understanding of fishing community perceptions, dynamics, cohesion and capacity to manage is vital to ensuring project effectiveness. A number of measures have been taken during project preparation, and will be pursued further during implementation, to ensure that social and socio-economic factors are appropriately taken into account.

50. Importantly, a detailed statistically representative socio-economic (Citizen Report Card) survey of coastal communities (fishing and non-fishing communities) was undertaken as part of project preparation. This survey generated entirely new data and information on fisher households' and communities' relative wealth, educational, and employment status, and on their investments in the fisheries sector. It also gathered information to assess the degree to which coastal households rely on marine resources to sustain their livelihoods. Additionally, the survey assessed fishers' knowledge of national fisheries laws and regulations on fishing gear, the extent to which fishers use legal and/or illegal gear, and the factors and incentives which might encourage fishers to move away from the use of illegal gear and harmful fishing practices. Significantly, though, the Citizen Report Card has provided the coastal fishing women and men of the communities with an opportunity to "voice" their opinions collectively, and within each Region, on proposed fisheries reform initiatives such as licensing of canoes, community fisheries management, and fishing restrictions (in reproduction areas, etc.). The Citizen Report Card shows there is support for introduction of these practices; with well over 70 percent of fishers supporting them. Only in Western Region are fishers somewhat less supportive of these measures, and specifically of canoe licensing.

51. A series of semi-structured focus group meetings with coastal communities were also undertaken to inform project design. The initial focus groups have confirmed that coastal communities in the region strongly want to play a more informed and active role in managing the fisheries, and particularly the fisheries in their immediate locations. The project's support for a shift to a fisher rights approach is consistent with this interest. However, the focus groups also showed that capacities of fisher communities to take on the responsibilities and tasks implied in stakeholder management vary considerably, in part reflecting the limited cohesiveness of these communities, their limited knowledge of, and adherence to, fishing regulations, and their poor appreciation of the long-term consequences of destructive fishing practices. The limited cohesiveness of many fisher communities may mitigate against community driven reforms. The project's support for the introduction of stakeholder managed fisheries in up to 12 fisher communities, and extensive technical assistance and support to those communities, will work to

address these issues and will provide lessons of experience and lay the foundations for future scale-up. Furthermore, fish processors, who are mostly women, use traditional methods of smoking, drying and salting, often with heavy losses post-harvest. Based on the assessment and needs, efforts will be undertaken to provide services to promote improved smoking and salting techniques by women fish processors. This will be done using awareness raising, demonstration, training, education as well as continuous quality improvements of identified technologies through research and development. In particular, the fish food safety and tradability of processed fish from Ghana would be improved by identifying and promoting technologies that is consistent with international standards.

52. Lastly, the project triggered the Involuntary Resettlement Policy OP 4.12 on the basis of possible restriction of access to a natural resource use, impacts on livelihoods and land take. For this, the project has prepared a Resettlement Policy Framework (RPF) and a Process Framework (PF) to guide the preparation during Project implementation of the site-specific resettlement action plan (RAP) and plan of action (PA). These instruments have been consulted upon with a wide range of stakeholders and have been cleared and disclosed both in Ghana and at the World Bank Infoshop. The government of Ghana shall ensure that, during Project implementation, no restriction to access to legally designated parks and/or protected areas under the Project is enforced until and unless the Association shall have approved the PA. In addition, the government of Ghana, through the Fisheries Commission, shall take all action necessary on its behalf: (i) to carry out each RAP and each PA with due diligence and efficiency and at all times provide the funds necessary therefor; (ii) to adequately monitor and evaluate the carrying out of the activities provided in the RAP or in the PA in the carrying out of the Project; and (iii) to keep the Association suitably informed of the progress in the implementation of each RAP and PA.

F. Environmental

53. Because this project aims to implement governance reforms to more sustainably manage Ghana's fish resources, and to help restore the fish stocks where needed, most of the activities are expected to have positive impacts on the environment. The project is designed to help implement policies and institutional frameworks for fisheries resource management, and to enhance the livelihoods of poor fishing communities as a result. However, because the project will support small-scale infrastructure and works to construct integrated fish landing site clusters, with final site identification to be confirmed during implementation, an Environmental and Social Management Framework has been prepared, with mitigation measures that have been incorporated into the project's design and budget. The government of Ghana shall ensure that the Project is implemented in accordance with the provisions of said Environmental and Social Management Framework and each of the Environmental and Social Impact Assessments (ESIAs) or the Environmental and Social Management Plans (ESMPs), as the case may be, to be prepared during Project implementation. Additionally, because the Lake is part of the internationally-shared Volta Basin the project has triggered OP 7.50 (Projects on International Waterways). All of the project's activities are downstream of the riparian countries to the Basin, and none are expected to have any appreciable or negative impacts on the Basin or these countries. The countries were notified according to the policy, and no comments or objections have been received.

Annex 1: Results Framework and Monitoring

GHANA: West Africa Regional Fisheries Program in Ghana Results Framework

Project Development Objective (PDO): To support the sustainable management of Ghana's fish and aquatic resources by: (i) strengthening the country's capacity to sustainably govern and manage the fisheries; (ii) reducing illegal fishing; (iii) increasing the value and profitability generated by the fish resources and the proportion of that value captured by the country; and (iv) developing aquaculture.												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				Y1	MTR	Y3	Y4	Y5				
Total landings per unit of fishing capacity ¹	<input type="checkbox"/>	Tons							Annual	Fish landings data	Secretariat of Fisheries Commission	Overexploited fisheries show signs of recovery, as measured by total fish landings (tons) per type of fishing vessel per year
Marine canoe fisheries – non-motoized:		15	15	15	15	15						
Marine canoe fisheries-motorized: Lake Volta canoe fisheries:		25 6.9	25 6.9 ²	25 6.9	25 6.9	25 6.9						
Total patrol days at sea per year in coastal fisheries	<input type="checkbox"/>	Days	13	13	16	16	19	19	Annual	M&E Reports based on patrol vessel log books	Secretariat of Fisheries Commission	Number of total patrol days/year, within 20 miles of the coast. Patrol day = 24 hours of patrols (i.e. 4 patrols of 6 hours each is equivalent to 1 patrol day)
Annual net economic benefits from targeted fisheries ³	<input type="checkbox"/>	US Million Dollars							Annual	Fish catch and first sale revenue data	Secretariat of Fisheries	Economic model, based on fish landings,

¹ There are a number of ways to measure fishing capacity for different types of fishing vessels. One measure that is readily available in Ghana to provide baseline data is the number of different types of fishing vessels. Other dimensions of fishing capacity such as vessel horsepower and types of fishing will also be considered and incorporated into project monitoring during the course of implementation.

² The timeframe for the estimated recovery of the fish stocks targeted by these fisheries, is on the order of more than five years. Thus, while the investments of the project are expected to result in only a stabilization of current catch rates, by year 10 after the start of the project, if it is successfully implemented, the catch rate for the marine motorized canoes is estimated to increase to 28.6 tons (183,000 tons landed by 6,405 motorized canoes), 17 tons for marine non-motorized canoes (82,000 tons landed by 4,808 non-motorized canoes) and 7.1 tons for Lake Volta canoes.

Marine canoe fisheries – non-motoized: Marine canoe fisheries-motorized: Lake Volta canoe fisheries:			55.2 99.5 82.3	55.2 99.5 82.3 ⁴	55.2 99.5 82.3	55.2 99.5 82.3	55.2 99.5 82.3	55.2 99.5 82.3			Commission	price, effort
Total annual aquaculture production		Tons	9,000 ⁵	9,000	15,000	20,000	25,000	35,000	Annual	Market data	Secretariat of Fisheries Commission	Volume of fish (tons) produced in Ghana via aquaculture
Direct project beneficiaries (number), of which are female (%)	<input checked="" type="checkbox"/>	Number	233,000 (female 12%)	233,000 (female 12%)	233,000 (female 12%)	233,000 (female 12%)	233,000 (female 12%)	233,000 (female 12%)	Annual	Estimates of marine and inland fishers, and processors	Secretariat of Fisheries Commission	Target values are constant, rather than additional each year – i.e. a constant number of beneficiaries

INTERMEDIATE RESULTS

Intermediate Result (Component One): Clear principles and policies are established to increase the wealth from the fisheries through strengthened rights and equitable allocation of these rights, which balances economic efficiency and social benefits.

<i>Intermediate Result indicator One:</i> Marine fishing canoes (motorized and non-motorized) that are registered and licensed	<input type="checkbox"/>	Number	0	0	5,000	11,213	11,213	11,213	Annual	Frame surveys, vessel registry	Secretariat of Fisheries Commission	
<i>Intermediate Result indicator Two:</i> Active marine fishing canoes	<input type="checkbox"/>	Number	11, 213 canoes	11, 213 canoes	11, 213 canoes	11, 213 canoes	11, 213 canoes	11, 213 canoes	Bi-annual	Frame surveys, vessel registry	Secretariat of Fisheries Commission	Baseline: 4,808 non-motorized canoes, 6,405 motorized canoes
<i>Intermediate Result indicator Three:</i>	<input type="checkbox"/>	Number	67	67	55	50	45	40	Annual	Fishing vessel registry	Secretariat of Fisheries	Measure of reduction in the

³ Annual net economic benefits are defined as the net returns (i.e. after costs are subtracted) to fishing vessel owners, labor and the Government (see paragraph 36), from targeted fisheries, which are coastal demersal fish species, coastal shrimp and cephalopods, as well as inland fisheries (see paragraph 15).

⁴ Similar to the first indicator, the timeframe for increased annual economic benefits tracks the recovery of the fish stocks, so that current benefits are expected to stabilize as a result of the project investments, and then increase to \$63.7 million per year in the non-motorized marine canoe fisheries, \$114.8 million per year in the motorized marine canoe fisheries, and \$84 million per year in the Lake Volta canoe fisheries.

⁵ Mostly tilapia.

Active licensed industrial trawl vessels											Commission	industrial trawl fleet.
<i>Intermediate Result indicator Four:</i> Agreements signed between Government and communities for stakeholder management of fisheries	<input type="checkbox"/>	Number	0	0	4	8	10	12	Annual	Signed agreements	Secretariat of Fisheries Commission	Agreement = Memorandum of Understanding
Intermediate Result (Component Two): Illegal fishing is reduced and compliance with fisheries governance framework is increased.												
<i>Intermediate Result indicator One:</i> Fishing Enforcement Unit established as described in the 2002 Fisheries Act	<input type="checkbox"/>	Yes/No	No	No	Yes	Yes	Yes	Yes	Annual	M&E Reports	Secretariat of Fisheries Commission	
<i>Intermediate Result indicator Two:</i> A satellite-based fishing vessel monitoring system is in place for the 200 mile exclusive economic zone, and monitoring 24 hours a day	<input type="checkbox"/>	Yes/No	No	No	Yes	Yes	Yes	Yes	Annual	Surveillance records at FEU	Secretariat of Fisheries Commission	System should be compatible with other countries in sub-region
<i>Intermediate Result indicator Three:</i> Total aerial patrol hours per year in coastal fisheries	<input type="checkbox"/>	Number	0	0	300	750	750	750	Annual	Surveillance records at FEU	Secretariat of Fisheries Commission	
Intermediate Result (Component Three): Increase in the value added locally to fish landed in Ghana												
<i>Intermediate Result indicator One:</i> Pilot integrated fish landing site clusters with functioning basic services (e.g. electricity, water, etc.)	<input type="checkbox"/>	Number	0	0	0	3	6	9	Annual	M&E Reports	Secretariat of Fisheries Commission	Number of integrated fish landing site clusters established by project and in operation for small-scale fisheries
Intermediate Result (Component Four): Framework in place for increased investment in aquaculture												

<i>Intermediate Result indicator One:</i> Zoning regime for Lake Volta established	<input type="checkbox"/>	Yes/No	No	No	No	No	Yes	Yes	Annual	M&E Reports	Secretariat of Fisheries Commission	
Intermediate Result (Component Five): Project is implemented according to monitoring and evaluation of results, in complement with other countries participating in the WARFP												
<i>Intermediate Result indicator One:</i> An electronic ‘dashboard’ of key environmental, social and economic fisheries statistics established at the Secretariat of the Fisheries Commission and linked to the CSRP, and publicly accessible	<input type="checkbox"/>	Yes/No	No	No	No	Yes	Yes	Yes	Bi-annual	Electronic ‘dashboard’	Secretariat of Fisheries Commission	Dashboard will be linked to regional database housed at the CSRP

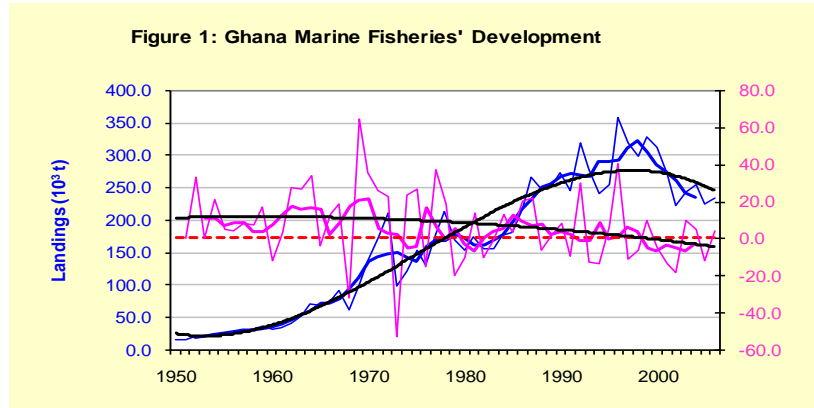
Annex 2: Detailed Project Description

1. The project's development objective is to support the sustainable management of Ghana's fish and aquatic resources by:

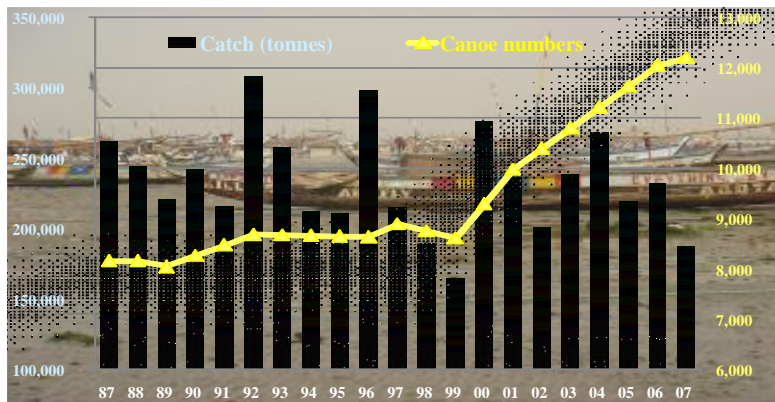
- (i) strengthening the country's capacity to sustainably govern and manage the fisheries;
- (ii) reducing illegal fishing;
- (iii) increasing the value and profitability generated by the fish resources and the proportion of that value captured by the country; and
- (iv) developing aquaculture.

2. The rationale for the project's development objective is that Ghana's fish stocks are a valuable natural asset. More specifically, Ghana's marine fisheries include inshore coastal demersal (i.e. bottom-dwelling, more sedentary) species such as groupers, snappers, shrimp and octopus, small pelagic (i.e. migratory, living in the water column) species such as mackerels and sardines, and large pelagic species such as tuna. Ghana's inland fisheries include essentially the fish catch from Lake Volta, and current aquaculture production focuses largely on Tilapia. While many of the activities will be sector-wide in scope in order to achieve the project's objective, the capture fisheries targeted by the project include, among others: coastal demersal fish species (e.g. croakers, groupers, snappers, etc.), coastal shrimp and cephalopods (e.g. octopus and cuttlefish), as well as inland fisheries. Total fish production from these fisheries was roughly 444,000 tons in 2008, of which 291,000 tons originated from the marine capture fisheries; 150,000 tons from the inland capture fisheries and 3,000 tons from aquaculture production. Overall, this fish production is worth in excess of US\$ 1 billion in income annually. In terms of the overall economy, the fisheries sector accounts for at least 4.5 percent of GDP. Furthermore, the sector provides livelihoods for as many as 2.2 million people in Ghana, including some 135,000 fishers in the marine fisheries (92 percent of whom are artisanal fishers), 71,000 artisanal fishers operating in Lake Volta and the equivalent of 27,000 full-time fish processors. Many of these livelihoods are based in rural areas that have thus far remained at the margin of the country's economic growth. Lastly, demand for food fish is high in Ghana, and estimated in 2009 by the Secretariat to the Fisheries Commission to be on the order of 880,000 tons per year, leaving a gap of more than 460,000 tons with what is produced domestically. The nascent aquaculture sub-sector is not yet in a position to significantly reduce this gap in domestic production of food fish.

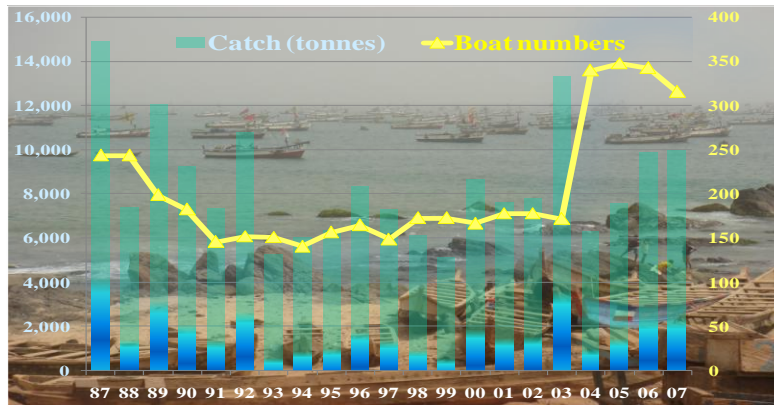
3. Many of Ghana's fish resources are heavily overexploited, and with the introduction of recovery measures could contribute far more than they currently do to the country's economic growth, food security and poverty reduction. Ghana's fisheries sector has the potential to help Ghana meet its strategic objectives of doubling the economy within a decade and raising average income to middle-income level by 2015. However, this potential will not be realized if current trends in overexploitation and subsequent declining profitability continue. Currently, the total fish catch from the marine fisheries has peaked and is declining, despite an expansion in the number of fishers, as shown in the below chart. These fishers are experiencing a decline in their fish catch rates (fish catch per unit of fishing effort expended), a measure that is one of the more reliable proxies for the health of fish stocks and a signal of overexploitation.



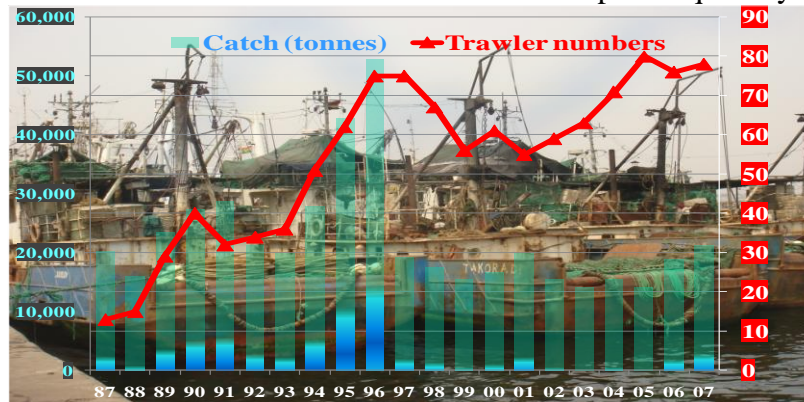
4. More specifically, the coastal canoe sector today comprises over 12,000 canoes catching approximately the same volume of fish it took in the 1990s with only 8,000 active canoes (see below chart). Average catch per canoe over the last 10 years has fallen by one third and most canoes are therefore operating well below their potential harvesting capacity. Furthermore, these figures do not include the significant number of Ghanaian canoes that have migrated to other countries in the sub-region such as Liberia, and who could conceivably return if catch rates were to improve.



5. Similarly, numbers of semi-industrial vessels operating in the marine fisheries was relatively constant at around 150 for the 1990s. However, vessel numbers and catch spiked sharply upwards in 2003 and while catch fell quickly, vessel numbers have remained at around 350. Average catch per vessel has fallen dramatically to levels that are approximately half that of a decade ago, as per the below chart.



6. Perhaps most significantly, the number of industrial trawl vessels rose rapidly throughout the 1980s and 1990s, to a total of 84 licensed trawlers, as shown in the below chart. Each of these vessels currently catches an average 209 tons per year – an extremely low rate for vessels of this size and capacity, having fallen by over 50 percent since 1996. In a healthy fishery, a fleet of ten or so sound trawlers would be sufficient to harvest the reported quantity of 2008 landings.



7. In the inland fisheries, due to the absence of basic data about catch, the only available information on the health of the stocks is anecdotal. However, such reports consistently support the conclusion that these fisheries resources are fully to overexploited.

8. **The result of the overexploitation of Ghana’s fish resources is that net profitability of the fisheries is poor and in decline, threatening the future of a sector that is vital to the country’s economy, rural livelihoods and food supplies.** Costs exceed revenues for trawlers and semi-industrial vessels, while for much of the rest of the sector, profits (roughly 3 percent of revenues) remain very low. Weak rules governing access to fisheries have led to the situation where too many vessels compete to catch too few fish. This in turn has led to profits being dissipated, fish stocks becoming depleted, and few incentives remaining to invest in the sector. Under the existing conditions of open access, the sector will continue to decline. The impacts will be felt the most by the canoe sub-sector where average incomes have been dropping by about 4 percent year on year.

9. **Best practice experience from around the world shows that this situation is reversible.** Well-managed fisheries generally produce much higher profits - between 30 and 60 percent of revenues. Moreover, because of the renewable nature of this valuable resource, such

profits may be generated in perpetuity. Ghana's marine fisheries are highly productive and resilient, and all evidence to date suggests that these resources could recover if current fishing pressure is reduced. In particular, the coastal demersal and inland fisheries targeted by this project are resources largely within the country's waters and would therefore be responsive to measures taken by the Government of Ghana. Bio-economic modeling conducted for the preparation of this project, suggests that fish catch could increase 5 percent over a ten-year period as the resources recover, as a result of reduced fishing effort particularly from industrial trawling and from illegal fishing operations, and improved efficiency of fishing operations and landing infrastructure (see Annex 7). Together with this recovery, aquaculture development could help Ghana come closer to achieving its food security objectives for the sector.

10. Particularly significant economic and livelihood outcomes would accrue through revitalizing the canoe sector, which most directly supports coastal fishing communities. Profits within this sector could increase by as much as \$30 to \$50m per year within 10 years of beginning to implement management arrangements that focus on controlling access. Such profitability could be sustainable into the future, and the benefits generated could be targeted by the Government to where they are needed most. Generating sustainable wealth from Ghana's fisheries could be achieved through, among others:

- (i) the development and implementation of effective management capability around defined fishery management units,
- (ii) gradually bringing fishing capacity into line with sustainable catch opportunities beginning with a freeze in the number of fishing vessels, and a controlled reduction of the trawl and semi-industrial fishing fleet as necessary,
- (iii) a range of investments to add more value locally to the fish caught in Ghana's waters, and
- (iv) increasing aquaculture production to help meet the growing demand for food fish.

11. The Government's draft Fisheries and Aquaculture Development Plan provides a road map to achieving this over the next five years. The plan has a phased approach, raising awareness of all stakeholders on the key steps and their potential benefits, and registering and licensing all fishing vessels in Ghana over the 5 year period. The following key steps are envisaged:

- freezing the size of the canoe fleet at its current levels, through issuing licenses to all active canoe fishers and then stopping (capping) further issuance of licenses;
- reducing the size of the semi-industrial fishing fleet by approximately 50 percent;
- removing the unprofitable trawler fleet;
- investing in selected infrastructure and accompanying activities to increase the value-added locally to the fish caught by the canoes; and
- building the capacity and capability of the government and stakeholders to effectively manage and enforce the fisheries and enhance the value of the landed catch.

12. Freezing the size of the canoe fleet, and reducing the industrial fleet, will produce significant economic benefits (returns to labor and capital) to the coastal fishing communities. Under the status quo, fish catch and revenues per canoe are expected to continue to decline over the next decade. However, by capping canoe vessel numbers and reducing the industrial fleet, fish catch and revenues could actually increase by 15 percent over the next

decade – a difference of 30 percent from the status quo (i.e., an increase in total revenue of US\$12,000 per canoe each year). Licensing the canoe fleet is central to this approach, and will provide fishing communities with a valuable and potentially tradable asset, serving as an incentive to protect the fisheries.

13. To support the sector to realize this potential and help implement the draft Fisheries and Aquaculture Development Plan, the project includes the following components, sub-components and activities:

Component 1: Good Governance and Sustainable Management of the Fisheries. (US\$18.7 M)

14. This component aims to build the capacity of the Government and stakeholders to develop and implement policies through a shared approach that would ensure that the fish resources are used in a manner that is environmentally sustainable, socially equitable and economically profitable. It will comprise the following four sub-components:

- i. developing the legal and operational policy to enable implementation of the Ghana Fisheries and Aquaculture Sector Development Plan,
- ii. strengthening fisheries management, including fishing rights and stakeholder-based management and ensuring the necessary research activities for sustainable exploitation,
- iii. aligning fishing capacity and effort to sustainable catch levels, and
- iv. social marketing, communication and transparency.

Sub-Component 1.1 Developing the Legal and Operational Policy to enable Implementation of the Ghana Fisheries and Aquaculture Sector Development Plan (US\$1.4 M)

15. This sub-component will include:

- i. A review of the legal framework to ensure that it provides an enabling environment for the Fisheries and Aquaculture Sector Development Plan. This review will comprise two parts:
 - a technical review of relevant fisheries law to ensure consistency with Plan implementation, and
 - an update of regulations to enable implementation of the Plan (including regulations concerning the identification and specification of fisheries management units and community-based governance arrangements (i.e., stocks, species, areas).
- ii. A review of the needs, funding and organizational arrangements in order to ensure the effective delivery of Ghana's Fisheries and Aquaculture Sector Development Plan. This review will comprise three parts:
 - a needs assessment of the Fisheries Commission with respect to its responsibilities under the Fisheries Act, the term Fisheries Commission. The needs assessment will include a capacity and capabilities analysis and an evaluation of the Commission's organizational chart, and will also consider the design of the Fisheries Enforcement Unit. Recommendations will be formulated to build capacity and capabilities and to revise the organizational

chart as appropriate. Where extra staffing is needed, the assessment will help to prepare a case for consideration under the agriculture development policy operation,

- a fishery sector public expenditure operational review (based on World Bank review processes) assessing current expenditure and likely future expenditure post-project, and
- a functional review of policy, legislation and relevant plans to design organizational processes and systems for decision making, information management and planning and service delivery to meet legislative obligations and policy objectives. Training will be provided to inform and build the capacity of government and stakeholder groups to implement management systems and procedures.

- iii. The development of the operational framework for the delivery of Ghana's Fisheries and Aquaculture Sector Development Plan. This development will involve four parts:
 - the development of standards and specifications for the fisheries registry, including what information is to be collected, how it is to be collected and updated, how it is to be entered into the database and protocols for data-sharing and usage,
 - the development of standards and specifications for the catch and effort database, including what information is to be collected, how it is to be collected and updated, how it is to be entered into the database and protocols for data-sharing and usage,
 - a vessel and fishing activity licensing plan, defining for each fleet segment: (a) the recipients of licenses, (b) the allocation process, (c) the characteristics of those licenses, including schedule of fees, duration and transferability provisions, (d) a freeze on the total number of licenses to each segment after the initial allocation (i.e. after a specified date), (e) procedures for revocation of fishing licenses after non-payment of license fees within three months of the due date, and (f) increased penalties for fishing in Ghanaian waters without a license, e.g. automatic forfeiture of vessel, gear and fish, and
 - a compliance strategy and plan for the Fisheries Act and relevant regulations.
- iv. A policy for the development and operation of community-based management networks built around defined fisheries management units (including proposed governance arrangements and associated capacity and capability requirements)
- v. A policy on adaptation strategies for climate change and marine protected area development,
- vi. A review of the Ghana Tuna Industry to identify policy and infrastructure needs that threaten Ghana's hub status for the tuna trade,
- vii. A review of the emerging economic environment for the fisheries sector as the Ghana Aquaculture and Fisheries Sector Development Plan are gradually implemented. This review will include:

- an evaluation of the fiscal impact of the sector under different scenarios following increased wealth generation from the exploitation of Ghana's fish and aquatic resources,
- an assessment of the economic and social implications of Government interventions and fish import tariffs in the fisheries sector, and
- an analysis of different potential strategies to align fishing capacity with sustainable fishing opportunities (including possible use of capacity reduction programs with socio-economic impact assessment and mitigation).

Sub-Component 1.2 Strengthening fisheries management, including fishing rights and stakeholder-based management (US \$8.8 M)

16. *Activity 1.2.1 Re-engineer and strengthen the fisheries registry functions systems (marine, inland and aquaculture).* This activity will provide technical services, computer software and hardware capacity, as well as the training of Secretariat staff and other stakeholders, necessary for the development and operation of a robust registry system that records and tracks: Fishing Vessel Registrations, Fishing Licenses and Fishing Entitlements. Software development, training and computer hardware maintenance will be outsourced under terms and conditions defined in the standards and specifications developed under Activity 1.1.1.

17. The activity will be implemented through the sequential development of three inter-related components:

- the design, testing and installation on a gradual basis over the first two years of the project of the software systems necessary for effective Registry operation,
- the provision of support for the operation and maintenance of the Registry software and related hardware, and
- the provision of training services to Fisheries Commission staff and other stakeholders in the use of the Registry systems.

These latter two components will continue throughout the life of the project.

18. *Activity 1.2.2 Development of the catch and effort database.* This activity will provide technical services, computer software and hardware capacity, as well as the training of Secretariat staff and other stakeholders, necessary for the development and operation of a robust catch and effort database. Software development, training and computer hardware maintenance will be outsourced under terms and conditions defined in the standards and specifications developed under Activity 1.1.1.

19. The activity will be implemented through the sequential development of three inter-related components:

- the design, testing and installation on a gradual basis during the second year of the project of the software and hardware systems necessary for effective Database operation
- the provision of support for the operation and maintenance of the Database software and related hardware
- the provision of training services to Fisheries Commission staff and other stakeholders in the use of the Database systems.

These latter two components will continue throughout the life of the project.

20. *Activity 1.2.3 Implement phased registration and licensing of all fishing vessels.* The Minister will issue a policy directive which sets a cap on license numbers by stopping the issue of new and replacement licenses under Section 70, subsection 4, of the Fisheries Act. Based on the policy directive, this activity will support the registration and licensing of the fishing fleet (in particular the canoe fleet) so that 100 percent of marine and inland fishing vessels in the country are registered and licensed. By the end of year one of implementation, all industrial and semi-industrial vessels will be registered and the registry will be closed to new registrations until the licensing arrangements have been clarified. By the end of year two of implementation, the entire marine canoe fleet will be registered and embossed with registration numbers, with the full cost of embossing borne by the operators. The marine canoe fleet registry will be closed to new registrations until licensing arrangements have been clarified. By the end of year three of implementation, the entire inland canoe fleet will be registered and embossed with registration numbers, with the full cost of embossing these borne by the operators. The inland canoe fleet registry will be closed to new registrations until licensing arrangements have been clarified.

21. *Activity 1.2.4 Strengthen fisheries research.* This activity would provide technical assistance, equipment and training for the Fisheries Scientific Survey Division of the Fisheries Commission to estimate demersal fish abundance and fishing capacity requirements in Ghana using trawl surveys to be completed by September 2012 and repeated during years 3 and 5 of the program. More specifically, this activity will support: (i) the provision of a research vessel for the research unit to enable it collect independent information on the spatio-temporal distribution of fish stocks with priority to the high value exportable demersal stocks and the marine environment; ii) the purchase of operating and testing equipment (including computer hardware and software, analytical probes, microscopes, chemical spectrometer); iii) economic data collection and studies including value chain analysis; and iv) technical training.

22. This activity would improve the capacity of the Commission to better explain the impact of the different factors influencing trends in fish catch and effort data, as well as the sustainability, productivity, and profitability of the fisheries. It would therefore feed into activity 1.2.2 (catch and effort database) and subcomponent 1.4 (social marketing communication and transparency) and also contribute to maximization of voluntary compliance as envisaged in component 2.

23. The research vessel may be provided either through chartering or purchase and fitting. A decision as to the most appropriate form of sourcing will be taken following the public expenditure review programmed under Activity 1.1.1. Due to the time necessary for procurement, even if a decision is taken to purchase a vessel, it may still be necessary to charter a vessel initially in order to ensure that the baseline research activities can be undertaken in a timely fashion. In addition to generating data for most of the aforementioned purposes, one advantage of purchasing the research vessel is that it would enable the sustainability of research cruises beyond the life of the project. To ensure that the vessel is not under-utilized and that it generates revenue to contribute to its maintenance and repair costs, it would be made available for hire to countries in the West-Central Gulf of Guinea (which as yet have no research vessel), as well as national institutions engaged in training students for marine related professions. The

industry, led by NAFAG, has also indicated that it would contribute to the operational, maintenance and repair costs of the research vessel, at least in kind by making available their workshops.

24. *Activity 1.2.5 Dashboard of fisheries management indicators.* A dashboard will be developed to synthesize information from the fishing vessel registry, the fishing catch and effort database and monitoring system, the satellite-based fishing vessel monitoring system (VMS), and wider research activities. This activity will support the periodic dissemination of key information from the dashboard to stakeholders including targeted fishing communities, translated into a user-friendly format. The dashboard will also be designed to include data and information gathered and reported by the pilot stakeholder-based fisheries management units which could inform national policy decisions (See Activity 1.2.6). This activity will be implemented by the Regional Coordination Unit of the CSRP.

25. *Activity 1.2.6 Developing pilot Stakeholder-Based Fisheries Management initiatives around defined fisheries units.* On the basis of the Government's policy developed in activity 1.1.1, up to 12 pilot initiatives, which seek to build more effective stakeholder-based fisheries governance arrangements, capacities and capabilities will be supported. Soon after project effectiveness, three or possibly four pilots will be launched. These initial pilots will be important in informing the design and introduction of the remaining eight to nine pilots which will be launched sequentially over the lifespan of the project. In each of the pilots, the following activities will be supported:

- Community awareness raising programs, which will include special targeted programs for representatives of fishers, including the Chief Fishermen.
- Study tours both for social policy staff in the Commission (to West African countries) and for stakeholder representatives between one pilot site and another.
- The accelerated implementation of the canoe licensing process.
- Introduction of "experimental exclusion zones" in pilot site localities for the duration of the project, which will be managed through application of traditional legal practices.
- An assortment of training support including, specifically: Ongoing training for Pilot site leaders and representatives on governance and fisheries management; training in business planning, management and basic financial management for interested individuals; training and support for fishers, women fish buyers and women fish processors on improved fish handling practices and efficient processing and drying methods; training and support for effective marketing practices for women mongers and processors, and for the development of new markets (e.g. sale of fresh fish rather than processed); training in improved vessel safety measures and safety at sea; and, training for fisher chiefs on legal and practical issues relating to conservation parks.
- Support to fishers in undertaking method change relating to shifts from the current mixed fishing practices to species-specific fishing.
- Intensive education of fishers to foster voluntary compliance with fisheries laws, regulations and local by-laws and, importantly, with community-agreed resource management measures (known locally as 'taboos', e.g. on the use of illegal methods, destructive fishing practices, etc.). This will include some support for gear replacement of fishers to facilitate compliance (e.g. net exchanges based on destruction of existing illegal nets). A focus in these efforts will be on the protection of juvenile fish.

- Introduction and continued support (including basic equipment provision) for community-based monitoring, including on local fish stocks.
- Introduction of new technologies (specifically phone-based technologies) for monitoring and reporting systems, including support for technology adaptation to Ghana circumstances, required equipment purchases, and training necessary for uptake of the technologies).
- Support for a limited number of small-scale community investments (e.g. sanitation facilities, water pumps, fish smokers, fish drying racks, etc.), which will not involve resettlement or land take. The identification of the investments will be undertaken by the community following development of an approved negative list of investments.

26. This activity will be implemented by a competitively recruited agency, whose first task will be to develop a detailed implementation plan for this activity for review and clearance by the Commission, following discussions with representatives of the Marine and Inland Canoe Fishers Associations. Additionally, the agency will work with the Fisheries Commission to identify the initial 3-4 Pilot sites and, subsequently, the remaining 7-8 Pilot, all of which should meet the following criteria:

- As a group, the Pilot sites must be regionally diverse and include a mix of marine and inland fisheries;
- Each site must comprise a defined fisheries management unit (i.e. within a distinct geographic boundary, for a particular species or group of species, or for a stock);
- Agreement must be obtained amongst community license holders for a defined fisheries management unit or fisheries harvester unit (i.e. a time period allocated for fishing and/or a permissible fishing method, which may form a sub-unit of a larger fisheries management unit);
- Each site must have the potential to accrue positive economic benefits to the pilots through improved fisheries management;
- Each site must not encompass more than 3 to 4 small to moderate sized communities, which must be neighboring communities;
- Each site must have strong local leadership, be socially cohesive and, desirably, already have an assigned Recorder identified by the Chief Fisherman;
- Each site must provide confirmation, in the form of a Memorandum of Understanding signed by the Chief Fisherman that fishers at large in the proposed Pilot are fully committed to the Fisheries Management Pilot approach. At some point relatively early on in launching the pilot initiative activities, the associated District Assembly will need to submit a Letter confirming their support for the initiative; and
- Ideally, each site would have reasonable access to media sources (radio, print) and reliable cellular access.

27. On the basis of these criteria, two possible sites are being put forward initially for consideration as initial pilot sites: (i) Kpone/Great Ningo hook and line fishery; and (ii) Angor Lagoon tilapia fishery.

Sub-Component 1.3 Aligning Fishing Capacity and Effort to Sustainable Catch Levels (US\$5.7 M)

28. *Activity 1.3.1. Fishing capacity alignment.* This activity will support technical assistance and other expenditures to assist the Government to gradually align fishing capacity with the available fish resources. The activity will provide:

- i. in line with activity 1.2.1, the development of policy and procedures to remove inactive vessels from the fisheries registry to avoid the problem of latent capacity from undermining capacity-reduction measures;
- ii. technical assistance to help the Government review, audit and inspect the current industrial and semi-industrial fleets for compliance with the Fisheries Act, existing health and safety regulations, as well as license conditions, and to revoke the fishing licenses of vessels that remain non-compliant after a reasonable and notified period of time; and
- iii. fishery management plans for the key resources exploited by canoe, industrial and semi-industrial vessels. A key element of these fishery management plans will be to examine and evaluate the issue of fishing capacity and the options for its reduction, where necessary.

29. *Activity 1.3.2 Transitioning crew and others directly affected by the withdrawal of industrial or semi-industrial vessels through the capacity reduction program to alternative livelihoods.* This activity will support livelihoods transition for three categories of fisheries workers who have lost their employment as a result of vessel withdrawal: (i) the industrial trawl sector, (ii) the semi-industrial sector, and subsequently, on a purely voluntary withdrawal basis, (iii) the canoe sector.

30. The focus of transitional support will be first and foremost for those in the industrial trawl sector, including fisher crew and the first line of fish buyers associated with specific vessels being withdrawn. Individuals either working on, or directly buying from, these vessels will qualify for a transition package of compensation and re-training if they have been included in the Commission's registry of workers on industrial vessels which will have been prepared in advance of the withdrawal of the vessels. Additionally, potential recipients of the transition package will need to meet the following criteria:

- In the case of crew, have worked full-time on an industrial vessel for at least 6 months over the past year, as verified by industry representatives to be identified by the Ghana Industrial Trawlers Association (GITA) of NAFAG; and
- In the case of buyers, have worked as first line fish buyers from an industrial vessel(s) over the past year, as verified by industry representatives to be identified by the Ghana Industrial Trawlers Association (GITA) of NAFAG;

and, in all cases above,

- Have worked directly for a vessel licensed under Section 70, subsection 4 of the Fisheries Act during 2011, that has been de-licensed as a consequence of: (i) the audit of the License Registry; (ii) an enforcement action resulting in the cancellation of the vessel license; and (iii) if the vessel license is voluntarily surrendered; and (iv) if the vessel is permanently removed under a rationalization plan introduced by the Fisheries Commission; and,

- On verification by NAFAG that the vessel has been permanently decommissioned or will not re-enter a fishery in Ghanaian waters.

31. Compensation for industrial trawl fisher crew and first line fish buyers will consist of a package comprising:

- Individually-tailored counseling on job options and employment prospects delivered by a contracted private sector entity with appropriate expertise in this area.
- Practical skills training suited to an own-managed small- or micro-business activity chosen by the individual following job counseling. The skills training will be provided by an accredited training institution, and will also include business management skills, planning and basic financial planning.
- A modest retooling package providing basic operating equipment consistent with the specific type of job training the candidate has completed. This retooling package will only be made available to crew who have fully participated in, and successfully completed, the package of practical skills training delivered by an accredited training institution. This institution must verify for the Commission that recipient individuals have fulfilled all training requirements prior to release of the retooling package.
- Ongoing support for 6 months for trainees, on completion of their re-training program, with job hunting and placement and/or support in establishing and operating an own-managed business. Such support will be provided by a contracted entity with appropriate experience and expertise in this area.

32. A possible second category of transitional support will be for workers in the semi-industrial sector, including crew and the first line fish buyers associated with those vessels. However, support for the semi-industrial sector will run secondary to support for transitions from the industrial sector. Crew and first-line women fish buyers might receive transitional support if:

- They are identified in the Crew Registry for Semi-Industrial vessels as having worked full-time on, or bought directly from, a semi-industrial vessel for at least 6 months over the past year and their inclusion on the registry has been verified by the Ghana Inshore Fisheries Association of NAFAG;

and, additionally

- If the vessel is licensed under Section 70, subsection 4 of the Fisheries Act during 2011; and
- The vessel is de-licensed as a consequence of (i) the audit of the License Registry; (ii) an enforcement action resulting in the cancellation of the vessel license; and (iii) if the vessel license is voluntarily surrendered; and (iv) if the vessel is permanently removed under a rationalization plan introduced by the Fisheries Commission; and
- On verification by NAFAG that the vessel has been permanently decommissioned or will not re-enter a fishery in Ghanaian waters.

33. The compensation package for semi-industrial fisher crew and first line fish buyers who lose their employment directly as a result of vessel withdrawal will be determined in consultation with the Ghana Inshore Fisheries Association of NAFAG following appropriate consultations with their members. To support NAFAG in this process, the project will provide for technical assistance in the form of a consultancy (international and/or local) to the Ghana Inshore Fisheries Association to plan for and conduct the consultation process, and to develop both the guidelines

and the delivery of the capacity reduction program in accordance with the outcomes of the consultations.

34. The third category of support will be for artisanal fishers working in the canoe sector, both marine and inland. Transitioning support under this third category will be contingent upon completion of the full canoe licensing regime across the sector, and continuing availability of funds for such support following implementation of industrial and semi-industrial trawl sectors. It will also be contingent upon sound progress having been made with the transitional support program for the crew and women fish buyers working on industrial vessels. Transitional support under this third category of support will be directed to artisanal fishers who voluntarily opt to relinquish their canoe license in order to obtain skills retraining and other appropriate compensation. As the canoe licensing program is anticipated to be completed towards the 2nd or 3rd year of the project, the details of this category of support will be discussed at project midterm when information will be available both on progress under the industrial and semi-industrial capacity reduction efforts and on resource availability.

Sub-Component 1.4 Social Marketing, Communication and Transparency (US\$2.8 M)

35. This sub-component aims to build greater understanding of, and support for, the Fisheries and Aquaculture Sector Development Plan and the associated fisheries laws; build community understanding of and commitment to sound fisheries management and the need for canoe licensing and adherence to that regime; address particular fisheries management issues and regulatory compliance challenges; build stakeholder confidence in the Fisheries Commission; and leave residual capacity that enables the Fisheries Commission to sustain these programs after the Project. Activities under this sub-component comprise communication and consultation; training and education; and networking.

36. *Activity 1.4.1 Communication and consultation.* This activity aims to ensure that there is broad and frequent consultation and communication on project initiatives, and specifically on new fisheries laws and regulations, the canoe licensing program, capacity reductions in the industrial and semi-industrial trawl fleets, the stakeholder-based Pilot initiatives, the deleterious effects of illegal fishing practices, etc. Such communication will be critical to the project's success given the significant policy changes (e.g. canoe licensing, industrial and semi-industrial fleet, local/community based fisheries management, etc.) that will be introduced and the potential effects these will have on a significant number of people's livelihoods. Under this activity, a new consultation format would be implemented that would entail shifts away from current "call and inform" practices and use of a range of conventional and non-conventional media vehicles (including radio, TV, print, etc.) and methodologies (social marketing, magazine stories, cartoons, etc.) to get messages out to the target community to ensure high levels of transparency around project activities. The consultative process will emphasize dialogue with and listening to stakeholders and consideration of their suggestions. The communications, social marketing and information campaign will be significant at project start-up, but will continue throughout the life of the project. The design and delivery of the communications, information and social marketing activities will be outsourced to a private sector entity with skills and experience in this area.

37. *Activity 1.4.2 Training and education.* To ensure there is adequate on-the-ground support for the consultant-led communications, information and social marketing activities, the project will support training for Liaison Persons and other District-based Fisheries Commission staff including Technical Officers, Technical Assistants, and Recorders on communications and information dissemination consistent with the social marketing, communications and transparency initiatives. The project would also support the preparation and delivery of information packages, training materials and training workshops for community and district-based fisheries management structures to enable them play the role of animators and facilitators of change in knowledge, attitudes and practices related to particular fisheries management issues and laws, as well as the need for licensing and compliance. This activity would be outsourced to a private sector entity with skills and experience in this area.

38. *Activity 1.4.3 Fisheries information network.* This activity would focus on the development of dedicated organizational arrangements that would facilitate the delivery of communication and consultation, training and education, as well as greater participation of canoe, semi-industrial and industrial fishers in fisheries management decisions as would enable them take greater responsibility for managing their share of the fishery in a collaborative relationship with the Fisheries Commission. The activity has a dual purpose both as a support to the communications strategy and as a means to increase voluntary compliance. Support will be provided through two avenues. One will be to Fisheries Commission staff who will be trained, equipped and supported with logistics and operational expenses to operate as liaison officers between the Fisheries Commission and the different stakeholders. In doing so, the liaison officers would be required to communicate and facilitate dialogue on educational, public relations, operations and compliance messages from the Fisheries Commission to different fisher structures; carry feedback from these structures to the Fisheries Commission. Further, the liaison officers would be required to work with and participate in the communication, consultation, training and education programs (activities 1.4.1 and 1.4.2) delivered by private contractors and thereby learn through observation and supervised practice and develop the capacity to sustain these programs in the future. The second avenue will be through representative fisher bodies, specifically the Inshore and Inland Canoe Associations under NAFAG. Resources will support training, logistical and operational support for Canoe Association representatives to facilitate their communication and dialogue with fisher communities to support the project's objectives and encourage voluntary compliance with fisher regulations.

Component 2: Reduction of Illegal Fishing (US\$10.9 M)

39. This component aims to reduce the illegal fishing activities threatening the sustainable management of the country's fish and aquatic resources by strengthening monitoring, control and surveillance (MCS) of fisheries licensing and regulations. The proposed approach is three-pronged:

- i) maximizing voluntary compliance,
- ii) creating effective deterrence and
- iii) strengthening governance and management.

Parts i and iii of the approach are dealt with under component 1 above. This component concerns item ii.

40. *Activity 2.1 Customize Judicial Arrangements.* Because of the specialized nature of 2002 Fisheries Act (Act 625), especially the interface with international legal arrangements, such as UNCLOS and UNFSA, the Chief Justice upon request from the Fisheries Commission has identified and approved specific courts that would have jurisdiction over fisheries cases involving local or foreign vessels (Circuit Courts in regional capitals for local fishing vessels, and High Courts for foreign-owned fishing vessels). In this context, the current system of penalties will be reviewed to ensure that monies from fines, negotiated settlements, or forfeiture of property are distinct from the funding of enforcement services to avoid the perverse incentives that may otherwise be created. The project, through the implementing agency, will provide technical assistance and training for appropriate staff of the judicial service, and Attorney General's Department on the prosecution and adjudication of fisheries cases under current national and international law. Under these clarified arrangements, the remaining activities under this sub-component will then provide goods, works and services to develop compliance systems and capability in capture fisheries.

41. *Activity 2.2 The establishment of the fisheries enforcement unit (FEU):* This activity will provide technical assistance, the capital and operating costs of information systems, and training. Following the needs assessment, technical assistance will be provided so that the FEU provided for by the Fisheries Act 2002 is established and made operational by the end of project year one. Its core role is to plan and coordinate the delivery of fisheries enforcement services by the Navy, Air Force, Fisheries Commission, Attorney General's Office and the Police. This activity will enable the purchase and operation of specialized information systems. Technical assistance will advise on the standards and specifications of these systems and provide training to FEU staff in their usage.

42. *Activity 2.3 The establishment of a vessel monitoring system (VMS):* This activity will provide technical assistance, and meet the capital and operating costs of a fisheries VMS. Technical assistance will advise the Fisheries Commission on the specifications and standards of the equipment to be purchased and installed by industry. The Fisheries Commission will prescribe in law how the VMS is to be operated. The Fisheries Commission will contract the Maritime Authority to operate the VMS on its behalf and under its authority. The first priority for the VMS concerns the tuna fleet in order to meet Ghana's international obligations. The option of extending the system to the rest of the industrial fleet and the semi-industrial fleet will be evaluated once the Maritime Authorities system is fully operational in 2013. The fishing industry will meet the full costs of VMS implementation.

43. *Activity 2.4 The establishment of aerial surveillance capability:* This activity will enable the Fisheries Commission to contract for the delivery of aerial surveillance to support the primary at-sea offence detection services delivered by the Navy and the VMS. Beginning in project year 3, 750 hours per annum of aerial surveillance will be contracted either from the Air Force or the private sector.

44. *Activity 2.5 Inland and at-sea fisheries enforcement:* This activity will enable the Fisheries Commission to contract the Navy to deliver land-based, inland fisheries and at-sea fisheries enforcement services using a combination of its inshore and offshore patrol vessels. The

activity will meet the operating costs of the vessels when being used for fisheries surveillance and inspection services, as well as land-based inspections and patrols.

45. *Activity 2.6 The strengthening of policy arrangements and linkages between the FEU and other Government stakeholders:* This activity will provide technical assistance to advise on developing (i) a joint Ministerial fisheries compliance policy statement prescribing the roles and responsibilities of all agencies involved in achieving compliance with fisheries laws (ii) an annual Fisheries Enforcement Service Delivery Plan, specifying the nature and extent of the enforcement services to be delivered by each agency involved in the FEU and establish their budgets, and (iii) an annual report on the performance of the FEU.

46. *Activity 2.7 The expansion and complete integration of the fisheries observer program with the FEU:* This activity will enable the Fisheries Commission to contract for the delivery of fisheries observer services. The project will fund a service contract to deliver the observer program according to standards and specifications set by the FEU and scientists. The main priority is to ensure that Ghana meets its international obligation to have 30 percent observer coverage of the tuna fleet operating in its waters; otherwise Ghana risks sanctions including market closures. The observer program will aim to collect catch and effort information as well as information relating to vessels' compliance with fisheries law.

Component 3: Increasing the Contribution of the Fish Resources to the National Economy (US\$12.1 M)

47. The component aims to identify and implement measures to increase the benefits to Ghana from the fish resources, by increasing the share of the value-added captured in the country. It will comprise the following sub-components:

- (i) product diversification/value chain development (fresh/frozen product/trade facilitation); and
- (ii) fish product trade, information and systems.

48. Ghana's value chain relies heavily on small-scale handling, processing and trading activities. More specifically, almost 80 percent of the estimated 444,000 tons of fish caught each year in Ghana's marine and inland waters is consumed domestically (in addition to 190,000 tons imported). Most of the 350,000 tons of fish that is caught in Ghana's waters and consumed locally is produced by the artisanal sector using canoes. Between 70 to 80 percent of this fish is processed artisanally via smoking in various forms of ovens, prior to sale. Post harvest losses have been estimated to reduce the value of these 350,000 tons of fish by as much as 37.5 percent, due largely to poor handling techniques and a lack of cold storage. While most of the fish are caught by men, almost all of the handling, processing and sales of fish after they are landed in Ghana is conducted by women ('fish mummies'), and the trade controlled by 'Fish Queen Mothers'. Through investments in small-scale landing infrastructure and technology improvements for processing, as well as in producer and processor associations, this component aims to reduce post-harvest losses and strengthen the value chain for the domestic market.

Sub-Component 3.1 Value Chain Development (fresh/frozen product/trade facilitation) (US\$10.6 M)

49. *Activity 3.1.1 Small-scale fish landing site development.* The activity will provide goods, works and services to develop basic infrastructure, including sanitation, power, lighting, net mending, and improved access for 11 marine fish landing sites (Ada, Axim, Dixcove, Fete, Jamestown, Keta, Moree, Mumford, Senya-Beraku, Teshi, and Winneba) and improved access and berthing facilities for 2 inland fish landing sites (Abotoase and Dzemeni). These infrastructure investments could be linked to the development of community-based management initiatives (see Activity 1.2.6) and will enable improved handling of existing products and at selected sites open opportunities for high value fresh fish handling and distribution to local and international markets.

50. *Activity 3.1.2 Boatyard repair facilities.* Ghana has three repair facilities (two at Tema and one at Sekondi) but none of the three is functioning correctly at present. The absence of such facilities raises serious safety-at-sea issues and numerous lives have already been lost due to the inability of inshore operators to maintain their vessels adequately. The facility at Sekondi is in a very serious state of disrepair and a technical survey is required to evaluate the investments needed to rehabilitate it. The two facilities at Tema may be made operational much more quickly. The project will support NAFAG Logistics Ltd (which is part of NAFAG, cf. Activity 3.2.3 below) to enter into a joint venture with the boatyard owners to bring the facility back into operation, including the canoe basin.

Sub-Component 3.2 Fish Product Trade and Information Systems (US\$1.5 M)

51. *Activity 3.2.1 Fish certification center development.* This activity will upgrade the quality standards and testing center and the skills of the Fisheries Commission staff through the provision of technical equipment and training.

52. *Activity 3.2.2 Fish processing technology improvements for women.* This activity will provide services to promote adoption of improved smoking and salting / drying techniques by women fish processors through demonstration, training, education as well as continuous quality improvements of identified technologies through research and development. In particular, the fish food safety and tradability of processed fish from Ghana would be improved by identifying and promoting technologies that enable: i) reduced levels of Poly-Aromatic Hydro-carbons (PAH) in smoked fish products; and ii) more hygienic conditions for the production of salted/dried fish, consistent with international standards. Collaboration between the Fisheries Commission and technology research, development and promotion institutions such as the Food Research Institute (FRI) and the Ghana Regional Appropriate Technology Industrialization Service is envisaged under this activity. Adopters would be linked to favorable sources of credit to enable them to procure and utilize appropriate tools and equipment promoted under this activity. This activity highlights the gender sensitivity of the project as it supports downstream small scale fish processing enterprises predominantly patronized by women, in a hitherto male-dominant fisher industry.

53. *Activity 3.2.3 Strengthening Fisheries Associations.* Under this activity, technical assistance, goods and training would be provided to strengthen the capacity of fishery-based associations in: trade and business development; responsible fishing; appropriate technologies in

small scale fish processing; stakeholder-based management of fishery resources; adoption and maintenance of international standards; compliance with relevant national laws and regulations; dialogue and cooperation with relevant state agencies for the purposes of consensus building and advocacy; and networking among members and with similar organizations globally. This activity is targeted at the National Fisheries Association of Ghana (NAFAG) and its member associations, which include the Ghana Tuna Association; Ghana Inshore Fishers Association; Ghana National Canoe Fishermen's Council; National Inland Canoe Fishermen's Council; Ghana Cooperative Fishermen Association; and the Ghana Industrial Trawlers Association. The objectives of NAFAG are notably consistent with those of the project, and the association's and its members' capacity would be supported to play a greater role in the governance of the sector. Given the importance of women in the Ghanaian fisheries, a national confederation of women's fish processor and trader groups would be facilitated under the project to give voice to this valuable stakeholder segment in the management and development of the nation's fisheries-based businesses and resources. Further, the eventual national fish processors' organization would also benefit from interventions targeted at member organizations of NAFAG, where appropriate.

Component 4 Aquaculture Development (US\$8.0 M)

54. The component aims to set the framework for increased investment in inland aquaculture. It will comprise the following sub-components:

- i. developing the aquaculture legal and policy framework,
- ii. improved genetic quality of Tilapia fingerlings and brood stock,
- iii. catalyzing aquaculture development for medium and large scale enterprises,
- iv. marketing and technical studies, and
- v. small scale aquaculture development.

Sub-Component 4.1 Developing the Aquaculture Legal and Policy Framework (US\$1.1 M)

55. This sub-component will develop policy and regulatory frameworks and administrative systems and capacity (including training) to support effective allocation and specification of aquaculture rights and administration of supporting regulations. Equipment and technical support will be provided to implement the soon-to-be-completed Environmental Impact Assessment model being produced by the Environmental Protection Agency (EPA), in collaboration with the Water Research Institute (WRI). This sub-component will include: (i) support for the development of zoning plans (especially identifying the needs and specific location for input and output market access infrastructure), (ii) carrying out risk assessments for, but not only for, catastrophic events (e.g., the current flooding and apparent dinoflagellate blooms leading to massive mortality of caged fish), fish health, (iii) developing baseline data for diseases, (iv) water quality monitoring capacity and protocols and (v) empirical testing of the EIA model. Technical support will also be provided to ensure effective consultation and awareness-raising of zoning policy and licenses rights.

Sub-Component 4.2 Improving Genetic Quality of Tilapia Fingerlings and Brood-stock (US\$0.3 M)

56. This project will provide technical support and equipment to continue the work of the sub-regional tilapia breeding program (TiVo: Tilapia for the Volta) in developing new strains for farming, developing a hatchery certification and fingerling dissemination plan and in

standardizing the regulatory framework for intra-basin transport and use of improved lines of fish for aquaculture.

Sub-Component 4.3 Catalyzing Aquaculture Development for Medium and Large Scale Enterprises (US\$1.1 M)

57. This sub-component will strengthen the capacity of the aquaculture associations to provide business advisory services for existing and potential investors in medium and large scale aquaculture ventures to support trade and business development, technology transfer and training. This would include the development of a series of technical bulletins, the provision of technical advice, and assistance in business planning. In addition, support services will be provided to medium and large scale firms seeking to expand their operations to prepare and submit their loan applications to commercial banks that are participating in the various credit and risk sharing programs sponsored by the World Bank and other donor organizations, such as the IFC-IDA SME Facility, the Millennium Development Grants, the KfW Value Chain Financing Facility, AGRA's Loan Guarantee, etc. The project will also facilitate interactions between the commercial banks and their potential customers to ensure common understanding of the opportunities and risks associated with aquaculture investments.

Sub-Component 4.4 Marketing and Technical Studies (US\$0.5 M)

58. This activity will support studies and research in a number of areas including monitoring of physico-chemical parameters, socio-economic studies (e.g. marketing, livelihoods) and an in depth study and trials on the potential of mariculture in Ghana.

Sub-Component 4.5 Small Scale Aquaculture Development (US\$5.0 M)

59. This sub-component will support the entry and growth of new small-scale individual investors with profitable business plans into the aquaculture sector. Upon successful completion of a training program, individual investors will be supported with grants to partially cover the costs of acquiring inputs and marketing their produce. They will also be supported with access to extension services, technical assistance, and business advisory services to ensure a high success ratio among the new start-ups. Under this activity, various business models for small-scale investors will be identified and tested. Only business models that prove profitable and technically feasible will be promoted among prospective investors, which would include existing businessmen and university graduates who meet the basic eligibility criteria. Training, extension and business advisory services will also be provided to existing individual investors and small-scale firms that are already in the aquaculture business but are struggling to remain profitable due to high costs or low yields. The eligibility criteria for individual enterprises will include:

- Cannot be in default status with any financial institution,
- Satisfactory completion of all training modules designed by the project,
- Strong commitment to carry out one of the business models supported by the project, and
- Sufficient funds available to cover at least 50 percent of the cost of adopting one of the business models sponsored by the project. For university graduates, this requirement could be revised.

Component 5: Project Management, Monitoring and Evaluation and Regional Coordination (US\$4.1 M)

60. This component will support project implementation, ensuring that regular monitoring and evaluation is conducted, and the results are fed back into decision-making and project management.

Sub-Component 5.1 Project Management (US\$2.6 M)

61. The project will be managed through the Project Management Team (PMT) within the Secretariat to the Fisheries Commission, staffed by external and local project management specialists. The PMT will report at least every six months to the Fisheries Commission, which together with additional stakeholders will function as the national Steering Committee for the project. The PMT will prepare an annual work program, budget, update of the monitoring and evaluation indicators and procurement plan that would be reviewed by the Fisheries Commission and wider steering committee. Activities within this sub-component will include: (i) technical assistance for national implementation, and (ii) operating costs for implementation. The PMT will include a: (i) national coordinator, (ii) fisheries governance and management specialist, (iii) aquaculture specialist, (iv) value addition specialist, (v) procurement specialist, (vi) project accountant and (vii) monitoring and evaluation specialist.

Sub-Component 5.2 Regional Coordination (US\$1.5 M)

62. This sub-component will include support for the Regional Coordination Unit at the CSRP to provide a number of services to the project, including: (i) access to an independent panel of monitoring, control and surveillance experts who can provide guidance to the Government on the implementation of component 2; (ii) linkages to a regional fishing vessel register and dashboard; (iii) support from a network of regional journalists; (iv) exchange visits and study tours with other countries participating in the WARFP; and (v) ongoing fiduciary and monitoring and evaluation support.

Component 1. Good Governance & Sustainable Management of the Fisheries (US\$18.7 M)		
Sub-Component 1.1 Developing the Legal and Operational Policy to Enable Implementation of the Fisheries and Aquaculture Sector Development Plan (US\$1.4 M)		
Review of the legal framework to ensure that it provides an enabling environment for the Fisheries and Aquaculture Sector Development Plan (including review of the law and updating regulations as needed)	US\$1.4 M US\$0	GEF IDA
Review of the needs, funding and organizational arrangements in order to ensure the effective delivery of Ghana’s Fisheries and Aquaculture Sector Development Plan		
Development of the operational framework for the delivery of Ghana’s Fisheries and Aquaculture Sector Development Plan, including standards and specifications for the fisheries registry and the catch and effort database, a vessel and fishing activity licensing plan and a compliance strategy		
A policy for the development and operation of community-based management networks built around defined fisheries management units		
Policy on adaptation strategies for climate change and marine protected area development		
Review of the Ghana Tuna Industry to identify policy and infrastructure needs that threaten Ghana’s hub status		
Review of the emerging economic environment for the fisheries sector as the Ghana Aquaculture and Fisheries Sector Development Plan are gradually implemented, including a fiscal impact review of Plan’s implementation		

Sub-Component 1.2 Strengthening functional fisheries management, including fishing rights and stakeholder-based management (US\$8.8 M)			
Re-engineer and strengthen the fisheries registry functions systems		US\$1.4 M	GEF
Catch and effort database		US\$1.0 M	IDA GEF
Implement phased registration and licensing of all fishing vessels		US\$0.2 M	GEF
Strengthening of fisheries research		US\$3.0 M	IDA
Dashboard of fisheries management indicators (implemented by the CSRP)		US\$0.2 M	IDA
Developing up to 12 pilot Stakeholder-Based Fisheries Management initiatives		US\$3.0 M	IDA
Sub-Component 1.3 Aligning Fishing Capacity and Effort to Sustainable Catch Levels (US\$5.7 M)			
Capacity alignment	Remove latent capacity from fisheries registry	US\$2.7 M	IDA
	Audit and inspect the industrial fleet against regulations, health and safety standards, etc. and revoke licenses of vessels that remain non-compliant after a reasonable period		
	Develop fishery management plans for key resources exploited by trawlers and semi-industrial vessels (e.g. shrimp)		
Alternative livelihoods	Supporting employment transition for crew and first-line fish buyers directly affected by capacity reductions in the industrial and semi-industrial trawl fleet	US\$3.0 M	IDA
Sub-Component 1.4 Social Marketing, Communication and Transparency (US\$2.8 M)			
Communications, information and social marketing initiatives		US\$1.0 M	IDA
Develop and institute fisheries training and education programs		US\$0.5 M	IDA
Fisheries information network		US\$1.3 M	IDA
Component 2. Reduction of Illegal Fishing (\$10.9 M)			
Customize judicial arrangements		US\$0.1 M	IDA
Establish Fisheries Enforcement Unit		US\$2.7 M	
Establish Vessel Monitoring System (VMS)		US\$1.5 M	
Establish aerial surveillance capability		US\$1.1 M	
At-sea fisheries enforcement		US\$5.1 M	
Strengthen policy arrangements and linkages		US\$0.1 M	
Expand and fully integrate fisheries observer program		US\$0.3 M	
Component 3. Increasing the Contribution of Fish and Aquatic Resource Exploitation to the National Economy (US\$12.1 M)			
Sub-Component 3.1 Value Chain Development (US\$10.6 M)			
Value chain development	11 marine landing sites (basic infrastructure) at Ada, Axim, Dixcove, Fete, Jamestown, Keta, Moree, Mumford, Senya-Beraku, Teshi, and Winneba (\$5.9M) and 2 inland fish landing sites (improved access and berthing infrastructure) at Abotoase and Dzemeni (\$4.5M)	US\$10.4 M	IDA
	Rehabilitation of boatyard repair facilities in Tema	US\$0.2 M	
Sub-Component 3.2 Fish Product Trade and Information Systems (US\$1.5 M)			
Export certification center development		US\$0.2 M	IDA
Fish processing technology improvements for women		US\$0.3 M	
Technical assistance, training and goods to support the National Fisheries Advisory Group		US\$1.0 M	
Component 4. Aquaculture Development (US\$8.0 M)			
Developing aquaculture policy and legal framework		US\$1.1 M	IDA
Improving genetic quality of Tilapia fingerlings and breedstock		US\$0.3 M	
Catalyzing aquaculture development for medium and large scale enterprises		US\$1.1 M	
Marketing and technical studies		US\$0.5 M	
Small scale aquaculture development		US\$5.0 M	

Component 5. Project Management, Monitoring and Evaluation and Regional Coordination (US\$4.1 M)		
Sub-Component 5.1 Project Management (US\$2.6 M)		
Technical assistance for Secretariat to the Fisheries Commission to implement the project	US\$2.6 M	IDA
Sub-Component 5.2 Regional Coordination (US\$1.5 M)		
Regional Coordination Unit technical assistance to implement the project	US\$1.5 M	IDA

Annex 3: Implementation Arrangements

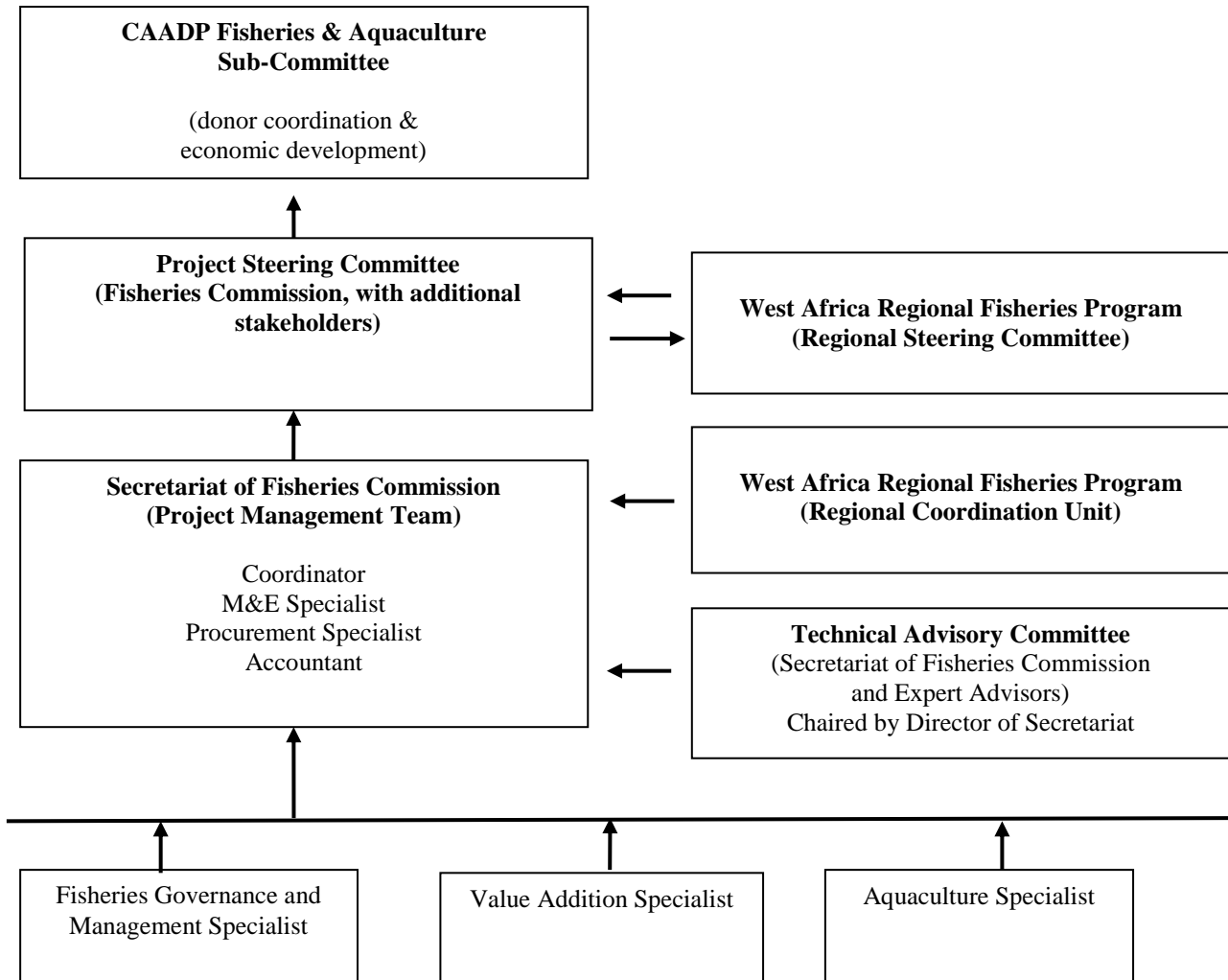
1. **Project institutional and implementation arrangements.** A small Project Management Team (PMT) will be housed in the Secretariat of the Fisheries Commission (reporting to the Director), under the Ministry of Food and Agriculture. The PMT will report at a minimum each six months to the Fisheries Commission, which together with additional stakeholders will function as the national Steering Committee for the project. The PMT will prepare an annual work program, budget, update of the monitoring and evaluation indicators and procurement plan that would be reviewed by the Fisheries Commission and wider steering committee. The Steering Committee will be supported by a Technical Advisory Group made up of senior managers within the Secretariat of the Fisheries Commission.

2. The Project Management Team will have fiduciary responsibility, and will include a Program Coordinator who will be responsible for overall project implementation, including compliance with environmental and social safeguards. During appraisal discussions, the Secretariat of the Fisheries Commission expressed an interest in maintaining the current project coordinator, who was competitively recruited and contracted by NEPAD to support project preparation activities, and who now has the capacity and knowledge of the sector and established relationships with organizations and individuals responsible or involved with project implementation. A Fisheries Governance and Management Specialist will be recruited and funded under the project, to monitor and support policy reforms as well as oversee the introduction of pilot fisheries management initiatives. A Value Addition Specialist will be recruited to oversee construction of works and development of initiatives to support fishing industry development. For component 4, an Aquaculture Specialist will be recruited to oversee the establishment of a Grant Facility as well as related activities for aquaculture development, including performance monitoring. In addition, a Monitoring and Evaluation Specialist will be recruited to oversee and be responsible for overall monitoring and evaluation of progress towards the project objectives and outcomes and key project indicators. Procurement functions will be carried out by a Procurement Specialist to be recruited and financed by the project, and will be based in and supervised by the Procurement Unit of the Ministry of Food and Agriculture. Financial management will be carried out by an Accountant to be recruited and financed by the project, and will be based in and supervised by the Treasury Unit of the Ministry of Food and Agriculture.

3. At the regional level, the project will be coordinated by a Regional Coordination Unit (RCU) housed at the CSRP in Dakar and is composed of a Regional Coordinator, a Monitoring and Evaluation Specialist, and a Fiduciary Management Specialist. The RCU reports to a Regional Steering Committee of the Fisheries Directors from each of the WARFP participating countries. As Ghana joins the WARFP through this project, it would join the Regional Steering Committee at that time as well. The role of the RCU will be to: (i) support the harmonization of fisheries policy with the region (including convening regional technical committees of national experts to periodically review recurring policy issues); (ii) conduct monitoring and evaluation of project investments and share information and results throughout the region; (iii) implement ongoing communication activities to raise awareness about the WARFP and implementation progress; and (iv) provide implementation support to Ghana (as well as to each of the countries in the Program), including coordination of regional procurement. The role of the Regional

Steering Committee will be to oversee the activities of the RCU and to further coordination and communication between decision-makers in the WARFP countries. The RCU will provide implementation support to the Project Management Team in Ghana, as needed, including fiduciary management, technical assistance and training in monitoring and evaluation.

Figure 3.1 Overall of Institutional Arrangements:



4. **Financial Management.** Even though the main implementing agency for the project is the Fisheries Commission based on previous experiences in managing IDA funds which was not satisfactory, the FM team considered it more prudent to have the financial management functions managed by the Ministry of Finances. Due to this and understanding was reached with the client and an assessment was done on the Treasury Unit of Ministry of Food and Agriculture. The assessment of the FM systems within Treasury Unit of the Ministry of Food and Agriculture (MoFA) concluded that the arrangements are adequate and satisfy the Bank's minimum requirements under OP/BP10.02. The unit has satisfactorily managed IDA funds and is currently managing the WAAPP. The Treasury Unit of MoFA which is headed by a Financial Controller will be responsible for ensuring that adequate financial management arrangement exists throughout implementation. The specific operational accounting and related function will be the responsibility of a Principal Accountant who will be assisted by two junior officers. The project will be supported to computerize the project accounting system with appropriate software. The chart of accounts will also be designed to ensure that the computerized system is able to report accurately the expenditures on all activities and components and be able to produce the required financial reports under the project. The policies guidelines and operational procedures required for implementation will be documented in the Project Implementation Manual.

Table 3.1: Agreed Action Plan

	Action	Date due by	Responsible
i.	Prepare an acceptable Projects Operational Manual.	Final version adopted not later than three months after effectiveness	Chief Director and Financial Controller (MoFA)
ii.	Recruit a dedicated Principal/Project Accountant to manage the project funds	Within three months after Effectiveness	Chief Director and Financial Controller (MoFA)

5. **Budgeting Arrangements.** The Secretariat of the Fisheries Commission of MoFA, as a government agency follows the budget preparation guidelines as per the Financial Administration Act (2003), the Financial Administration Regulation (2004) and also the annual budget guidelines issued by the Ministry of Finance. The project will be required to prepare and submit to the Bank for approval its annual work plans and budget including procurement plans. Once the budgets are approved copies will be provided to the Financial Controller of MoFA to enable him monitor and review adequate budgetary control on expenditure. Project management will ensure that all units and component activities are correctly reflected in the work plans and budget. The various institutional work plans and budgets under the project would be coordinated for approval by the Fisheries Commission. The assessment concludes that the budgeting arrangements within Fisheries Commission and MOFA are adequate.

6. **Accounting Arrangements.** The Treasury Unit, under General Administration of MoFA, has responsibility for maintaining the accounting records and books of the ministry. The unit is headed by a Principal Accountant who reports to the Chief Director, the administrative head of the ministry, through the Financial Controller. There is no accounting procedures manual with a defined chart of accounts to guide staff in their work. Currently, a combination of manual cash books and general ledger, supplemented by excel spreadsheets are used to periodic returns. In

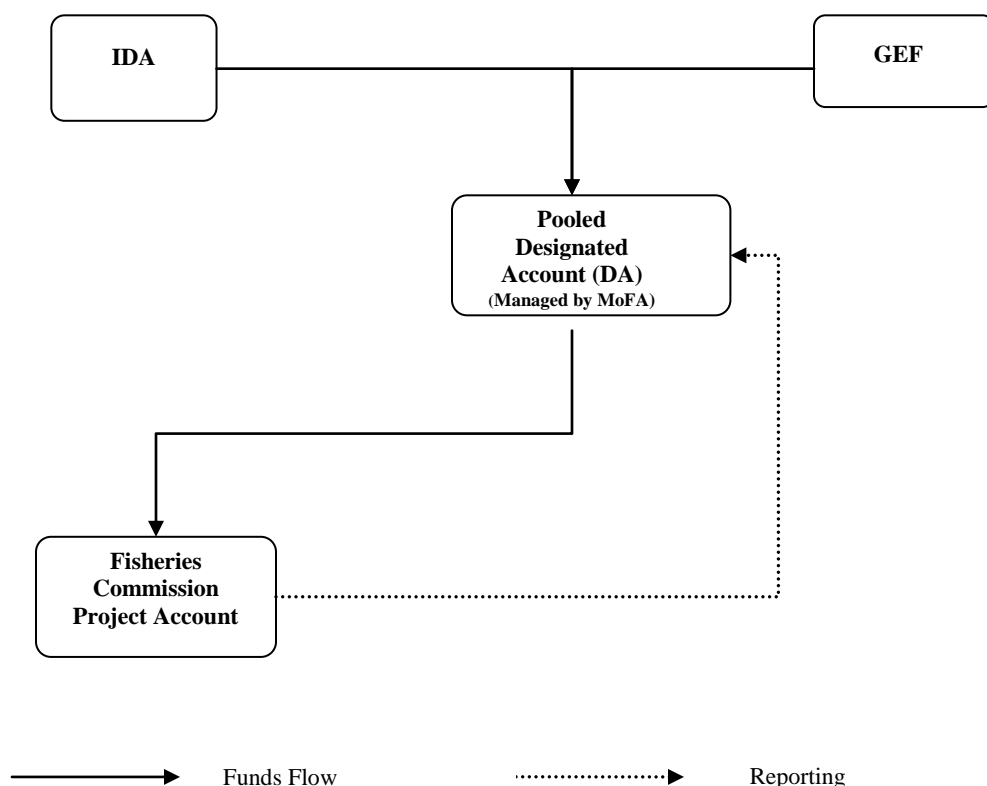
order to strengthen the accounting function, MoFA will be assisted to prepare a new Financial Procedures & Accounting Manual including a revision of the Chart of Accounts (CoA) to facilitate the preparation of relevant monthly, quarterly and annual financial statements. It has also been agreed that, under the direction of the Principal Accountant, a dedicated project accountant will be recruited to support implementation.

7. **Internal Control and Internal Auditing.** As a government entity, the internal controls systems of the Secretariat of the Fisheries Commission of MoFA rely to a large extent on the government-established accounting and internal control guidelines as documented in the Financial Administration Act (2003), the Financial Administration Regulation (2004), Public Procurement Act (Act 663) and the Audit Manual for MMDAs as issued by the Internal Audit Agency. MoFA has a functional internal audit unit and the unit will be tasked with oversight of the internal control environment of the project.

8. **Funds Flow and Disbursement Arrangements. Funds Flow and Disbursement Arrangements.** The project will have a total investment cost estimated at US\$53.8 million, of which IDA will finance US\$50.3 million; whilst GEF will contribute an estimated US\$3.5 million. To facilitate the funds flow for the project, it has been agreed that a single US dollar denominated **designated pooled account** will be maintained by the project.

9. **Disbursements.** Funds for implementing the WARFP will all be disbursed to a **pooled designated** account operated and maintained by the Treasury Unit of MoFA and used for payment of eligible project expenditure. The proposed arrangement is to use a single Designated Account (denominated in US dollars) managed and operated by the Financial Controller (MoFA). However, in order to facilitate payment of some small expenditure, Fisheries Commission will operate a “Project Account” on an imprest system. The ceiling for the imprest will not exceed **US\$50,000** (or the cedi equivalent) and will be monitored and reported on by the Financial Controller. These funds will be released in the form of an imprest account and subsequently replenished, and used for specific expenditure such as supervision, field visits, operating costs, etc but **excluding capital expenditure and consultancies**. The procedures and modalities for operating the designated account and the types of expenditure to be paid out of project accounts will be outlined in the Project Implementation Manual.

Figure 3.2: Flow of Funds



10. The project will use **transaction based disbursement** for reporting on the uses of project funds and also for requesting for subsequent funds. Subsequent withdrawals will be made on submission of satisfactory SOE returns together with the relevant supporting documentation. The basis of reporting will be reviewed during midterm or such period as the FMS considers appropriate and if the project has performed satisfactorily a recommendation will be made to transition to report based disbursement.

11. The disbursement categories are based on the project components and each component would fund eligible expenditures in the areas of civil works, goods, consultancy services, training and operating costs.

Table 3.2: Allocation of Credit Proceeds

Expenditure Category	Amount in US\$ million	Financing Percentage
A.- Goods, works, consultancy and training under Component 1	18.7	100%
B. - Goods, works, consultancy and training under Component 2	10.9	100%
C. - Goods, works, consultancy and training under Component 3	12.1	100%
D - Goods, works, consultancy and training under Component 4	8.0	100%

E. - Project Management (including training and audit)	4.1	100%
Total Project Costs	53.8	

12. **Financial Reporting Arrangements.** The Treasury Unit of MoFA will be responsible for preparing and submitting to the donors' interim periodic reports and annual audited reports as defined in the Financing Agreement. Quarterly Interim Financial Reports (IFRs) for the project covering all the components, to the IDA are to be submitted within 45 days of the end of each calendar quarter. These reports must cover all donor funds received for the project as a whole as well as government (counterpart) funds received under the project. The content and format of these reports would be agreed between the Bank and Government during negotiations. The reports should; i) reflect sources of funds received and expenditures incurred for the current quarter, year to date and cumulative; ii) Expenditures classified by component and activities; and iii) statement showing for each of sub-project grants listed, the total grant approved, how much has been disbursed on it and the outstanding balance . These statements would be supported by the DA bank statements and a statement of contract status. In addition to the periodic reports, the Secretariat of the Fisheries Commission would prepare and submit annual financial statements (AFS) of the entire project.

13. **Auditing.** The Auditor General (Ghana Audit Services) is primarily responsible for the auditing of all government projects. However, due to capacity constraints, it is usual for the Auditor General to sub-contract the audit of donor-funded projects to private audit firms. Under the project, this arrangement will be followed subject to the Bank's necessary procurement and technical clearance of the TOR for the engagement of the audit firm. The TOR will be agreed during the negotiations of the project (if the process has not started) and the auditors are expected to be in place within six months after effectiveness.

Procurement

14. **Capacity Assessment.** The project will be implemented by the Secretariat of the Fisheries Commission under the Ministry of Food and Agriculture (MOFA). MOFA has established a central Procurement Unit that supports all Directorates and Departments under the Ministry in their procurement management. The central Procurement Unit of MOFA will therefore provide procurement support under this project. An assessment of the capacity of the MoFA's Procurement Unit to implement procurement actions for the project was carried out in January 2011. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement.

15. In response to the Ghana's Public Procurement Law, Act 663, 2003, MoFA as a procurement entity has established the required structures, i.e. a fully staffed procurement unit, the entity tender committee and tender review committees that are required by law. The Ministry has also adopted and uses the comprehensive procurement procedure manual that details out all procurement and supply management functions of the Ministry's procurement unit prepared by the Public Procurement Authority to complement the Public Procurement Act. The manual lays out the legal framework for undertaking procurement; processes and procedures of procurement cycle management; technical and administrative for reviews for quality control; approval

processes, authority and thresholds; appeal mechanisms; warehousing and stores management; and contract management responsibilities.

16. Currently, the procurement unit is staffed with three key staff, two of them with good knowledge and experience in World Bank procurement procedures having attended a number of trainings on the Bank's procedures and implemented many Bank funded projects. The third, though very conversant with the Ghana Public Procurement Procedures, is still new to Bank procedures and is currently undergoing hands-on training and mentoring. Currently, apart from providing procurement support to all departments and agencies procurement for their government allocations, the unit is handling procurement aspects of the World Bank funded West Africa Agricultural Productivity Program on behalf of CSIR as well as other donor funded procurement like African Development Fund/Bank and International Fund for Agricultural Development (IFAD). The procurement unit staff is therefore fully overloaded and thus further procurement activities from this project may get delayed without any interventions. It is therefore concluded that MOFA procurement unit will need the support of one proficient and experienced procurement consultant with experience in managing World Bank funded projects to be responsible for the project procurement activities under the supervision of the head of the procurement unit.

17. The assessment concluded that MoFA is in compliance with the procurement law, has a procurement unit in their permanent organization, has adequate internal technical and administrative controls and anti-corruption measures, satisfactory appeal mechanisms for bidders, and sufficient knowledge and experience in World Bank procurement procedures to implement the project, but currently lacks adequate capacity to handle the anticipated large volume of procurement under the project.

18. **Key Risks and Mitigation Measures.** The overall risk assessment is rated Medium-Impact. The key risks for procurement are: (i) since the central procurement unit handles procurement management for all directorates in the Ministry, there could be possible delays in processing procurement documents under the projects due to high volume of work; (ii) staff of the Secretariat of the Fisheries Commission and the one procurement staff who are not conversant with Bank procurement may create delays due to their lack of knowledge in Bank procedures and processes; (iii) inadequate capacity at to handle the anticipated volume of procurement at the procurement unit of MOFA under the project; (iv) possible delays in evaluation of bids and technical proposals leading to implementation delays and poor quality of contract deliverables; (v) inconsistencies between the National Procurement procedures and the Bank procurement guidelines in the use of National Competitive Bidding.

19. To address the above risk areas, the following actions are recommended: (i) appointment of a proficient and experienced procurement specialist to augment MOFA's Procurement Unit's present procurement capacity throughout the lifetime of project implementation; (ii) appointment of a focal person at the Secretariat of the Fisheries Commission to coordinate activities and follow up on all procurement issues with the procurement unit; (iii) preparation of a Project Implementation Manual by the Secretariat of the Fisheries Commission with a section on procurement detailing out instructions for handling procurement, and which would be disseminated to all staff who will be involved in the project implementation at project launch; (ii)

organization of procurement training workshops to explain/train/raise awareness of all staff involved in project implementation by first quarter of project implementation; (v) close monitoring of procurement plans on a monthly basis and closely monitor and exercise quality control on all aspects of the procurement process, including evaluation, selection and award; and (vi) preparation of standard bidding documents for NCB procurement under Bank Procurement Guidelines, that incorporate a list of identified exceptions to the National Procurement Procedures under the national procurement law (PPL) that take account of the Bank's fraud, anti-corruption and other procurement provisions.

The table below summarizes the key risk areas and proposed mitigation measures.

Table 3.3: Procurement Risks and Mitigation Measures

Key risks	Mitigation Actions	By Whom	By When
Possible delays in processing procurement documents under the projects due to high volume of work on the Procurement Unit	Recruit one procurement consultant to support MOFA Procurement Unit Appointment of a focal person at Secretariat of the Fisheries Commission to coordinate activities and follow up on all procurement issues with the procurement unit.	Fisheries Commission Secretariat of the Fisheries Commission	At the beginning of project.
Lack of in-house experience and familiarity with World Bank procurement guidelines and procedures of staff of Secretariat of the Fisheries Commission and the three procurement staff	Focused capacity building for procurement unit staff in specific to the areas of weakness. Secretariat of the Fisheries Commission to prepare a Project Implementation Manual which should have a section on procurement detailing out instructions for handling procurement. This should be disseminated to all staff involved in the project at project launch. Organization of procurement training workshops to explain/train/raise awareness of all staff involved in project implementation by first quarter of project implementation	Procurement Unit Secretariat of the Fisheries Commission	Throughout project life At Project launch First quarter of project implementation
Delays in handling procurement documents and actions	Close monitoring of procurement plans on a monthly basis and closely monitor and exercise quality control on all aspects of the procurement process, including evaluation, selection and award.	Procurement Unit/Project Coordinator	Throughout project life
Possible	Setting of standard processing times	Project	Throughout project

Key risks	Mitigation Actions	By Whom	By When
delays in processing procurement and payments.	Continuous tracking and monitoring of contract performance. Undertake yearly post-reviews in addition to compliance audit by Internal Audit Agency.	Coordinator at FC	life
Weak procurement and contract management.	Identify key procurement and contract management activities and setting of standard processing times in the project implementation manual	Project Coordinator and Procurement Consultant	Throughout project life
Use of National Procurement Procedures for NCB	Preparation of standard bidding documents for NCB procurement under Bank Procurement Guidelines, that incorporate a list of identified exceptions to the National Procurement Procedures under the national procurement law (PPL) that take account of the Bank's fraud, anti-corruption and other procurement provisions	PCU	At the beginning of project implementation
Political interference	Enforcement of remedies if GOG does not take appropriate sanctions against officials who violate procedures.	FC/Bank	As and when

20. **Implementation Support for Procurement.** Bank Procurement Specialists will participate regularly in implementation support to assist in monitoring of procurement procedures and Procurement Plans. During regular implementation support missions the Procurement Plans will be updated at minimum once each year and similarly post procurement reviews will be carried out at minimum once a year. Post review supervision will also be carried out by the at least once a year and will cover at least 20 percent of contracts subject to post-review. Post review consists of reviewing technical, financial and procurement reports carried out by the Borrower's executing agency and/or consultants selected and hired under the Bank project according to procedures acceptable to the Bank.

21. **Applicable procurement policies and procedures.** Procurement for the proposed Project would be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-Consulting Services Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011), "Guidelines: Selection and Employment of Consultants Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011), and the provisions stipulated in the Financing Agreement in the Project.

22. **Exceptions to National Competitive Bidding Procedures.** For National Competitive Bidding (NCB) for goods and works, the Recipient may follow its own national procedures that are governed by their respective national public procurement acts and/or laws, with the following exceptions and additions noted below:

- a. foreign bidders shall be allowed to participate in National Competitive Bidding procedures;

- b. bidders shall be given at least one (1) month to submit bids from the date of the invitation to bid or the date of availability of bidding documents, whichever is later;
- c. no domestic preference shall be given for domestic bidders and for domestically manufactured goods; and
- d. in accordance with paragraph 1.16(e) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the Credit shall provide that: (i) the bidders, suppliers, contractors and subcontractors shall permit the Association, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the Association; and (ii) the deliberate and material violation by the bidder, supplier, contractor or subcontractor of such provision may amount to an obstructive practice as defined in paragraph 1.16(a)(v) of the Procurement Guidelines.

Procurement Arrangements

23. **Procurement of Works.** Civil works procured under this project would include: (i) fisheries monitoring centers, (ii) costal stations or offices in strategic points, (iii) basic infrastructure for integrated fish landing site clusters in each country, (iv) roads, repairs to water pipes, fish sorting shed and hygiene block, etc. No major works contracts beyond the ICB threshold of US\$ 5,000,000 are expected to be procured under this project. Minor works contracts that might become necessary may be procure using NCB if it is estimated to cost less than US\$ 5,000,000 but more than US\$100,000 equivalent per contract. Contracts estimated to cost less than US\$100,000 equivalent per contract may be procured using shopping procedures in accordance with Para. 3.5 of the Procurement Guidelines⁶ and based on a model request for quotations satisfactory to the Bank

24. **Procurement of Goods.** Goods procured under this Project would include: supply of naval and air borne equipment, procurement of satellite, radar and computer-based vessel technology; supply of software and computer equipment to set up Trade information System for targeted supply chains, etc. Contracts for goods estimated to cost US\$500,000 equivalent or more per contract shall be procured through ICB. Goods orders shall be grouped into larger contracts wherever possible to achieve greater economy. Contracts estimated to cost less than US\$500,000 but equal to or above US\$50,000 equivalent per contract may be procured through NCB.

25. **Direct contracting for Goods and Works.** Direct contracting of Goods and Works may be used in exceptional circumstances with the prior approval of the Bank, in accordance with paragraphs. 3.6 and 3.7 of the Procurement Guidelines. All such works contracts identified in the course of implementation should be captured in the updated procurement plans.

26. **Selection of Consultants.** (a) Firm - Consultancy services which include: engineering studies, specialized studies (biological and economic), technical assistance, control and supervision of works, external audits etc, would be selected using Request for Expressions of

⁶ Shopping consists of the comparison of at least three price quotations in response to a written request. Additional information on how to do prudent shopping is contained in the *Guidance on Shopping* available at the Bank's external web site for procurement under Procurement Policies and Procedures.

Interest, short-lists and the Bank's Standard Requests for Proposal, where required by the Bank's Guidelines. The selection method would include Quality and Cost Based Selection (QCBS) whenever possible, Quality Based Selection (QBS), Fixed Budget (FBS), Least Cost Selection (LCS), Single Source Selection (SSS) as appropriate; all consultancy services contracts estimated to cost less than US\$200,000 equivalent for firms could be awarded through Consultant's Qualifications (CQ).

(b) Individual Consultants - Specialized advisory services would be provided by individual consultants selected by comparison of qualifications of at least three candidates and hired in accordance with the provisions of Section V of the Consultant Guidelines.

27. Assignments estimated to cost the equivalent of US\$200,000 or more would be advertised for expressions of interest (EOI) in Development Business (UNDB), in dgMarket and in at least one newspaper of wide national circulation. In addition, EOI for specialized assignments may be advertised in an international newspaper or magazine. In the case of assignments estimated to cost less than US\$200,000, but more than US\$100,000 the assignment would be advertised nationally. The shortlist of firms for assignments estimated to cost less than US\$200,000 may be composed entirely of national firms in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines provided a sufficient number of qualified national firms are available and no foreign consultants desiring to participate has been barred.

28. Procedure of Single-Source Selection (SSS) would be followed for assignments which meet the requirements of paragraphs 3.9-3.13 of the Consultant Guidelines and will always require the Bank's prior review regardless of the amount. Procedures of Selection of Individual Consultants (IC) would be followed for assignments which meet the requirements of paragraph 5.1 and 5.4 of the Consultant Guidelines. For all contracts to be awarded following QCBS, LCS and FBS, the Bank's Standard Request for Proposals will be used.

29. The use of civil servants as individual consultants or a team member of firms will strictly follow the provisions of Article 1.9 to 1.11 of the Consultants Guidelines.

30. **Workshops, Seminars and Conferences.** Training activities would comprise workshops and training, based on individual needs as well as group requirements, on-the-job training, and hiring consultants for developing training materials and conducting training. Selection of consulting firms for training services estimated to cost US\$100,000 equivalent or more would be procured on basis of QCBS or QBS as appropriate. Training services estimated to cost less than US\$100,000 equivalent per contract may be procured through CQ method. When appropriate, training may also be procured on the basis of Direct Contracting subject to review and approval by the Bank. All training and workshop activities would be carried out on the basis of approved annual programs that would identify the general framework of training activities for the year, including: (i) the type of training or workshop; (ii) the personnel to be trained; (iii) the selection methods of institutions or individuals conducting such training; (iv) the institutions which would conduct the training; (v) the justification for the training, how it would lead to effective performance and implementation of the project and or sector; and (vi) the duration of the proposed training; (vii) the cost estimate of the training. Report by the trainee upon completion of training would be required.

31. **Operating Costs.** Operating Costs financed by the project are incremental expenses arising under the Project, and based on Annual Work Plans and Budgets approved by the Association pursuant to Section I.E of Schedule 2 to this Agreement, on account of office equipment and supplies, vehicle operation and maintenance, maintenance of equipment, communication and insurance costs, office administration costs, utilities, rental, consumables, accommodation, travel and per diem, salaries of Local Contractual Staff, but excluding the salaries of the Recipient's civil service.

32. The procedures for managing these expenditures will be governed by the Borrower's own administrative procedures, acceptable to the Bank

Procurement Documents

33. The procurement will be carried out using the latest Bank's Standard Bidding Documents (SBD) or Standard Request for Proposal (RFP) respectively for all ICB for goods and recruitment of consultants. For NCB, the borrower shall submit a sample form of bidding documents to the Bank prior review after incorporating the exceptions listed above and will use this type of document throughout the project once agreed upon. The Sample Form of Evaluation Reports developed by the Bank, will be used. NCB SBD will be updated to include clauses related to Fraud and Corruption, Conflict of Interest and Eligibility requirements consistently with the World Bank procurement guidelines dated January 2011.

Advertising procedures

34. A General Procurement Notice (GPN) will be prepared and published in accordance with advertising provisions in the following guidelines: "Guidelines: Procurement of Goods, Works and Non-Consulting Services Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011); and "Guidelines: Selection and Employment of Consultants Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011) in United Nations Development Business (UNDB), on *the Bank's external website* and in at least one national newspaper after the project is approved by the Bank Board, and/or before Project effectiveness. The borrower will keep a list of received answers from potential bidders interested in the contracts.

35. Specific Procurement Notices for all goods and works to be procured under International Competitive Bidding (ICB) and Expressions of Interest for all consulting services to cost the equivalent of US\$200,000 and above would also be published in the *United Nations Development Business (UNDB)*, on *the Bank's external website*, and the widely circulated national newspapers. For works and goods using NCB, the Specific Procurement Notice (SPN) will be published in widely circulated national newspapers.

Frequency of Procurement Supervision

36. In addition to the prior review supervision which will to be carried out by the Bank, the procurement capacity assessment recommends one supervision mission each year to visit the

field to carry out post-review of procurement actions and technical review. The procurement post-reviews and technical reviews should cover at least 20 percent of contracts subject to post-review. Post review consist of reviewing technical, financial and procurement reports carried out by the Borrower's executing agencies and/or consultants selected and hired under the Bank project according to procedures acceptable to the Bank.

Prior-Review Thresholds

37. The Procurement Plan shall set forth those contracts which shall be subject to the World Bank's Prior Review. All other contracts shall be subject to Post Review by the World Bank. However, relevant contracts below prior review thresholds listed below which are deemed complex and/or have significant risk levels will be prior-reviewed. Such contracts will also be identified in the procurement plans. Summary of Prior-review and procurement method thresholds for the project are indicated in Table 3.2. All terms of reference for consultants' services, regardless of contract value, shall also be subject to the World Bank's prior review.

Table 3.4: Thresholds for Procurement Methods and Prior Review

Expenditure Category	Threshold for Method (US\$)	Procurement Method	Contracts Subject to Prior Review
Works	>=5,000,000	ICB	All
	< 5,000,000	NCB	First 2 contracts
	<100,000	Shopping	None
		Direct Contracting	All
Goods and non-consulting services.	>=500,000	ICB	All
	<500,000	NCB	First 2 contracts
	<50,000	Shopping	None
		Direct Contracting	All
Consulting services from firms & NGOs	>=200,000	QCBS	All contracts of \$200,000 and above
	<200,000	QCBS, CQS, LCS, FBA, QS	The two first contracts under \$200,000
		Single Source	All single source
Individual consultants		IC	All contracts of \$50,000 and above

Note: All Term of reference regardless of the value of the contract are subject to prior technical review

ICB – International Competitive Bidding

QCBS -- Quality and Cost-Based Selection method

NCB – National Competitive Bidding

CQS – Consultants' Qualification Selection

IC – Individual Selection method

Procurement Plan

38. Each participating country has prepared a Procurement Plan for the first eighteen months. Each Procurement Plan will be updated at least twice a year after each supervision mission or as required to reflect the actual project implementation needs and improvements in institutional capacity. The various items under different expenditure categories are described in the Procurement Plan. For each contract to be financed by the Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between each recipient and the Association in the Procurement Plan.

39. These procurement plans will be available in the project's database and in the Bank's external website and also available in the Project's database.

Table 3.5: Procurement Arrangement and Schedule for Works

1	2	3	4	5	6	7	8
#	Contract (Description)	Estimated Cost (US\$)	Procurement Method	P-Q	Domestic Preference (Yes/No)	Review by Bank (Prior/Post)	Expected Bid Opening Date
1	Upgrading Offices for Liaison Officers	100,000	Shopping	No	No	None	08/01/2011
2	Upgrading FEU Office Space	50,000	Shopping	No	No	None	08/01/2011
3	Boatyard Repair	225,000	NCB	No	No	Prior	09/01/2011
4	Upgrading Office for Project Management	75,000	Shopping	No	No	None	08/01/2011

Table 3.6: Procurement Arrangement and Schedule for Goods

1	2	3	4	5	6	7	8
#	Contract (Description)	Estimated Cost (US\$)	Procurement Method	P-Q	Domestic Preference (Yes/No)	Review by Bank (Prior/Post)	Expected Bid Opening Date
1	Research and laboratory equipment- package for all components (Fisheries Research, Fish quality, health and safety monitoring)	580,000	ICB	No	No	Prior	08/01/2011
2	Prototype of fish processing equipment for extension work	40,000	SSS	No	No	Prior	08/01/2011
3	Vehicles – package	455,000	NCB	No	No	Prior	08/01/2011

	for all components (PMT, Liaison Officers)						
4	Office equipment – package for all components (PMT, NAFAG, FEU)	180,000	NCB	No	No	Prior	08/01/2011
5	Office furniture – package for all components (PMT, FEU)	50,000	Shopping	No	No	None	08/01/2011

Table 3.7: Procurement Arrangement and Schedule for Consultancy Services

	2	3	4	5	6
#	Description of Services	Estimated Cost (US\$)	Selection Method	Review by Bank (Prior/Post)	Expected Proposals Submission Date
Component 1:					
1	Review of legal framework	200,000	QCBS	Prior	07/01/2011
2	Review of Fisheries Sector: - Needs Assessment of Fisheries Commission; Fisheries Sector Public Expenditure Review; Design Organizational Processes and Systems	650,000	QCBS	Prior	06/30/2011
3	Development of the Operational Framework for Policy Delivery	400,000	QCBS	Prior	06/30/2011
4	Development of Stakeholder-based Management Policy	125,000	CQ	Post	09/30/2011
5	Registry Systems - software design, testing and installation; operation and support; training for FC and other stakeholders	1,350,000	QCBS	Prior	06/30/2011
6	Catch and Effort Database - software design, testing and installation; operation and support; training for FC and other stakeholders	1,000,000	QCBS	Prior	10/30/2011
7	Cost and earnings study of marine and inland fisheries, incl. training of researchers	50,000	CQ	Prior	08/01/2011
8	Development of dashboard indicators with company supporting regional coordination unit	200,000	SSS	Prior	08/01/2011
9	Oversight and Management of Pilot Stakeholder-Based Fisheries Management Initiatives	165,000	CQ	Post	08/01/2011
10	Design and delivery of Communication Plan with Fisheries Commission	1,000,000	QCBS	Prior	07/30/2011
11	Training on social marketing/extension/behavior change/communication/outreach/participation	200,000	QCBS	Prior	11/01/2011
12	Development and delivery of Fisheries Education Programs in Support of Fisheries Plan	300,000	QCBS	Prior	02/28/2012

13	Technical Assistance for organizational arrangements for fishers in canoe, semi-industrial and industrial sectors	50,000	CQ	Post	10/28/2011
Component 2:					
14	Technical assistance to develop judicial arrangements and provide training	50,000	CQ	Post	08/01/2011
15	Technical assistance for the establishment of Fisheries Enforcement Unit, and training	300,000	QCBS	Prior	11/30/2011
16	MCS policy issues consultant	60,000	CQ	Post	11/01/2011
17	Fisheries Observer Program – design, training, equipment, operation	250,000	QCBS	Prior	11/30/2011
Component 3:					
18	Develop protocols for testing, certifying and monitoring fish health, quality and safety; Develop training manuals for testing, certifying and monitoring fish health, quality and safety	35,000	CQ	Post	10/01/2011
19	Replication of processing technology prototypes for extension	80,000	CQ	Post	06/01/2012
20	Extension services – including initial training of FC staff	100,000	CQ	Post	08/01/2012
21	Design and production of communication materials for fish health	60,000	CQ	Post	02/15/2012
22	Needs Assessment for NAFAG	36,000	CQ	Post	09/01/2011
23	Technical assistance to design management systems for NAFAG	60,000	CQ	Post	01/15/2012
24	Design and delivery of training – participatory leadership, management, advocacy, group dynamics, communication, networking, and safety for NAFAG	500,000	QCBS	Prior	11/01/2011
25	Dissemination of information, education and communication to NAFAG members	150,000	CQ	Post	09/01/2011
Component 4:					
26	Development of GIS map to identify high priority zones for aquaculture	200,000	CQ	Post	09/01/2011
27	Stakeholder consultations on aquaculture	150,000	CQ	Post	01/30/2012
28	Review of regulatory framework for aquaculture leasing and permitting	150,000	CQ	Post	09/01/2011
29	Ground testing and refinement of EIA tool	250,000	QCBS	Prior	12/01/2011
30	GIFT tilapia introduction (incl. dissemination plan)	400,000	SSS	Prior	11/01/2011
31	Development of business planning software, training modules, seminars & delivery	600,000	QCBS	Prior	12/30/2011
32	Development of technical brochures, seminars, and dissemination	500,000	QCBS	Prior	12/30/2011
33	Technical support to Ghana Aquaculture Association (incl. needs assessment and institutional and administrative arrangements)	400,000	QCBS	Prior	12/15/2011
34	Development and administration of Aquaculture Fund	500,000	QCBS	Prior	11/01/2011

Component 5:					
35	Project coordinator	360,000	SSS	Prior	06/01/2011
36	Fisheries Governance and Management Specialist	300,000	IC	Prior	06/01/2011
37	Aquaculture Specialist	240,000	IC	Prior	06/01/2011
38	Value Addition Specialist	240,000	IC	Prior	02/01/2012
39	Monitoring and Evaluation Specialist	180,000	IC	Prior	06/01/2011
40	Procurement Specialist	180,000	IC	Prior	06/01/2011
41	Project Accountant	180,000	IC	Prior	06/01/2011
42	Audit	75,000	CQ	Prior	05/01/2012

Publications of Awards and Debriefing

40. For all ICBs, request for proposal that involves the international consultants and direct contracts, the contract awards shall be published in *UN Development Business online* and on *the Bank's external website* within two weeks of receiving IDA's "no objection" to the recommendation of contract award. For Goods, the information to publish shall specified (i) name of each bidder who submitted a bid; (ii) bid prices as read out at bid opening; (iii) name and evaluated prices of each bid that was evaluated; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. For Consultants, the following information must be published : (i) names of all consultants who submitted proposals; (ii) technical points assigned to each consultant; (iii) evaluated prices of each consultant; (iv) final point ranking of the consultants; and (v) name of the winning consultant and the price, duration, and summary scope of the contract. The same information will be sent to all consultants who have submitted proposals.

41. The other post review contracts should be published in national gazette or on a widely used website or electronic portal with free national and international access within two weeks of the Borrower's award decision and in the same format as in the preceding paragraph.

Fraud, Coercion and Corruption

42. All procurement entities as well as bidders and service providers, i.e., suppliers, contractors, and consultants shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraphs 1.14 and 1.15 of the Procurement Guidelines and paragraph 1.22 and 1.23 of the Consultants Guidelines, in addition to the relevant Articles of the Ghana Public Procurement Act which refers to corrupt practices.

43. **Environmental and Social (including safeguards).** The project triggered both the Environmental Assessment policy OP 4.01 and the Involuntary Resettlement policy OP 4.12. For these policies, an Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF) and a Process Framework (PF) have been prepared, consulted upon and disclosed in country and at the World Bank infoshop. The project prepared these frameworks because at the time of project preparation the exact sites for project-identified activities were not known. During implementation the necessary site specific Environmental and Social Impact

Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs), as well as Resettlement Action Plans (RAPs), and plans of action, will be developed for each identified site as needed.

44. Overall, the key safeguard issue for the project is the social risk arising from the potential restriction of traditional access to fish resources that may be introduced by the project in targeted fisheries. Currently in Ghana, fish resources are utilized through a system of open access that has allowed essentially more fishers and fishing pressure than the resources can sustain, or are economically viable. The project addresses fundamental constraint to the sector's contribution to economic growth and poverty reduction, by supporting the introduction of fishing rights through a licensing process to manage access to the resources, as well as gradually reducing the semi-industrial and industrial trawl fleet to reduce current overexploitation and allow the fish stocks to recover to healthier and more economically productive levels. It is from this transition away from open to managed access to the fisheries, as well as from the gradual reduction in the semi-industrial and industrial trawl fleet that will impact livelihoods for the crew on those vessels and some associated fish buyers, that the key social risks are created.

45. The instruments to address the social risk arising from a transition to managed access to the fisheries are: (i) support for community participation in the resource management process in targeted pilot sites in component 1.2.6, and (ii) extensive social marketing and consultation campaigns with stakeholders throughout the country in component 1.4. The first activity (1.2.6) will aim to advance the roll out of licensing in pilot sites, in order to provide a demonstration effect of the benefits, while the second (1.4) will aim to implement a national communications strategy and dialogue on the benefits of this transition away from open access.

46. To address the social risk arising from the gradual reduction of the semi-industrial and industrial trawl fleets through increased enforcement of existing laws and regulations, component 1.3.2 of the project will finance re-training and compensation packages for crew members and fish buyers who would lose their livelihoods as a result of a reduction in the fleet. These packages would aim to help the affected crew and fish buyers move out of the fishing sector to pursue alternative, potentially more profitable and sustainable livelihoods.

47. To guide both the process of community decision-making in the targeted pilot sites in 1.2.6, and the support for alternative livelihoods in component 1.3.2, the project will be guided by the Process Framework, developed in accordance with OP 4.12 requirements. During project implementation and before enforcement of restrictions to resource access in the community pilots or reductions in the fleet, a plan of action consistent with the stipulations of the the Process Framework will be prepared, describing the specific measures to be undertaken to assist the affected persons and the arrangements for their implementation.

48. Additionally, when the specific sites for the infrastructure have been confirmed during implementation, and the necessary screening has been completed, the project will develop as necessary resettlement action plans to mitigate any social impacts including livelihood restoration. In accordance with OP 4.12, this process will be guided by the Resettlement Policy Framework that has been prepared, based on the model of the regional Resettlement Process Framework approved for the West Africa Regional Fisheries Program.

49. While the social risks are the key safeguards issue for the project, there are also possible environmental impacts which relate to the construction of infrastructure as per activities in components 2 and 3 of the project. The ESMF will help mitigate any possible negative environmental impacts, as it provides a framework for the preparation of site-specific Environmental Management Plans (EMPs) for a number of confirmed project sites and activities. This will ensure that any potential impacts arising from the construction or rehabilitation of small-scale landing site infrastructure will be mitigated, in accordance with the environmental assessment safeguard (OP/BP 4.01) and the frameworks on environment prepared for the project.

50. Although the fisheries management and small to medium-scale aquaculture development activities that the project will support on the lower reaches of the Volta River are entirely within Ghana's borders, because the Lake is part of the internationally-shared Volta Basin the project has triggered OP 7.50 (Projects on International Waterways). All of the project's activities are downstream of the riparian countries to the Basin, and none are expected to have any appreciable or negative impacts on the Basin or these countries. The countries were notified according to the policy, and no comments or objections have been received.

51. Lastly, the maritime boundaries and OP 7.60 were also considered during the preparation. Ghana entered into bilateral negotiations with Cote d'Ivoire in 2010 to define the parameters for delimiting the maritime boundary, particularly as concerns parts of the Djata Oil Fields at Cape Three Points where the latest oil discoveries were found. There are currently no further developments on record, and no dispute has been formally registered with any tribunal. Similarly, in late 2009 the Ghana-Togo Permanent Joint Commission for Cooperation met for the third time to discuss minor land boundary problems and to explore ways to bilaterally delimit their maritime boundary. As with the border with Cote d'Ivoire, there are no later developments on record, and no disputes have been registered with any tribunal. For these reasons, OP 7.60 was not triggered.

52. **Monitoring & Evaluation.** The monitoring and evaluation (M&E) plan of the project is based on the key indicators detailed in the project's Results Framework in Annex 1. Overall achievement of the PDO will be measured through a combination of measures of: (i) the impacts of strengthened governance on the environmental health of the fish stocks, (ii) the efforts to patrol the coastal waters to reduce illegal fishing activities, (iii) the economic benefits the resources are generating for the country and (iv) the increase in aquaculture production to contribute towards reducing the domestic food fish production gap. The key indicators have been chosen taking into account the information they provide, as well as the costs and feasibility for any additional data gathering. The baselines for these indicators have been established on the best available data, but will in some cases be re-measured/refined over the first two years of implementation. Given the timeframe for recovery of the targeted fish stocks and subsequently the economic benefits that depend on them, this project aims to stop the current decline in fish catch rates and economic benefits, putting the country on a long-term path that is expected to lead to significant increases by year ten after project launch, compared to a continued decline in the absence of the project investment. For this reason, the targets for the key indicators aim at a stabilization over five years in the decline of the fish stocks and the economic benefits they provide, and an increase by year ten (see Annex 1 and Annex 7).

53. Responsibility for overall monitoring and evaluation of progress towards the project objectives and outcomes will lie with the Secretariat of the Fisheries Commission, based within the Ministry of Food and Agriculture. Currently, the sector monitoring system within the Secretariat lacks the resources needed to adequately report on progress according to the indicators in the Results Framework (see Annex 1). For this reason, the project will recruit and finance a Monitoring and Evaluation Specialist as part of the Project Management Team, to oversee and be responsible for M&E of the project. In addition, the M&E Specialist at the Regional Coordination Unit of the WARFP will provide training and ongoing support, as needed, to the Secretariat of the Fisheries Commission for monitoring and evaluation. Furthermore, the project will directly support the actual costs of data collection and analysis, as part of each of the four technical components. In particular, the project will support the establishment of an electronic ‘dashboard’ of key fisheries and community stakeholder monitoring statistics, linked to a regional node at the Regional Coordination Unit, in order to institutionalize the data collection and analysis needed to measure the key indicators in the Results Framework. As a result of this investment, by the end of the project, not only would implementation be managed based on publicly available data on key sector indicators and statistics, but overall decision-making would be linked to this M&E as well. The ‘dashboard’ will serve as the final repository for all data on key indicators in the Results Framework, as well as other key statistics on the sector, and the information will be presented regularly to the Fisheries Commission. This information will also form the basis of the an M&E report submitted annually to the World Bank, together with an updated project work program and budget.

54. **Role of Partners.** The project will be carried out in close cooperation with NEPAD, who provides direct support to the fisheries sector through the Partnership for African Fisheries, co-financed by DFID, to replicate examples of sustainable fisheries governance reforms, as well as through the Comprehensive Africa Agriculture Development Program (CAADP). Similarly, the RCU will ensure that the Sub-Regional Fisheries Commission supports project implementation, including collaboration with regional donor initiatives housed at the Commission, such as the EU’s regional fisheries surveillance project. Other development partners active in the fisheries sector in Ghana include USAID, with whom the project will closely collaborate during implementation.

Annex 4
Operational Risk Assessment Framework (ORAF)

Project Development Objective(s)					
To support the sustainable management of Ghana’s fish and aquatic resources by: (i) strengthening the country’s capacity to sustainably govern and manage the fisheries; (ii) reducing illegal fishing; (iii) increasing the value and profitability generated by the fish resources and the proportion of that value captured by the country; and (iv) developing aquaculture.					
PDO Level Results Indicators:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">1. Strengthened Governance Indicator: The overexploited canoe fisheries show signs of a recovery, as measured by a stabilization in total landings per unit of fishing capacity (e.g. number of fishing vessels)</td> </tr> <tr> <td style="padding: 2px;">2. Reduced Illegal Fishing Indicator: A 40 percent increase in the total number of patrol days at sea each year in the coastal fisheries</td> </tr> <tr> <td style="padding: 2px;">3. Increased Value and Profitability Indicator: At least a stabilization in annual net economic benefits to Ghana from targeted fisheries</td> </tr> <tr> <td style="padding: 2px;">4. Aquaculture Development Indicator: Total annual aquaculture production is increased to 35,000 tons</td> </tr> </table>	1. Strengthened Governance Indicator: The overexploited canoe fisheries show signs of a recovery, as measured by a stabilization in total landings per unit of fishing capacity (e.g. number of fishing vessels)	2. Reduced Illegal Fishing Indicator: A 40 percent increase in the total number of patrol days at sea each year in the coastal fisheries	3. Increased Value and Profitability Indicator: At least a stabilization in annual net economic benefits to Ghana from targeted fisheries	4. Aquaculture Development Indicator: Total annual aquaculture production is increased to 35,000 tons
1. Strengthened Governance Indicator: The overexploited canoe fisheries show signs of a recovery, as measured by a stabilization in total landings per unit of fishing capacity (e.g. number of fishing vessels)					
2. Reduced Illegal Fishing Indicator: A 40 percent increase in the total number of patrol days at sea each year in the coastal fisheries					
3. Increased Value and Profitability Indicator: At least a stabilization in annual net economic benefits to Ghana from targeted fisheries					
4. Aquaculture Development Indicator: Total annual aquaculture production is increased to 35,000 tons					

Risk Category	Risk Rating	Risk Description	Proposed Mitigation Measure
Project Stakeholder Risks			
Stakeholder Risks	High	Success of investments to reduce the industrial and semi-industrial trawl fleets, particularly those vessels conducting illegal fishing activities, depends on the willingness of the Borrower to apply existing laws and regulations and prosecute illegal fishing activities.	The Program provides for significant support to fisheries surveillance and enforcement activities, including the establishment of an accountable and transparent Fisheries Enforcement Unit as described in the 2002 Fisheries Act (with a degree of separation from regulatory and licensing activities), as well as transparent publication of information on infractions and prosecutions, to encourage public monitoring, as well as monitoring by multi-stakeholder national steering committees. The Program also supports communications and involvement by journalists and NGOs, to help ensure that a multiple number of stakeholders monitor these activities. Furthermore, the Government has indicated a commitment from the Office of the Vice President to monitor sector reforms as well. This risk is most prevalent in implementation, so the Program will need to ensure transparency and multi-stakeholder involvement from an early stage.

		Political Economy of the Fisheries Sector	The Bank has supported an ongoing policy dialogue in Ghana and Government has reached consensus on a policy action plan to be implemented with the support of the project over a period of five years. With the support of NEPAD, Government is consulting with stakeholders on the substance of the plan. Consultation and communications will continue throughout implementation to build awareness and support for implementing the plan.
Implementing Agency Risks			
Summary Risks	High	<p>The Secretariat to the Fisheries Commission is understaffed and under-resourced, as the sector has not received significant investment from the Borrower or donors in some time.</p> <p>Governance of the sector is extremely weak, as license provisions are often ignored by users or not enforced.</p>	<p>The project will provide technical expertise to support implementation by the Secretariat to the Fisheries Commission, and will deliver a capacity building program following institutional and training needs assessment.</p> <p>This risk is explicitly addressed in project design, including a component focused on strengthening systems, procedures and capacity for improved governance. The project will also support publication of key information on fishing licenses, to enhance transparency.</p>
Project Risks			
Design Risk	Medium – Impact	The fisheries sector is inherently complex, and it is not possible to address one piece of the sector without accounting for others – e.g. the sector cannot contribute more to local economies and value added without a sustainable governance framework, the latter of which needs enforcement to be effective.	Complexity in design is reduced to the extent possible. New approaches to community management of fisheries, such as the stakeholder managed community fisheries programs, will be piloted on a limited basis with a view to scaling up once successful models are demonstrated

Social and Environmental Risk	Medium-Impact	<p>Risk of adverse social impacts as a result of the transition to more sustainable management of the resources.</p> <p>Risk that investments in value added infrastructure outpace reforms in governance, and thereby contribute to increased fishing effort and overexploitation.</p> <p>Risk of collapse of stakeholder fisheries management initiatives in some pilot communities due to social tensions.</p>	<p>The project has an ESMF to address potential environmental impacts from the fisheries management activities as well as construction of some infrastructure. The project has designed component 1.3.2 to provide for 3 different support measures for affected workers; a once-off exit payment, longer term retraining opportunities responding to the individual's choice of training provided by established and acknowledged training centers, and medium-term employment advisory services. The project will also be guided by the National Action Plan to Implement the Regional Process Framework, as well as a Process Framework and a Resettlement Policy Framework for the project. Where necessary, appropriate actions will be taken in response to recommendations from these frameworks.</p> <p>The project is designed to explicitly link progress with component 1 and governance reforms to implementation of component 3 and value-added infrastructure. The latter will depend on development and implementation of sound fisheries policies and regulations, and introduction of rights. This risk must be monitored carefully throughout implementation phase.</p> <p>The project is designed to provide extensive support to a limited number (up to 12) of pilot communities whose involvement in the program will be based on expressions of interest submitted by the community leaders. Regular visits by a trained Dept. of Fisheries Community Participation and Sciences staff to the pilot communities will work to reduce any discords and tensions. The project will draw on experiences from ongoing pilots in Liberia so lessons learned are already available.</p>
Delivery Quality Risk	Medium – Impact	Risk of project teams unavailable to monitor and provide implementation support to the project	The Government project team will be augmented with full time technical expertise funded under the project, and further supported by expertise provided by NEPAD and the Bank team

Other Risks	Medium – Impact	Reputational risk in successful fisheries surveillance activities that overstep the Bank’s mandate to finance only economic development activities.	The project will follow the new Guidance Note on IDA/IBRD financing for fisheries enforcement operations, and accordingly only finance fisheries surveillance operations, to implement fisheries laws aimed at increasing the economic benefits from the use of these resources. Project-financed goods under component 2 will only be used for fisheries surveillance, according to specific clauses in the legal agreements drafted on the basis of the Guidance Note. This risk should be monitored throughout implementation.
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Overall Risk Rating at Preparation	Overall Risk Rating During Implementation	Comments
Medium-Impact	High	The rating for the West Africa Regional Fisheries Program in Ghana as a whole is High during implementation, given the risks of a lack of political will to fully implement the agreed reforms, and adverse social impacts resulting from reductions in the trawl fleet.

Annex 5: Implementation Support Plan

1. The strategy for implementation support (IS) has been developed based on the nature of the project and its risk profile. It will aim at making implementation support to the client flexible and efficient, and will focus on implementation of the risk mitigation measures defined in the ORAF.

2. Most Bank team members will be in the Ghana country office, with support from technical and operational staff in Washington, to ensure timely, efficient and effective implementation support to the client. Task team leadership will be transferred to the country office by the first year of project implementation. Formal supervision and field visits will be carried out semi-annually. Detailed inputs from the Bank team are outlined below.

- **Technical Input.** Supervision will ensure sufficient technical oversight is provided to liaise closely with the Secretariat to the Fisheries Commission to: (a) monitor progress of implementation towards achievement of project objectives; (b) review Terms of References and other project implementation documentation; (c) provide guidance on sector specific issues as well as project specific issues as they arise through implementation; and (d) conduct missions as necessary to assess project implementation and provide detailed guidance and support to the Secretariat. Technical support is expected to include a Fisheries Specialist, Social Specialist, and other technical skills that may be needed as issues arise throughout implementation supervision, and will be identified as the Borrower develops annual work plans.
- **Procurement.** Implementation support will include: (a) providing supervision/training to members of the procurement unit supporting the implementation of the project, as well as to the Project Coordinator and the Secretariat; (b) reviewing procurement documents; (c) providing detailed guidance on the Bank's Procurement Guidelines; and (d) monitoring procurement progress against the detailed Procurement Plan.
- **Financial Management.** Supervision will focus on the review of the project's financial management system, including accounting, reporting and internal controls. The Bank team will also work with the Project Coordinator and Secretariat to assist in coordination among different departments and units for financial management and reporting.
- **Environmental and Social Safeguards.** The Bank team will support the Government in the implementation of the agreed Environmental and Social Management Framework as well as the Resettlement Process Framework and Resettlement Action Plan and provide guidance to the client to address any issues.
- **Implementation Support.** Following the model of other investments of the West Africa Regional Fisheries Program, the team will recruit an 'implementation support' consultant, whose terms of reference will concentrate on providing direct technical and implementation support to the Secretariat, as well as to the Bank team.

- **Regional Coordination.** The project will benefit from ongoing support from the Regional Coordination Unit of the West Africa Regional Fisheries Program, based in the Sub-Regional Fisheries Commission in Dakar. Experts in this unit will provide M&E and fiduciary support, as well as sharing lessons learned from investments in neighboring countries, and facilitating opportunities for regional collaboration.

I. Summary of implementation support

Time	Focus	Resource	Time
Project Year 1	Procurement supervision; Technical and procurement review of bidding documents	Procurement Specialist Fisheries Specialist TTL	4 SWs 2 SWs 1 SW
	Financial management supervision	Financial management specialist	3 SWs
	Sector guidance and technical support	Fisheries Specialist Social Specialist	5 SWs 3 SWs
	Task team leadership, Institutional arrangements and project supervision coordination	TTL Operations	5 SWs 2 SWs
Project Years 2-5	Project implementation	Fisheries Specialist Procurement Specialist Operations	3 SWs 2 SWs 2 SWs
	Environment and Social monitoring and reporting	Environmental Specialist Social Specialist	2 SWs 2 SWs
	Financial management monitoring and reporting	Financial Management Specialist	2 SWs
	Task team leadership	TTL	5 SWs

II. Required skills mix

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Fisheries Specialist	7 SWs first year, 3 SWs annually in following years	Two	
Task Team Leader	5 SWs annually	Field trips as required	Field based
Social Specialist	3 SWs annually	Two	
Procurement	4 SWs annually	Field trip as required	Field based
Financial Management	3 SWs annually	Field trip as required	Field based
Operations	2 SWs annually	As needed	

III. Partners

Name	Country	Role
NEPAD	South Africa	Provide linkage to CAADP; provide technical input on implementation of project activities
DFID	United Kingdom	Provide technical input and oversight on implementation of activities specific to DFID financing as well as overall project implementation

Annex 6: Team Composition

World Bank staff and consultants who worked on the project:

Name	Title	Unit
John Fraser Stewart	Co-Task Team Leader	AFTEN
John Virdin	Co-Task Team Leader	AFTEN
Michael Arbuckle	Sr. Fisheries Specialist	ARD
Peter Kristensen	Sector Leader	AFTEN
Carolyn Winter	Sr. Social Development Specialist	AFTCS
Beatrix Allah-Mensah	Social Development Specialist	AFTCS
Ellen Tynan	Sr. Environmental Specialist	AFTEN
Jingjie Chu	Young Professional	AFTEN/ARD
Victor Bundi Mosoti	Legal Counsel	LEGEN
Randall Brummet	Sr. Fisheries Specialist	ARD
Jose De Luna Martinez	Sr. Financial Economist	FPDPO
Claudia Pardiñas Ocaña	Sr. Counsel	LEGAFF
Luis M. Schwarz	Sr. Finance Officer	CTRFC
Adu-Gyamfi Abunyewa	Procurement Specialist	AFTPC
Thomas Kwasi Siaw Anang	Procurement Specialist	AFTPC
Robert Wallace DeGraft Hanson	Financial Management Specialist	AFTFM
Anders Jensen	Monitoring and Evaluation Specialist	AFTDE
Kafu Kofi Tsikata	Sr. Communications Officer	AFTEX
Gayatri Kanungo	GEF Technical Specialist	AFTEN
Alyson Kleine	Operations Analyst	WBICC
Virginie Vasselopolus	Program Assistant	AFTEN
Victoria Bruce-Goga	Program Assistant	COCPO
Salimatou Drame-Bah	Program Assistant	AFCW1
Ernestina Aboah-Ndow	Program Assistant	AFCW1

Annex 7: Economic & Financial Analysis

A. Program Overview

1. Based on discussions with the Government of Ghana and on the data provided, a quantitative bioeconomic model for the country's fisheries sector was conducted to ensure that the proposed investments were economically efficient and financially sustainable over the long-term. The calculation cannot capture the benefit of all the diverse activities of the project due to time and resources constraints, such as the value of public and community capacity strengthening and stakeholder technical and managerial support. This annex summarizes the findings of these analyses.

B. Overview of Program Cost and Benefits

2. The proposed investment is divided into four components, totalling US\$53.8 million (see Annex 2 for details):

- Component 1: good governance and sustainable management of the fisheries. (US\$20.7 million)
- Component 2: reduction of illegal fishing (US\$11.8 million).
- Component 3: increasing the contribution of the fish resources to the local economy (US\$19.4 million).
- Component 4: coordination, monitoring and evaluation and project management (US\$1.9 million).

3. There are a range of benefits that will be generated from these four classes of investments, including:

- Increased profitability of fisheries and higher economic returns from the seafood sector.
- Poverty reduction for coastal and inland fishing communities.
- Increased food security.
- Improved marine and fisheries conservation outcomes.

4. Some of these are monetary benefits that can be quantified (e.g., revenue, profits, rents) and some are non-monetary benefits that are less easily quantified (e.g., increased food security and conservation of fisheries and marine resources). Many of the non-monetary benefits, however, will also support economic development through their effects on improving fishery stocks and harvests, increasing income in related businesses such as nature-based tourism. Furthermore, because of the transboundary nature of the fisheries resources in the region, significant externalities exist, with interventions and activities in the sector in Ghana likely to have significant positive effects on neighboring countries. The overall benefits from this program, therefore, are likely to be greater than the estimated monetary value of the benefits.

Any reference to value in the report is in year 2009 United States Dollars (USD).⁷ Catch volume is in units of metric tons (mt).

5. Because a large number of components and subcomponents are being simultaneously implemented and have overlapping relationships, expected benefits cannot be isolated as a function of each investment but can be analyzed with respect to their total expected effects on the major fishery sectors and subsectors. General expected benefits for each component are summarized in Table 1.

Table 1: Benefits of Different Components

Component	Expected Benefit
<p><i>Component 1:</i> Good Governance and Sustainable Management of the Fisheries</p>	<ul style="list-style-type: none"> • Improved management capacity and efficiency • Increased stakeholder self governance and rational management incentives • Rebuilt overfished stocks and increased harvests • Reduced excess effort and increased catch per unit effort • Increased ex-vessel revenues • Lower fishing costs • Improved technical efficiency • Increased profits and rents • Provided skills and income for individuals who exit the sector • Strengthened social cohesion within communities and among stakeholder groups • Improved marine and freshwater habitats and biodiversity
<p><i>Component 2:</i> Reduction of Illegal Fishing.</p>	<ul style="list-style-type: none"> • Improved management capacity and efficiency • Rebuilt overfished stocks and increase harvests • Reduction (illegal) in excess effort and increase (legal) catch and catch per unit effort • Increased (legal) ex-vessel revenues • Reduction in fishing costs • Increased profits and rents • Improved marine and freshwater habitats and biodiversity • Increased amount and quality of fisheries data

7. Currencies were converted to nominal USD using exchanges rates from OANDA Corporation, <http://www.oanda.com/currency/historical-rates>, as reported in a Wikipedia article on October 17, 2010 at http://en.wikipedia.org/wiki/Ghanaian_cedi. U.S. dollars adjusted to 2009 using the GDP implicit price deflator developed by the U.S. Bureau of Economic Analysis.

<p><i>Component 3:</i> Increasing the Contribution of the Fish Resources to the Local Economy</p>	<ul style="list-style-type: none"> • Increased local marine landings because of reduced at sea transshipments of catch • Redistribution of existing wealth from foreign companies to local businesses • Additional income (value added) and employment from processing, export and related activities arising from enhanced technologies • Reduced losses from spoilage of fish that do not reach any markets in sellable condition. • Improved access to foreign markets due to improved sanitary conditions during processing and cold storage • Improved prices per unit weight of landed catch due to improved quality • Increased farmed freshwater fish production because of aquaculture • Generation of foreign earnings form export of farmed fish • Improved prices and lower production costs for farmed fish due to faster growth rates, need for less feed, increased size and quality of fish reaching market
<p><i>Component 4:</i> Coordination, Monitoring and Evaluation and Project Management.</p>	<ul style="list-style-type: none"> • Increased coordination of fisheries management, surveillance, monitoring, and sector development activities. • Increased community level monitoring of local environmental conditions, sanitary, water quality and fishing effort.

C. Valuation of Project Benefits

6. A combined financial/economic benefits model was developed to estimate the quantifiable direct benefits generated by the project. The analysis was carried out for the following seven⁸ sectors:

- Marine fisheries (artisanal/canoe without motors, artisanal/canoe with motors, inshore/semi-industrial, industrial, and tuna)
- Freshwater fisheries
- Aquaculture
- Processing

7. Where available, in-country historical data on catch volumes by species, landed prices by species, fishing effort, fixed and operating fishing costs by sector were collected for the marine and freshwater fishery sectors. Fixed and operating costs and revenues for aquaculture and

⁸ Artisanal fisheries include both motorized canoes and non-motorized canoe subsectors. They were calculated separately due to their different characteristics of operation. The presentation is mostly aggregated.

processor sectors were also collected. This data was used to estimate current net economic benefits for the seven fishery sectors. Two scenarios were then modelled for each sector to estimate future benefits over 30 years, one being a “base case” or “business as usual” without-investment scenario, and the other the “investment” scenario incorporating assumptions based on the investments and associated reforms implemented through various project components.

Current Economic Performance of Ghana Fisheries

8. Artisanal fisheries account for approximately 80 percent of Ghana’s marine fish production. The sector is made up of approximately 12,000 canoes crewed by more than 120,000 fishers operating from over 300 landing sites along the coast. About 50 percent of the canoes are powered by outboard motors. Both motorized and non-motorized canoes use a variety of gear types to target different fish stocks. No licence or registration is required to operate in the artisanal fishery. Over the last decade, the catch per unit effort for all types of canoe fishing has been declining. This is due to both an increase in effort (more canoes and greater catching power for each canoe) and a reduction in catches.

9. The semi-industrial inshore fleet consists of approximately 250 to 400 locally built wooden vessels. They are fitted with engines of up to 400 hp and range between 8 and 37 m in length. Vessels are licensed and a fee is paid to the Government of Ghana, though the licensing system is not well policed and many vessels operate without the required licenses. This sector was badly affected by the collapse of triggerfish stocks in the 1980s. Today, high operating costs combined with aging hulls and equipment means these vessels are more likely to be employed as purse seiners during the upwelling period and less likely to be used as bottom trawlers at other times of the year. The fleet contributes 2 to 3% of total marine landings each year.

10. The Ghanaian owned industrial fleet is made up of 40 to 70 trawlers and 2 to 3 shrimp vessels. Unlike the wooden semi-industrial fleet, these vessels are steel-hulled and foreign built. The trawlers tend to be over 35 m in length and have engines of over 600 hp, while the shrimpers are up to 30 m in length with engines over 350 hp. The industrial fleet makes up around 4-7 percent of all marine fish landings. The vessels tend to be old and inefficient. Few vessels meet the international sanitary and phytosanitary standards for the export of fish.

11. Between 25 and 40 tuna vessels land approximately 18-22 percent of the total annual marine fish catch. The Fisheries Law authorizes that at least 10 percent of landings of commercial tuna vessels must be sold on the local market. Over 60 percent of the landed tuna is processed into loins or canned tuna mainly for export. Tuna vessels pay a license fee to the Government of Ghana.

12. Inland capture fisheries are estimated to land between 150,000 and 400,000 tonnes of fish per year. Inland capture fisheries include Lake Volta as well as other lakes, reservoirs and rivers. It is estimated that about 80 – 90 percent of inland fish landings come from Lake Volta. Between 70,000 to 80,000 fishers and 20,000 fish processors and traders are engaged in the Lake Volta fishery alone. There are 17,500 planked canoes actively fishing in the Lake. The gear types used include cast and gillnets, hook and line, and traps. Some reports suggest that up to 70 percent of the Lake Volta catch could be taken by illegal methods.

13. Ghanaian aquaculture is primarily tilapia production estimated to be around 9,000 tonnes. The majority of production centers in Lake Volta although there are a number of smaller cage and pond-based producers located around the country. Tilapia is priced alongside the better demersal species and sells from \$2.20-\$3.50/kg ex-farm gate depending on size class, and more than twice that amount at retail markets in Accra. The potential for growth of aquaculture in Ghana is considerable, particularly near the southern portions of Volta lake which has good transportation and energy infrastructure and is located only a few hours away from the nation's largest population centers. There are still major constraints on aquaculture including lack of readily available domestic breeds, as well as locally produced feeds.

14. Approximately 80 percent of fish landed and consumed in Ghana is processed, while the remaining amount is consumed fresh. Sixty percent of the process fish is smoked, 20 percent is sun-dried, and the remaining is salted. Some tuna products are canned or frozen but most of this is exported to Europe. Key issues in developing higher quantities of processed products and expanding markets is solving the major problems associated with post harvest fishery losses (estimated greater than 30 percent), unsanitary conditions, availability of ice, availability of capital, and improved processing technology.

15. Although Ghana is a major seafood producer it is presently incapable of meeting domestic demand. Imports total approximately 200,000 MT or about 40 percent of the domestic product consumed annually. Most imported product is composed of frozen sardines, anchovies, and mackerels that is processed and marketed to lower and middle class consumers. Approximately 90,000 MT of product is exported which is dominated by canned and frozen tuna targeted to European markets. Given increasing requirements by international markets for higher quality, safety, and HACCP certification, growth in export products will depend on improving quality and sanitary conditions. Over the longer term, international demand for sustainable seafood will require greater investment in fishery science and management.

Basic Assumptions

16. In order to analyze the economic effects of the investments and their corresponding actions, a number of economic, behavioural, and production expectations and assumptions are required. These assumptions fall into three sets or categories. The first one is assumptions regarding the global or national economy and environment. The second and third ones respectively describe expectations/assumptions for the base case (no investment scenario) and the investment scenario including assumption on production, behaviour, input/output prices and long term investment support. For this analysis, assumptions were selected that are "conservative" and based on reasonable expectations and best available information. Table 2 summarizes the assumptions for each set.

Table 2: Assumptions for Economic Analysis

Category	Assumptions
Macro Economic and Social Environment	<ul style="list-style-type: none"> • Seafood demand in Ghana will grow proportionately to population and personal income • Seafood import taxes (15%) remain in place

	<ul style="list-style-type: none"> • Fuel subsidies continue • Global warming will not have highly “predictable” major effects on fisheries for the next thirty years
<p>Base Case (Without Project Case)</p>	<ul style="list-style-type: none"> • Marine and freshwater landings total 470,000 MT in year 1 (320, 000 MT marine and 150,000 MT freshwater) • Marine and freshwater landings decrease by 5% over thirty years consistent with long term trends including increasing effort, overfishing, illegal fishing, and impacts on habitats and the environment • Marine canoe fleet grows at 200 vessels per year, consistent with recent patterns but stabilizes after ten years due to decreasing profits • Freshwater canoe fleet grows at 200 vessels per year but stabilizes after ten years as profits decrease • Semi-industrial fleet decreases 3 vessels per year consistent with recent trends • Trawl fleet growth is flat • Aquaculture grows at 1,000 MT per year (regardless of investment package) • Tilapia prices remain flat until year ten and then decrease 1% per year for the next twenty years (approach international price) • Processing operations in terms of production, quality, efficiency, and price remain consistent with existing situation • Imports and exports remain consistent with existing patterns of growth • Processing output and revenue decrease proportionately to total harvest output • Imports and exports remain on same trajectory as last five years
<p>Investment Case (With Project Case)</p>	<ul style="list-style-type: none"> • Marine and freshwater landings total 470,000 MT in year 1 (320, 000 MT marine and 150,000 MT freshwater) • The investment of \$US 55.04 million is invested over five years in equal \$11 million dollar increments • The management approaches developed and implemented as a result of the investment are adequately funded and maintained into the future. It is assumed that a portion of this funding is derived by licensing revenue in the form of a transfer payment • Canoe fleets are licensed and capped at 12,000 canoes • “Capital stuffing” or investment per canoe is only partially controlled (for example there may be caps on vessel length but not necessarily other capital inputs including engines, nets, capture gear, electronic equipment, etc) • All trawl vessels are decommissioned regardless of specific harvest strategies (e.g., demersal or mid water finfish, shrimp, pair trawling, etc) • One half (120) of the semi-industrial vessels are bought out with the investment • Effects of investment phased in over 27 years (years 3-30) with most

	<p>biological effects in first ten years given the relatively fast growth of pelagic stocks which dominate the fishery</p> <ul style="list-style-type: none"> • Harvests and food grade usable catch increase 5 percent over ten year period due to improvements in vessel operation and reduction in discards, improved enforcement and decrease in IUU activities (including dynamiting and light fishing), improvement in benthic habitat and associated fish stocks, and improvements in port infrastructure. These effects more than compensate for losses associated with buying out trawl and portion of semi-industrial fleet. We assume that at least half of fish available from reductions of trawl and semi-industrial fleets are harvested by remaining fleets and canoe sector. • Ex-vessel price increase by 2 percent over ten years due to higher quality and related increase in exports • Aquaculture costs decrease by 1 percent per year for ten years and ½ percent for remaining twenty years due to results of investment in supporting training and improved production practices • Tilapia prices remain flat until year ten and then decrease 1 percent per year for the next twenty years (approach international price) • Increase in processor recovery of 3 percent due to less harvest waste, and higher sanitary standards • Output processor prices increase by 2 percent due to higher quality and greater proportion of exports
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D. Model Outputs

17. The model outputs presented in the analysis are as follows:

- Net Economic Benefits (NEB) for each sector. It is sometimes referred to as economic rent, which is the return to owners and participants including skippers/crew after all variable and fixed costs as well as depreciation costs, capital cost,⁹ and opportunity cost of labor are accounted. This measure appropriately in economic terms treats labor as a cost. However, the cost of labor, which is a share of the net revenue (estimated as total revenue minus operational costs¹⁰) in Ghana, is not subtracted directly. Instead, the opportunity cost of labor, as the maximum alternative employment, is used in the calculation.¹¹

⁹ Depreciation and capital costs are separately estimated as annual costs for each canoe power category in the economic model. Assumptions were made about hull, motor, gear, and other equipment lifespan and salvage value to calculate straight-line depreciation; and, other assumptions were promulgated for loan terms to determine opportunity cost of capital.

¹⁰ Operational costs include trip variable costs (fuel, bait, expendable gear, etc.) and non-trip fixed costs (moorage, etc.)

¹¹ The additional assumption is that the labor market works smoothly in the region. We have little information on the set of skills of fishers' families and alternative employment possibilities, thus we simply assume there is a 50 percent probability that alternative labor opportunities exist for same or higher wages.

- Resource Rents (RR) for each sector. The concept of Resource Rents should not be confused with Net Economic Benefits. Resource Rents further assume there is an allowance for normal profit. In this analysis, a margin of 20 percent was adopted based on the Namibian hake fishery study done by Lange and Motinga (1997).
- Distribution among three groups, including (i) net benefits to crew/workers, (ii) net income to vessel or company owner, and (iii) net transfers to government. The model did not consider taxes on sector profits.
- Net Present Value (NPV) for each sector. This is the sum of the annual values for each benefit category discounted over a 30-year period.

Scenario 1: Business-as Usual

18. The baseline scenario assumes no change in the legal, institutional or policy framework for the fisheries sector in Ghana.

19. For the artisanal fishery, the non-motorized canoe sector will generate approximately US\$105 million revenue, leading to nearly \$55 million net economic benefit and \$34 million resource rent (subtract 20 percent of normal profit on the base of net economic benefit) on Year 5 (Table 3). The crew members will share \$33.6 million returns and the owners of the boats will make \$65 million net profit. The base case shows the effects of “business” as usual including increasing vessel effort up to over 5,000 vessels which acts to dissipate profits and reduce sustainable catch over the 30 year period. All the categories of the economic performances of this sector will decline, including the total landings, harvest revenue, net economic benefit, resource rent, and returns to labor and vessel owners. In the base case, the net present value (NPV) over 30 years under 10 percent discount rate for net economic benefit is \$512 million. Since license limitation programs aren’t implemented, license revenues aren’t generated as “transfer” payments to the government to support management and research costs.

Table 3: Baseline Situation for Artisanal Non-Motorized Canoe Sector

Base Case Non-Motorized Canoes	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	4,808	5,237	5,666	5,666	5,666	5,666	5,666	
Landed catch (000 metric tons)	72	71	70	70	69	69	68	
Revenue (000 USD)	105,297	104,420	103,542	102,665	101,787	100,910	100,032	977,448
Net economic benefits (000 USD)	55,153	54,694	54,234	53,774	53,315	52,855	52,396	511,973
Resource rent (000 USD)	34,094	33,810	33,526	33,241	32,957	32,673	32,389	316,483
Distribution of benefits (000 USD)								
Returns to labor	33,900	33,617	33,335	33,052	32,770	32,487	32,205	314,683
Returns to vessel owners	65,556	65,009	64,463	63,917	63,370	62,824	62,278	608,535
Transfers to government (license fees)	0	0	0	0	0	0	0	0

20. The motorized canoe sector will generate about \$323 million annual revenue on Year 5, leading to nearly \$100 million net economic benefit and \$34 million resource rent (Table 4). The returns to labor are over \$87 million and returns to vessel owners are \$138 million. The net present value (NPV) over 30 years under 10 percent discount rate for net economic benefit is

\$923 million. Again, the economic performance will deteriorate in the base case and the government does not get any returns because of no license system.

Table 4: Baseline Situation for Artisanal Motorized Canoe Sector

Base Case Motorized Canoes	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	6,405	6,976	7,547	7,547	7,547	7,547	7,547	
Landed catch (000 metric tons)	160	159	158	156	155	154	152	
Revenue (000 USD)	325,754	323,040	320,325	317,610	314,896	312,181	309,467	3,023,893
Net economic benefits (000 USD)	99,462	98,633	97,804	96,975	96,147	95,318	94,489	923,280
Resource rent (000 USD)	34,311	34,025	33,739	33,453	33,167	32,882	32,596	318,501
Distribution of benefits (000 USD)								
Returns to labor	88,256	87,520	86,785	86,049	85,314	84,579	83,843	819,256
Returns to vessel owners	139,952	138,786	137,620	136,454	135,287	134,121	132,955	1,299,143
Transfers to government (license fees)	0	0	0	0	0	0	0	0

21. For the semi-industrial fishery sector, the fleet size will decline from the current 240 to 150 on Year 30 (Table 5) due to the high cost of operating. It is estimated that about \$17 million annual revenue and \$4 million net economic benefit will be generated on Year 5, leading to nearly \$700,000 resource rent, \$5 million returns to labor and \$3.5 million returns to vessel owners. By Year 30, the total revenue will reduce to \$16.1 million and the net economic benefit will increase to \$4.4 million. Both the returns to labor and vessel owners will decline. The resource rent will increase to \$1.2 million. Over 30 years, it will create over \$38 million NPV of the net economic benefit.

Table 5: Baseline Situation for Semi-Industrial Sector

Base Case Semi-Industrial	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	240	225	210	195	180	165	150	
Landed catch (000 metric tons)	8	8	8	8	8	8	8	
Revenue (000 USD)	16,947	16,806	16,664	16,523	16,382	16,241	16,100	157,313
Net economic benefits (000 USD)	3,969	4,049	4,129	4,209	4,289	4,369	4,449	38,799
Resource rent (000 USD)	579	688	796	904	1,013	1,121	1,229	7,336
Distribution of benefits (000 USD)								
Returns to labor	4,965	4,924	4,882	4,841	4,800	4,758	4,717	46,091
Returns to vessel owners	3,575	3,545	3,515	3,485	3,455	3,426	3,396	33,182
Transfers to government (license fees)	0	0	0	0	0	0	0	0

22. The economic performance for the industrial sector in the baseline will keep the declining trend. The total revenue and net economic benefits will reduce from \$68 million and \$6 million on Year 5 to \$65 million and less than \$6 million on Year 30, respectively. The resource rent has been negative since the beginning. Over 30 years, the NPV of the resource rent loss will be over \$70 million.

Table 6: Baseline Situation for Industrial Sector

Base Case Industrial	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	72	72	72	72	72	72	72	
Landed catch (000 metric tons)	18	17	17	17	17	17	17	
Revenue (000 USD)	68,987	68,412	67,837	67,262	66,687	66,112	65,537	640,386
Net economic benefits (000 USD)	6,225	6,173	6,122	6,070	6,018	5,966	5,914	57,788
Resource rent (000 USD)	(7,572)	(7,509)	(7,446)	(7,383)	(7,320)	(7,257)	(7,193)	(70,290)
Distribution of benefits (000 USD)								
Returns to labor	13,797	13,682	13,567	13,452	13,337	13,222	13,107	128,077
Returns to vessel owners	17,247	17,103	16,959	16,816	16,672	16,528	16,384	160,097
Transfers to government (license fees)	0	0	0	0	0	0	0	0

23. The tuna sector will keep the current situation. The fleet size is 26 and total landing is 69,000 metric tons, generating \$150 million total revenue and \$34 million net economic benefit. The returns to labor and the vessel owners are \$45 million and \$4 million. Over 30 years, the NPV of the economic benefit for the tuna sector is \$322 million, with \$38 million resource rent. The government does not receive any income because no registration system exists.

Table 7: Baseline Situation for Tuna Sector

Base Case Tuna Sector	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	26	26	26	26	26	26	26	
Landed catch (000 metric tons)	69	69	69	69	69	69	69	
Revenue (000 USD)	150,607	150,607	150,607	150,607	150,607	150,607	150,607	1,419,760
Net economic benefits (000 USD)	34,207	34,207	34,207	34,207	34,207	34,207	34,207	322,462
Resource rent (000 USD)	4,085	4,085	4,085	4,085	4,085	4,085	4,085	38,510
Distribution of benefits (000 USD)								
Returns to labor	45,182	45,182	45,182	45,182	45,182	45,182	45,182	425,928
Returns to vessel owners	33,134	33,134	33,134	33,134	33,134	33,134	33,134	312,347
Transfers to government (license fees)	0	0	0	0	0	0	0	0

24. In the base scenario, the freshwater canoe fleet will grow at 200 vessels per year but stabilizes after ten years as profits decrease. As shown in Table 8, the total landing decreases from the current 123,000 tons to 117,000 tons on Year 30. The total revenue reduces from \$267 million to \$256 million. The returns to labor and vessel owners will decrease \$3 million and \$5 million on Year 30 compared to Year 5. Over 30 years, the freshwater sector can bring \$764 million net economic benefits, which generates \$263 million resource rent.

Table 8: Baseline Situation for Freshwater Sector

Base Case Freshwater Sector	0	5	10	15	20	25	30	NPV (10%)
Number of vessels	17,500	18,500	19,500	19,500	19,500	19,500	19,500	
Landed catch (000 metric tons)	123	122	121	120	119	118	117	
Revenue (000 USD)	269,680	267,433	265,186	262,938	260,691	258,444	256,196	2,503,374
Net economic benefits (000 USD)	82,341	81,655	80,969	80,283	79,596	78,910	78,224	764,351
Resource rent (000 USD)	28,405	28,168	27,932	27,695	27,458	27,221	26,985	263,676
Distribution of benefits (000 USD)								
Returns to labor	73,064	72,455	71,846	71,237	70,628	70,020	69,411	678,233
Returns to vessel owners	115,862	114,896	113,931	112,965	112,000	111,034	110,069	1,075,514
Transfers to government (license fees)	0	0	0	0	0	0	0	0

25. The aquaculture sector will grow at 1,000 MT per year, reaching nearly 40,000 MT by year 30. The total revenue from aquaculture will be \$90 million, with nearly \$30 million net economic benefits on year 30. The returns to labor and vessel owners will increase from \$1.9 million and \$14 million on Year 5 to \$4.4 million and \$31 million on Year 30. The NPV of the economic benefits over 30 years under 10 percent discount rate is \$157 million.

Table 9: Baseline Situation for Aquaculture Sector

Base Case Aquaculture Sector	0	5	10	15	20	25	30	NPV (10%)
Production (mt)	10,170	14,170	19,170	24,170	29,170	34,170	39,170	
Revenue (000 USD)	28,679	39,959	54,059	64,819	74,394	82,875	90,346	467,713
Net economic benefits (000 USD)	5,775	13,557	18,253	21,697	24,702	27,301	29,527	157,294
Distribution of benefits (000 USD)								
Returns to labor	1,232	1,923	2,621	3,157	3,633	4,056	4,428	22,648
Returns to vessel owners	6,255	14,119	19,000	22,711	26,013	28,936	31,510	164,543
Employment	197	308	420	506	582	650	710	

Scenario 2: Investment Case

26. In the investment case, by licensing and capping the current number of fleet (6,405 motorized canoes and 4,808 non-motorized canoes), the fishery stock will get a chance to recover and the economic performance for artisanal fishery sectors will improve (Table 10). The total landings, total revenue, and net economic benefits all increase compared to the base case. Over 30 years, the project can add \$57 million of the net economic benefit for non-motorized canoe sector and \$103 million for motorized canoe sector. Over \$70 million of the resource rent will be captured for both sectors during 30 years period. The government, vessel owners and labors all benefit from the project. The transfer to government becomes positive due to the establishment of registration system.

Table 10: Project Scenario for Artisanal Fishery Sector

	Project Scenario							Difference						
	0	5	10	15	20	25	30 NPV (10%)	0	5	10	15	20	25	30 NPV (10%)
Non-Motorized Canoes														
Number of vessels	4,808	4,808	4,808	4,808	4,808	4,808	4,808	0	(429)	(858)	(858)	(858)	(858)	(858)
Landed catch (000 metric tons)	72	72	82	84	84	84	84	0	1	11	14	14	15	15
Revenue (000 USD)	105,297	131,622	151,975	156,550	156,550	156,550	1,087,376	0	27,202	48,433	53,885	54,762	55,640	56,517
Net economic benefits (000 USD)	55,153	55,153	63,682	65,599	65,599	65,599	569,551	0	460	9,448	11,824	12,284	12,744	13,203
Resource rent (000 USD)	34,094	34,094	39,366	40,551	40,551	40,551	352,076	0	284	5,840	7,309	7,593	7,878	8,162
Distribution of benefits (000 USD)								0	0	0	0	0	0	0
Returns to labor	33,900	33,900	39,142	40,320	40,320	40,320	350,074	0	282	5,807	7,268	7,550	7,833	8,115
Returns to vessel owners	65,556	65,556	75,693	77,971	77,971	77,971	676,973	0	546	11,230	14,054	14,601	15,147	15,693
Transfers to government (license fees)	0	0	608	626	626	626	3,441	0	0	608	626	626	626	626
Motorized Canoes														
Number of vessels	6,405	6,405	6,405	6,405	6,405	6,405	6,405	0	(571)	(1,142)	(1,142)	(1,142)	(1,142)	(1,142)
Landed catch (000 metric tons)	160	160	183	187	187	187	187	0	1	26	31	32	33	35
Revenue (000 USD)	325,754	325,754	376,128	387,449	387,449	387,449	3,363,972	0	2,715	55,803	69,839	72,553	75,268	77,983
Net economic benefits (000 USD)	99,462	99,462	114,843	118,299	118,299	118,299	1,027,116	0	829	17,038	21,324	22,153	22,981	23,810
Resource rent (000 USD)	34,311	34,311	39,617	40,809	40,809	40,809	354,321	0	286	5,878	7,356	7,642	7,928	8,214
Distribution of benefits (000 USD)								0	0	0	0	0	0	0
Returns to labor	88,256	88,256	101,904	104,971	104,971	104,971	911,393	0	735	15,119	18,921	19,657	20,392	21,128
Returns to vessel owners	139,952	139,952	161,594	166,458	166,458	166,458	1,445,249	0	1,166	23,974	30,005	31,171	32,337	33,503
Transfers to government (license fees)	0	0	1,881	1,937	1,937	1,937	10,646	0	0	1,881	1,937	1,937	1,937	1,937

27. Another important indicator of fishery performance is the catch per unit of effort (CPUE). Usually, it's measured by the annual catch per vessel. Figure 1 illustrates that in the investment case, the catch per vessel increases compared to the base case for both motorized and non-motorized canoes. For example, the CPUE of motorized canoe increases to 28 tons/vessel on Year 6, 3 tons higher (12 percent) than the current situation and 5 tons higher (20 percent) than the base case. For the non-motorized canoe, the CPUE will increase nearly 42 percent (17 tons per vessel) on Year 30 compared to the base case (12 tons per vessel). This indicates a significant gain of the project.

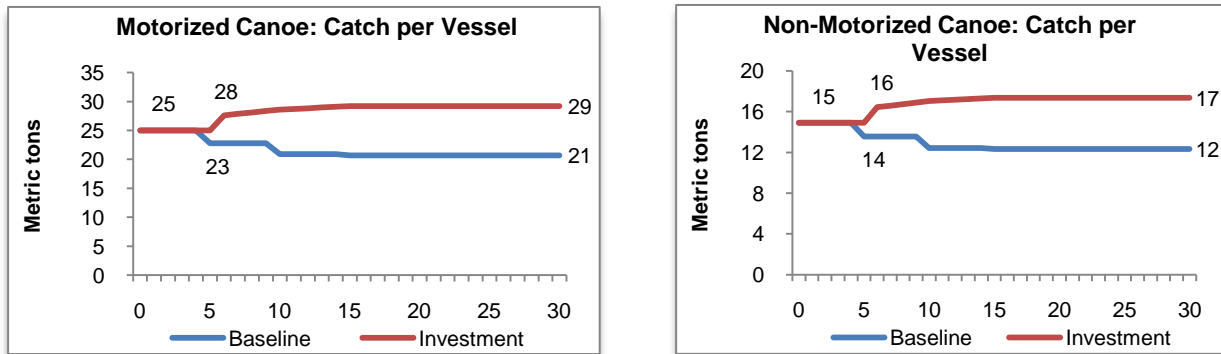


Figure 1 Catch per Vessel for Artisanal Canoe Sector

28. For the semi-industrial sector, both the Net Economic Benefit and Resource Rent will be cut into half due to the reduction of fishing fleet under investment case compared to the base case (Table 11). Improvement occurs as vessels exit the fishery in both cases, but more significantly in the base case. Regarding the returns to each stakeholder group, only the returns to government (license fee) are positive in the investment case. The transfer to the government will be \$43,000 per year in semi-industrial industry, with a total NPV of \$242,000 (10 percent

discount rate), compared to zero in the base case. Both the returns to labor and returns to vessel owners in the investment case are about half of that in the base case.

Table 11 Project Scenario for Semi-Industrial and Industrial Sectors

	Project Scenario								Difference							
	0	5	10	15	20	25	30	NPV (10%)	0	5	10	15	20	25	30	NPV (10%)
<i>Semi-Industrial</i>																
Number of vessels	240	240	120	120	120	120	120		0	15	(90)	(75)	(60)	(45)	(30)	
Landed catch (000 metric tons)	8	8	4	4	4	4	4		0	0	(4)	(4)	(4)	(4)	(4)	
Revenue (000 USD)	16,947	16,947	8,558	8,643	8,643	8,643	8,643	112,614	0	141	(8,106)	(7,880)	(7,739)	(7,598)	(7,457)	(44,699)
Net economic benefits (000 USD)	3,969	3,969	2,015	2,045	2,045	2,045	2,045	26,449	0	(80)	(2,114)	(2,164)	(2,244)	(2,324)	(2,404)	(12,350)
Resource rent (000 USD)	579	579	303	316	316	316	316	3,926	0	(108)	(493)	(588)	(696)	(804)	(913)	(3,410)
Distribution of benefits (000 USD)																
Returns to labor	4,965	4,965	2,507	2,532	2,532	2,532	2,532	32,994	0	41	(2,375)	(2,309)	(2,267)	(2,226)	(2,185)	(13,097)
Returns to vessel owners	3,575	3,575	1,805	1,823	1,823	1,823	1,823	23,753	0	30	(1,710)	(1,662)	(1,632)	(1,603)	(1,573)	-9,428
Transfers to government (license fees)	0	0	43	43	43	43	43	242	0	0	43	43	43	43	43	242
<i>Industrial</i>																
Number of vessels	72	72	0	0	0	0	0		0	0	(72)	(72)	(72)	(72)	(72)	
Landed catch (000 metric tons)	18	18	0	0	0	0	0		0	1	(17)	(17)	(17)	(17)	(17)	
Revenue (000 USD)	68,987	68,987	0	0	0	0	0	261,514	0	575	(67,837)	(67,262)	(66,687)	(66,112)	(65,537)	(378,872)
Net economic benefits (000 USD)	6,225	6,225	0	0	0	0	0	23,599	0	52	(6,122)	(6,070)	(6,018)	(5,966)	(5,914)	(34,189)
Resource rent (000 USD)	(7,572)	(7,572)	0	0	0	0	0	(28,704)	0	(63)	7,446	7,383	7,320	7,257	7,193	41,586
Distribution of benefits (000 USD)																
Returns to labor	13,797	13,797	0	0	0	0	0	52,303	0	115	(13,567)	(13,452)	(13,337)	(13,222)	(13,107)	(75,774)
Returns to vessel owners	17,247	17,247	0	0	0	0	0	65,379	0	144	-16,959	-16,816	-16,672	-16,528	-16,384	-94,718
Transfers to government (license fees)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

29. In the investment case, the industrial trawl sector will be decommissioned by Year 6. Although the net economic benefit will be down to zero, further loss of resource rent from the fishery will be prevented (Table 11). All the stakeholders get a zero return in the investment case after Year 6. The modeled results are consistent with a strategy of disinvestment in an unprofitable sector and negative resource rent. The net present value of some \$41 million is no longer dissipated (with 10 percent discount rate).

30. For the tuna sector, given the assumption that there will be no change in vessel numbers over current conditions and that catch returns to the tuna fleet remaining flat for the whole period modeled, there is no significant difference in the base case and investment case for the tuna fishery.

31. For the freshwater fishery, both the net economic benefit and resource rent increase over years in the investment case compared to the decreasing trend in the base case (Table 12). By Year 30, the investment case generates nearly \$90 million net economic benefits and over \$30 million resource rent, about 13 percent higher than the base case. The net difference of NPV over 30 years with 10 percent discount rate is \$26 million for net economic benefit and \$9 million for resource rent. All stakeholder groups are better off in the investment case (Figure 16). The crew members and vessel owners get about \$8 million and \$12 million more per year, respectively. The Government collects a transfer averaging \$1.4 million per year to support management.

Table 12: Project Scenario for Freshwater Fishery

	Project Scenario							Difference						
	0	5	10	15	20	25	30 NPV (10%)	0	5	10	15	20	25	30 NPV (10%)
Freshwater														
Number of vessels	17,500	17,500	17,500	17,500	17,500	17,500	17,500	0	(1,000)	(2,000)	(2,000)	(2,000)	(2,000)	(2,000)
Landed catch (000 metric tons)	123	123	124	125	126	128	129	0	1	3	6	8	10	12
Revenue (000 USD)	269,680	269,680	275,101	280,576	283,326	286,077	288,828	0	2,247	9,915	17,637	22,635	27,633	32,631
Net economic benefits (000 USD)	82,341	82,341	83,996	85,668	86,508	87,347	88,187	0	686	3,027	5,385	6,911	8,437	9,963
Resource rent (000 USD)	28,405	28,405	28,976	29,553	29,842	30,132	30,422	0	237	1,044	1,858	2,384	2,911	3,437
Distribution of benefits (000 USD)														
Returns to labor	73,064	73,064	74,532	76,016	76,761	77,506	78,251	0	609	2,686	4,778	6,132	7,487	8,841
Returns to vessel owners	115,862	115,862	118,191	120,543	121,724	122,906	124,088	0	966	4,260	7,577	9,725	11,872	14,019
Transfers to government (license fees)	0	0	1,376	1,403	1,417	1,430	1,444	0	0	1,376	1,403	1,417	1,430	1,444

32. Since there is not enough and reliable data to estimate the effect of the investment for the aquaculture sector, the model assumes the investment case will continue the same trend as the base case. However, because the model assumes the aquaculture costs will decrease by 1 percent per year for ten years and 0.5 percent for remaining twenty years due to results of investment in supporting training and improved production practices, the returns to owners increase gradually in the investment case compared to the base case (Table 13). By Year 30, the investment case will bring \$6.5 million more benefit to the owners than the base case. The returns to labor and the number of employment will keep the same in both cases.

Table 13: Project Scenario for Aquaculture Sector

	Project Scenario							Difference						
	0	5	10	15	20	25	30 NPV (10%)	0	5	10	15	20	25	30 NPV (10%)
Aquaculture														
Production (mt)	10,170	14,170	19,170	24,170	29,170	34,170	39,170	0	0	0	0	0	0	0
Revenue (000 USD)	28,679	39,959	54,059	64,819	74,394	82,875	90,346	0	0	0	0	0	0	0
Net economic benefits (000 USD)	5,775	14,130	20,033	24,451	28,593	32,471	36,094	0	573	1,780	2,755	3,892	5,169	6,567
Distribution of benefits (000 USD)														
Returns to labor	1,232	1,923	2,621	3,157	3,633	4,056	4,428	0	0	0	0	0	0	0
Returns to vessel owners	6,255	14,693	20,781	25,466	29,905	34,105	38,077	0	573	1,780	2,755	3,892	5,169	6,567
Employment	197	308	420	506	582	650	710	0	0	0	0	0	0	0

33. For the processing sector, the project will increase processor recovery of 3 percent due to less harvest waste and increase the sanitary standards so that the processed products will sell at a higher price. The processing quantity will increase in the investment case compared to the base case (Table 14). By Year 30, 29,000 more MT seafood will be processed, generating \$64 million more revenue and \$4 million more net economic benefit. Nearly 2000 more labor will be hired in this sector, with \$11 million more returns to labor. The total NPV of the returns to labor is over \$15 million over 30 years with 10 percent discount rate.

Table 14: Project Scenario for Processing Sector

	Project Scenario							Difference						
	0	5	10	15	20	25	30 NPV (10%)	0	5	10	15	20	25	30 NPV (10%)
Processing														
Production (mt)	314	314	323	328	329	330	331	0	2	13	20	23	26	29
Revenue (000 USD)	1,381,728	1,381,728	1,346,355	1,375,987	1,379,956	1,383,926	1,387,896	0	9,657	(16,060)	23,229	36,856	50,483	64,110
Net economic benefits (000 USD)	167,967	167,967	160,039	163,609	164,088	164,567	165,045	0	1,188	(5,552)	(793)	874	2,541	4,208
Distribution of benefits (000 USD)														
Returns to labor	189,226	189,226	186,761	190,981	191,547	192,113	192,679	0	1,354	243	5,818	7,737	9,657	11,577
Returns to vessel owners	209,228	209,228	190,129	194,293	194,852	195,410	195,969	0	1,459	(16,181)	(10,559)	(8,541)	(6,524)	(4,507)
Employment	30,325	30,325	29,930	30,606	30,697	30,787	30,878	0	217	39	932	1,240	1,548	1,855

Permit value

34. For artisanal canoe sector, it is interesting to estimate potential permit value. There are concerns for the continued business viability of the artisanal marine fishery due to the increasing numbers of participants and decreasing catch per vessel. In a harvest regime with unconstrained participants, it is difficult to manage a fishery for over-exploitation. Setting annual total harvest quotas to protect stocks from overfishing will encourage concentrated effort to secure as much catch as possible per vessel before quotas are reached. It is important to understand the economic value of licenses if a limited entry license program was imposed. The economic value of the license in this case can be theoretically calculated as the opportunity cost representing the “indifference” value to where the benefits of fishing are equal to the benefits of selling the license. For a buy-out program, it would be the value of sacrificing expected income in perpetuity. For a rent-out program, it would be the loss of income for a year. Such programs are short-term solutions to rationalizing fishing effort to a level consistent with economic and ecological sustainability. If such policies are implemented, decisions for assisting displaced participants in securing long-term employment may need to be considered.

35. The cost of a permanent "buy-out" of a permit would be equal to the discounted stream of expected net profits and lost labor income in perpetuity. If the permit is for 30 years, then the asset value will be the NPV of net benefit for 30 years. To show an upper and lower range for a permit value, we provide an estimate using only net profits for the lower bound and net profits plus the probability that alternative wages cannot be found in another fishery or non-fishing industry for the upper bound. Using the base case, a per vessel buy-out program weighted average over canoe categories for a lower and upper bound for one permit would be \$25,000 and \$52,000 at a 20 percent discount rate; \$48,000 and \$98,000 at a 10 percent discount rate; and \$77,000 and \$160,000 at a 5 percent discount rate (Table 15).

Table 15: Permit Value of the Artisanal Canoe Sector (unit: \$1,000)

Discount rate	5%	10%	20%
Permit value (lower bound)	77,143	47,547	25,253
Permit value (upper bound)	159,612	98,377	52,249

36. Although these preliminary estimates of license permit economic value are useful for policy decision making at early stages of designing a buyout program, measures of uncertainty can be estimated through the use of a contingent valuation study. A second way to estimate permit values would be observing results of the sales/rents of permits among fishers, assuming there was an imposition of a limited entry system but a delay in implementing a buy-out/rent-out program.

37. The structuring of buyout program financing and institutional arrangements can take many forms in order to accomplish the goal for reduced fishing capacity. Credible prediction for gains would have to address the highly variable latent capacity that exists in any industry with low ease-of-entry. The design of a buyout program for the Ghanaian artisanal fisheries will be complicated by the local acceptance for a limited entry permit requirement and the ability to enforce the requirement.

Summary

Table 15 shows the sensitivity analysis of the NPV for all the sectors over 30 years. The difference of the NPV for the net economic benefit is over US\$140 million with 10 percent discount rate, significantly higher than the project cost. The IRR will be 3.71 percent on Year 5, 17.85 percent on Year 10, and 49.63 percent on Year 30 (Figure 2). Considering the long-term objective and special characteristics of fishery sector (the fish stock will take some time to recover), this result will justify the investment of the project.

Table 15: Sensitivity Analysis of the NPV

NPV ('000 USD)	Discount Rate: 5%			Discount Rate: 10%			Discount Rate: 20%		
	Base Case	Investment Case	Difference	Base Case	Investment Case	Difference	Base Case	Investment Case	Difference
Net economic benefit	\$4,253,518	\$4,553,340	\$299,822	\$2,618,653	\$2,759,353	\$140,700	\$1,389,475	\$1,433,266	\$43,791
Resource rent	\$1,420,129	\$1,661,799	\$241,670	\$874,218	\$992,715	\$118,497	\$463,818	\$503,228	\$39,410
Distribution of benefits									
Returns to labor	\$3,918,371	\$4,059,329	\$140,958	\$2,412,269	\$2,473,841	\$61,572	\$1,279,934	\$1,296,839	\$16,905
Returns to owners	\$5,664,722	\$5,985,466	\$320,745	\$3,488,817	\$3,635,554	\$146,737	\$1,852,040	\$1,895,873	\$43,833
Transfer to government (license fees)	\$0	\$51,999	\$51,999	\$0	\$26,401	\$26,401	\$0	\$9,236	\$9,236

Loan and Grant Source/Use	Source								Use				Finance			
	Loan		Grant		Total		C1		C2		C3		C4		Total	
	IDA	GEF	DfID or NEPAD	Total	49.24	5.80	55.04	15.00	20.80	14.00	17.24	3.00	55.04	IDA Interest:	0%	
														Payments (years):	25	
														Discount rate:	5.0%	
														Transfers:	0.5%	
Components	<ol style="list-style-type: none"> 1. Good Governance and Sustainable Management of the Fisheries 2. Reduction of Illegal Fishing 3. Increasing the Contribution of the Marine Fish Resources to the Local Economies 4. Coordination, Monitoring and Evaluation and Program Management 											Evaluation NPV: \$98.44 BCR: 2.49 IRR 1: 16.9% IRR 2: 15.1%				

Period	Interval	Benefits										IRR 1	
		Costs				Financial			Benefits				
		Loan	Payments	Disbursements	Change in	Alternative	All Sectors	Benefits	Minus	IRR 1			
	Principal	Interest	Loan/Grant	Q&M	Other	Total	Transfers	Livelihood	Economic	Total	Costs	IRR 1	
0													(55.04)
1				(11.04)		(11.04)	0.00		0.63	0.63	(10.41)	0.63	
2				(11.04)		(11.04)	0.00		1.37	1.37	(9.67)	1.37	
3				(11.04)		(11.04)	0.00		2.13	2.13	(8.91)	2.13	
4				(11.04)		(11.04)	0.00		2.91	2.91	(8.13)	2.91	
5				(11.04)		(11.04)	0.00		3.71	3.71	(7.33)	3.71	
6	1	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.53)		0.57	(3.96)	(8.96)	1.04	
7	2	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.56)		4.75	0.19	(4.81)	5.19	
8	3	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.60)		8.97	4.38	(0.62)	9.38	
9	4	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.63)		13.22	8.60	3.60	13.60	
10	5	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.66)		17.51	12.85	7.85	17.85	
11	6	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.68)		20.43	15.75	10.75	20.75	
12	7	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.70)		23.37	18.67	13.67	23.67	
13	8	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.72)		26.32	21.60	16.60	26.60	
14	9	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.74)		29.29	24.54	19.54	29.54	
15	10	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.76)		32.26	27.50	22.50	32.50	
16	11	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.77)		33.37	28.60	23.60	33.60	
17	12	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.77)		34.48	29.71	24.71	34.71	
18	13	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.77)		35.60	30.83	25.83	35.83	
19	14	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.77)		36.72	31.95	26.95	36.95	
20	15	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.78)		37.85	33.08	28.08	38.08	
21	16	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.78)		38.99	34.21	29.21	39.21	
22	17	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.78)		40.13	35.35	30.35	40.35	
23	18	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.78)		41.27	36.49	31.49	41.49	
24	19	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.79)		42.43	37.64	32.64	42.64	
25	20	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.79)		43.58	38.79	33.79	43.79	
26	21	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.79)		44.74	39.95	34.95	44.95	
27	22	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.80)		45.91	41.11	36.11	46.11	
28	23	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.80)		47.08	42.28	37.28	47.28	
29	24	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.80)		48.25	43.45	38.45	48.45	
30	25	(1.97)	(0.00)	0.00	(5.00)	(5.00)	(4.80)		49.43	44.63	39.63	49.63	
	Total	(49.24)	(0.00)	(55.20)		(103.01)							
	Discounted sum								256.49	153.48			

- Notes:
1. All amounts are in millions.
 2. Financial benefits are transfer payment (taxes, license, and fees) generation. Generation is ad valorem harvest value tax each year after management policy changes starting in Year 6. Alternative livelihoods benefits are probability that labor can find employment at higher wages.
 3. Net Economic Benefits are for producer surplus changes. It is assumed retail prices are unaffected, so consumer surplus change is zero. Social benefits and social costs are not included in the BCA analysis.
 4. The internal rate of return (IRR) is calculated using a five year loan/grant package disbursement period (IRR2) and one year period (IRR1).

Figure 2 IRR Calculation

Annex 8: Incremental Cost Analysis

Project Objective

1. The development objective of the West Africa Regional Fisheries Program in Ghana is to improve the sustainable management of Ghana's fish and aquatic resources. This objective would be achieved by: (i) strengthening the country's capacity to sustainably govern and manage its fisheries, (ii) reducing illegal fishing, and (iii) increasing the value and profitability generated by fish resources and the proportion of that value captured by the country. WARFPG is linked to the larger West Africa Regional Fisheries Program APL series, but is financed through a national IDA allocation and will use a Specific Investment Loan (SIL) rather than the APL instrument.

	Gov.'s	GEF	IDA	Total cost
APL-A1 (Cape Verde, Liberia, Senegal and Sierra Leone)	1.3	10	45	56.3
APL-A2	1	0	40	41.0
APL-B1 (Guinea-Bissau)	0	2	6	8.0
APL-B2	1	0	10	11.0
APL-C1 (Mauritania, Guinea and the Gambia)*	1	5	30	36.0
APL-C2	1	0	15	16.0
<i>Total APLs</i>	<i>5.3</i>	<i>17.0</i>	<i>146.0</i>	<i>168.3</i>
SIL (Ghana)	1	3.5	50.3	54.8
<i>Total WARFP</i>	<i>6.3</i>	<i>20.5</i>	<i>196.3</i>	<i>223.1</i>

*Countries and costs for APL C are indicative only.

Status Quo

2. *Scope and Costs.* In the absence of GEF assistance under the baseline scenario, the project will be implemented with a focus on increasing the contribution of fish resources to local value added, but without particular attention to protecting critical habitats and ecosystem services needed to support the fish stocks.

- (i) Component 1: Good Governance and Sustainable Management of the Fisheries. This component will focus on building the capacity of the Government and stakeholders to develop and implement policies through a shared approach that would ensure that the fish resources are used in a manner that is environmentally sustainable, socially equitable and economically profitable. The baseline costs for this component are US\$15.2 million, which would be financed by IDA. GEF funds for this component are US\$3.5 million.
- (ii) Component 2: Reduction of Illegal Fishing. This component will focus on investments necessary to build the capacity of Ghana to reduce illegal fishing in its waters, particularly through greater monitoring, control and surveillance of the fisheries. The baseline costs for this component are estimated at approximately US\$10.9 million, which would be financed by IDA. No GEF resources will be applied as co-financing to this component.
- (iii) Component 3: Increasing the Contribution of the Fish Resources to the National Economy. This component aims to identify and implement measures to increase the benefits to Ghana from the fish resources, by increasing the share of the value-added captured in the country,

by investing in product diversification/value chain development (fresh/frozen product/trade facilitation), fish product trade infrastructure and information systems, and marine and inland aquaculture development. The baseline costs for this component are estimated at approximately US\$12.1 million, which would be financed by IDA. No GEF resources will be applied as co-financing to this component.

- (iv) Component 4: Aquaculture Development. This component aims to set the framework for increased investment in inland aquaculture, by developing the aquaculture legal and policy framework, improving the genetic quality of Tilapia fingerlings and brood stock; catalyzing aquaculture development for medium and large scale enterprises; conducting marketing and technical studies, and supporting small scale aquaculture development. The baseline costs for this component are estimated at approximately US\$8.0 million, which would be financed by IDA. No GEF resources will be applied as co-financing to this component.
 - (v) Component 5: Project Management, Monitoring and Evaluation and Regional Coordination. This component will focus on supporting the Secretariat of the Fisheries Commission in Ghana to manage and implement the Project's activities, including monitoring and evaluation of results, as well as information-sharing and replication. The baseline costs for this component are estimated at approximately US\$4.1 million, which would be financed by IDA. No GEF resources will be applied as co-financing to this component.
3. *Benefits.* Implementation of the baseline scenario investment program described above will be expected to generate national benefits as a result of reduced illegal fishing in Ghana, and subsequent benefits in reduced fishing pressure, as well as benefits to Ghana from its fish resources through the value added captured by the country.
 4. *Lessons Learned:* Global experiences have shown three key lessons for the design of this Project. Firstly, in the absence of a strong governance framework that empowers users to take a long-term stake in the fisheries, underexploited fisheries will follow a typical pattern of boom and bust resulting in too many fishers chasing too few fish, causing both environmental degradation and economic losses. At the same time, countries with overexploited fisheries will never realize the full economic potential of these resources until they are rehabilitated. For this reason, investments in both underdeveloped and overdeveloped fisheries must begin with the governance framework for the sector, to ensure that the sector can either grow sustainably, or for fisheries that are already overexploited, can be rehabilitated to more profitable levels. As such, the Project includes a strong governance component that would accompany any investments in sector development and local value added, in order to ensure a sustainable supply of fish to local industry.
 5. Secondly, on the basis of global experiences, fisheries have only been governed and managed at levels that were both environmentally sustainable and economically profitable when users have been given secure and enforceable rights to the access or output from the resources, as long-term incentives in their health. The form these rights take must be tailored to the specific context of countries with respect to the fish resources in question and the uses of those resources, including the social setting and culture. Fishing rights must also be complete, so that all commercial fishers targeting the specific resources are included, and limited enough to provide long-term incentives. Otherwise, if fishing rights are too diffuse to

provide users with the appropriate incentives, it may still be economically rational to ‘mine’ the fishery for short-term gains (but larger long-term losses). Thus, the key to fishing rights is that fishers/users have the ability to exclude others from fishing, so that they bear both the costs of conservation and the benefits. This ensures that those who use the fisheries bear the costs of overexploitation.

6. Thirdly, while investments in surveillance and enforcement are essential for reducing illegal fishing and the associated economic losses, experiences have shown that such investments should be as low-cost and pragmatic as possible, in order for the operating costs of surveillance to be kept to sustainable levels after completion of Bank financing. For this reason, the Project focuses on incremental investments to show immediate results in reducing illegal fishing, such as leasing patrol vessels rather than procuring new boats. However, without such investments, continued illegal fishing can erode much of the value of the fish resources. Thus, investments in improved fisheries surveillance have a clear economic rationale for the Bank and for the countries.
7. The baseline scenario described above would be insufficient to produce the global benefits arising from reducing the overexploitation of the fish stocks supporting the targeted fisheries in Ghana, by failing to strengthen the capacity of the country to govern the use the fisheries and to sustainably manage the resources. The country would be investing in the assets and infrastructure to reduce illegal fishing, without ensuring that the management infrastructure is in place to protect the resource base underpinning the sector. Thus, several potential global benefits of more sustainably managing the fisheries resources would be overlooked, including:
 - The development of the rules, capacity and procedures necessary for sustainably managing the resources (such as registration of fishing vessels, monitoring and evaluation of the health of the resources and development of fisheries management plans); and
 - The introduction of rights to targeted fisheries in order to give stakeholders long-term incentives to sustainably manage the fish resources.

GEF Alternative

8. *Scope and Costs.* With support from the GEF, an expanded project could be undertaken comprising activities focused on strengthening the capacity of the Government in Ghana to reduce overexploitation of the targeted fish stocks, and to introduce long-term rights to ensure that stakeholders and communities work in partnership to sustainably co-manage the use of the resources. This will be through support to Component 1 of the project. Essentially, the GEF alternative would build sustainable governance efforts into the local economic development activities of the project, including the following incremental activities (please see Annex 2 for details):
 - a. Development of the capacity of the Government of Ghana to sustainably manage the use of globally significant fisheries. Approximately US\$1.4 million in GEF resources would be applied to build the capacity of the Government to strengthen the policy and regulatory framework for good governance of the use of fish

resources, including the introduction of international good practices for sustainable fisheries management. This would include the following: (i) review of the legal framework to ensure that it provides an enabling environment for the Fisheries and Aquaculture Sector Development Plan; (ii) review of the needs, funding and organizational arrangements in order to ensure the effective delivery of the Fisheries and Aquaculture Sector Development Plan; (iii) development of the operation framework for the delivery of the Fisheries and Aquaculture Sector Development Plan, including standards and specifications for the fisheries registry and the catch and effort database, a vessel and fishing activity licensing plan and compliance strategy; (iv) a policy for the development and operation of community-based management networks built around defined fisheries management units; (v) a policy on adaptation strategies for climate change and marine protected development; (vi) review of the Ghana Tuna Industry to identify policy and infrastructure needs that threaten Ghana’s hub status; (vii) review of the emerging economic environment for the fisheries sector as the Ghana Fisheries and Aquaculture Sector Development Plan is gradually implemented, including a fiscal impact review.

- b. Support for the phased registration and licensing of the canoe fleet, in order to control access to the fish resources so that they can be managed sustainably, through the introduction of secure, long-term rights. Approximately US\$2.1 million in GEF resources would be applied to the targeted fisheries in Ghana in order to: design, install and operate a secure fishing vessel registry, specifying the vessels legally allowed to fish, as well as to introduce secure licenses to the fisheries, as long-term, transferable rights that would provide incentives to users to invest in sustainability of the resources. This would include: (i) design, testing, installation, operation, support and training services for a fisheries registration system; (ii) design, testing installation, operation, support and training services for a catch and effort database; and (iii) census and registration of industrial, semi-industrial, marine canoe and inland canoe vessels.

- 9. *Benefits.* In addition to the national benefits associated with the baseline scenario, global benefits of the GEF alternative include: (i) building capacity in the Government of Ghana to sustainably manage the fish resources and to reduce overexploitation of the fish stocks, as part of the country’s broader economic development efforts in the fisheries sector, and (ii) ensuring that the sustainable management of the fish resources underpins any fisheries development efforts in Ghana.

Incremental Cost Matrix

- 10. The total cost of the baseline scenario is estimated to be US\$50.3 million. The GEF alternative is estimated at US\$53.8 million. The incremental cost of the GEF alternative is therefore estimated at US\$3.5 million.

Component	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
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1. Strengthened Governance of the Fisheries				
	Baseline	15.2		
	With GEF Alternative	18.7	Capacity established in Ghana to implement global good practices for sustainable fisheries management.	Reductions in fishing pressure on globally significant but overexploited fish stocks, as well as capacity established for long-term sustainable management of these resources.
	Incremental	3.5		
2. Reduction of Illegal Fishing				
	Baseline	10.9	Reduced illegal fishing in Ghana	Short-term reduction in fishing effort on globally significant fish stocks.
	With GEF Alternative			
	Incremental	0		
3. Increased Contribution to National Economy from the Fisheries				
	Baseline	12.1	Increased local landing and processing of fish products.	
	With GEF Alternative			
	Incremental	0		
4. Aquaculture Development				

	Baseline	8.0	Increased domestic fish production	
	With GEF Alternative			
	Incremental	0		
5. Project Management, Monitoring and Evaluation and Regional Coordination				
	Baseline	4.1	Management of the implementation of the Project. Implementation of a results-based monitoring and evaluation system, project management	Efficient implementation of Project activities to reduce fishing pressure on globally significant fish stocks. Transmission of information on fish stock recovery and management, replication of lessons learned
	With GEF Alternative			
	Incremental	0		
Totals				
	Baseline	50.3		
	With GEF Alternative	53.8		
	Incremental	3.5		