WEST AFRICA REGIONAL FISHERIES PROGRAM (WARFP – LIBERIA)

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Environmental and Social Impact Assessment

West Africa Regional Fisheries Program in Liberia - ACGF PROJECT

for

Construction Completion and Operations of Fisheries Landing and Export Infrastructures at Mesurado and Robertsport

Contents

ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ARAP	Abbreviated Resettlement Action Plan
CBO	Community Based Organizations
CSRP	Sub-Regional Fisheries Commission
DAO	Tender Documents
ESA	Environmental and Social Assessment
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social management Plan
EPA	Environment Protection Agency (Liberia)
ESFP	Environmental and Social Focal Point
FEM	Global Environment Fund
HIV	Human Immunodeficiency Virus
HSE	Health, Safety and Environment
IEC	Information Education and Communication
IMBO	Institute of Marine Biology and Oceanography
IST	Sexually Transmitted Infections
MPA	Marine Protected Areas
MST	Sexually Transmitted Diseases
NEAP	National Environmental Action Plan
OMD	Millennium Development Goals
ONG	Non Governmental Organizations
OP	Operational Policy
PCU	Project Coordination Unit
SCS	Monitoring, Control and Surveillance
TOR	Terms of Reference
USD	United States Dollars

EXECUTIVE SUMMARY

Introduction

This ESIA has been prepared for the proposed second round of financing from the Africa Catalytic Growth Fund (ACGF) under the Liberian component of the first phase of the West African Regional Fishery Program for Liberia, Sierra Leone, Senegal, and Cabo Verde (WARFP SOP A1 or WARFP). ACGF financing for the WARFP Liberia started in 2011 when US$2 million was endorsed for the activities included in Component 3 of the project in Liberia (P124242/TF10654). Specifically, the ACGF Liberian grant was approved to finance the rehabilitation and reclamation of parts of the Mesurado Pier for fish landing, including: 1) construction of a jetty for industrial fishing vessels to land and offload and/or transship fish; and 2) product storage and transport facilities.

The second round of ACGF financing is mobilized with the objective to complete key construction works at Mesurado Pier and Robertsport landing sites that will not be finished within the original WARFP Liberia project due to delays and increased costs associated with the Ebola outbreak, as well as the need to meet evolving infrastructure functionality and performance needs. It will also enable the scaling-up and increasing of the impact from early implementation success of the WARFP work in Liberia. Importantly, this new funding activity will not be implemented as an additional financing under WARFP SOP A1 but as a stand-alone small grant, the "*West Africa Regional Fisheries Program in Liberia – ACGF"* (ACGF Project, P159912), since it will continue until July 2017 while the entire WARFP SOP A1 closes in September 2016 and without an extension option for just one single country.

Respectively, this ESIA has been developed for the ACGF Project, which will allow further development of the Mesurado Pier complex while also supporting the Robertsport artisanal fisheries landing cluster to (1) expand its fish handling, storing, processing, and value-adding capacity for both demersal and small pelagic species; and (2) set up a private-public partnership (PPP) management and operations model that is geared not only to meeting local market demand but also to realizing higher-value opportunities made possible with the reconstruction of the Mesurado complex. This ESIA will be used by the Project Implementing Unit and other collaborators in ensuring that environmental and social safeguards concerns are adequately addressed while completing the construction works at Mesurado and at Fanti Town. As required by the Bank, the ESIA will also be disclosed in country and on Infoshop.

Project Development Objective

The Development Objective of the West African Fisheries Program in Liberia-ACGF is to "complete key construction works at Mesurado Pier and Robertsport landing site".

Justification and objective of the Environmental and Social Impact Assessment (ESIA)

While the ACGF project will financed existing infrastructure works completion within the existing construction sites under WARFP SOP A1, it could generate, if some adequate measures are not taken beforehand, some negative environmental impacts. In order to manage the potential negative impacts, it has been found necessary to conduct an environmental and social impact assessment (ESIA) whose objective is to determine the potential environmental and social impacts of the project as well as provide necessary measures mitigating measures and improve the project benefits.

National Environmental Policies and Legislations

Over the years Liberia has developed policies guidelines as well as the legal and regulatory instruments for the management of the environment. The main national legislations for the protection of the environment include the Environmental Policy Act of Liberia, which include procedures on Environmental and Social Impact Assessment (ESIA) which define the content, methodology and the procedure of the impact studies, as well as the conditions in which these studies are made public.

National Fisheries Policies and Legislations

The policies and the related legislations on fishing place particular emphasis on sustainable management of resources, the code of conduct for fishing, the type and the mode of utilization of fishing gears and equipment; the fisheries management plans, protection and preservation of marine biodiversity, control and surveillance of the activity, and promotion of sub regional cooperation in the management of the fisheries.

Environmental and Social Safeguards policies of the World Bank

The only World Bank Policy (WB OP) that is triggered by the project is OP 4.01: Environmental Assessment. The remaining operational policies are not triggered by this Project.

The rationale for triggering the full set of OPs triggered under the original WARFP SOP A1 project in Liberia, including OP 4.12, is that (1) the ACGF project activities will be confined only to two specific existing and currently active WARFP construction sites for which (2) the requirements of the respective OPs have been either fully implemented, as in the case of OP 4.12 in Robertsport, or determined to be not applicable for these two sites.

Environmental and social stakes of the zone of the project in Mesurado

The site of Mesurado is fully within the general enclosed industrial area of the Free Port of Monrovia, and is relatively distant from the city center. Already an active construction side for 2 years under WARPF SOP A1, it is leased from the Port of Monrovia, has no informal settlement activities, and has not been occupied by squatters. Concerning the environment, the Mesurado site does not have any special ecological sensitivity in terms of biodiversity (No Marine Protected Areas; no mangroves, no spawning areas). It is important to note that adjacent to the Free Port of Monrovia are Mesurado Wetlands, one of the 5 designated Wetlands of International Importance in Liberia. However, landwards, the wetlands are several kilometers away from the construction site and are separated from it by a belt of existing very dense urban and industrial land use. Seawards, the nearly fully-enclosed architecture of the Port's breakwater complex completely separates the project's construction site from the wetlands, capturing any water column or sediment disturbances within the port basin. Respectively, the construction activities are expected to have no impact on this RAMSAR site. A satellite image capturing the general construction area in relation to the Mesurado Wetlands is shown in Figure 5 below.

Environmental and social stakes of the zone of the project in Robertsport

As in the case of Mesurado, all project activities will be limited to the already existing WARFP SOP A1 construction sites. However, the broader environmental, physical and socio-economic environment is slightly different than the Mesurado site. The proposed project site is located in Fanti Town, Robertsport, Grand Cape Mount County. The site is located along the shoreline of Lake Piso. Precisely, to the North is Lake Piso (an open coastal lagoon); to the South is Grass Field Town, a residential community with an old airstrip which is not in used currently; to the West and partly Southwest is a secondary forest approximately 200 meters away from the proposed project site home to about 40 Velvet Monkeys; and to the East is Fanti Town, where the current Fish landing site is located. At the social level, the original WARFP SOP A1 construction activities required acquisition of land leading to physical and economic displacement. A Resettlement Action Plan (RAP) was developed and fully implemented to address these socio-economic impacts. The construction completion activities proposed under this ACGF project will, therefore, not be concerned with additional or new acquisition of land and therefore no physical or economic displacement is anticipated.

Potential negative impacts during construction activities

During the construction of the jetties and fish landing sites, there will be hindrances and nuisances and temporary disruptions and short term impacts resulting from the activities on the sites. The potential environmental and social issues or risks that would require mitigation measures include the following:

- Air pollution
- Noise
- Erosion
- Waste (domestic, solid, liquid, and hazardous)
- Pollution of surface and ground water resources
- Loss of vegetation
- Work accidents, occupational health
- Communicable diseases

Potential negative impacts during operations phase

Several daily activities on the jetty are sources of negative impacts: management of the infrastructures and services; storage and handling of products, petroleum or others, repair and maintenance of small boats and artisanal canoes; sewage disposal; disposal of the solid wastes; public access; fisheries management; etc. The potential impacts or risks that would require mitigation measures include the following:

- Management of hazardous materials (petroleum products and other hazardous chemicals)
- Wastes including general domestic wastes (solid and liquid) and hazardous wastes
- Air emissions mainly from the processing facility
- Unsafe or unsanitary conditions
- Waste waters disposal
- Accidents and other occupational health and safety issues such as exposure to biological and chemical hazards

- Communicable diseases

Socio-economic concerns

It is important to note the project will not lead to socio-economic losses. There are currently no socio-economic activities taking place at the Mesurado site, which is an active construction site. It is fully located within the Port facility where there are no squatters, and there are no artisanal fishery activities taking place. The Port facility including the project site is owned by the Government of Liberia (GoL).

For the Robertsport site, the condition is slightly different, but there will also be no negative socio-economic impacts under this project. Unlike the Mesurado site, which is owned by the GoL and was never occupied by squatters, the Robertsport site was previously occupied by squatters. An ARAP was developed for the site in Robertsport to address economic and physical displacements in the project area. Payment to identified project affected persons (PAPs) started in July 2011 and was completed in September 2011. The squatters have since been relocated to a newly identified site. At present, the site at Robertspoprt is an active construction site that is partially fenced in. However, since the relocation of PAPs to the newly identified site, there has been no report of encroachment on the construction site.

The following general environmental and social mitigation measures will need to be undertaken during the construction phase. These activities are further elaborated on other sections of this ESIA.

- Communication and sensitization campaign before and during the construction works
- Respect for the hygiene measures of construction facilities
- Notification of the works and respect for the safety rules during the construction works
- Collection and disposal of wastes emanating from the construction works
- Sensitization campaigns (hygiene, safety conditions of work, etc.)
- Closely participation of local collectivities in monitoring implementation
- Compensation in case of destruction of properties or losses of activities due to the project
- Protection of the construction staff
- Environmental and social clauses to be integrate during the construction works;
- Procedure to follow in case of discovery of archaeological vestiges.

The following general environmental and social management measures should be undertaken during operation of the jetties and the fish landing sites:

- Mitigation measures against the unhygienic conditions and the insecurity of the sites:
- Management measures for petroleum and oils:
- Management of the sanitation waters and the solid wastes:
- Measures for the areas for storage of materials and goods
- Protection of the staff of utilization and management of the jetties
- Management of the sanitary facilities and drinking water:

The following general environmental and social management capacity building measures are recommended during the construction and operation phases of the project:

- Measures for institutional strengthening at the national level for monitoring the environmental and social impacts and environmental performance indicators. This is mainly recommended for the Environmental Protection Agency of Liberia (EPA) and the Bureau of National Fisheries (BNF)

- Institutional and regulatory measures for the jetties
- Provision for assistance to the National Coordination Units of the project
- Development of a manual of good practices for management of the jetties
- Training and sensitization of the actors involved in the management of the jetties

Institutions responsible for monitoring and application of mitigation measures

Internal monitoring is the responsibility of the project implementation unit. This is necessary to ensure that contractors adhere to the requirements ESIA reports and issued environmental permits. The construction contractor is responsible for implementation of the ESIA recommendations of the ESIA report.. Relevant external agencies such as the Environmental Protection Agency of Liberia may time to time visit the site to verify contractor's adherence to the conditions of the environmental permits and their effectiveness. The World Bank through its usual project implementation support missions will also be monitoring the application of the ESIA report and all other safeguards instruments required to mitigate the potential impacts of the project.

1. INTRODUCTION

1.1 Context and Justification

Overfishing and food insecurity in the post-Ebola era. The densely populated coastal region of West Africa is heavily dependent upon the biological resources of two Large Marine Ecosystems (LMEs) for its wellbeing and food security Coastal countries are endowed with some of the richest fishing grounds in the world. The Guinea Current Large Marine Ecosystem (GCLME), which stretches from the coast of Guinea Bissau to Angola, embodies some of the major coastal upwelling sub-ecosystems of the world, and is an important center of marine biodiversity (with an estimated 239 fish species) and marine food production. It is ranked among the most productive coastal and offshore waters in the world with rich fishery resources, oil and gas reserves, precious minerals, high potential for tourism, and it serves as an important reservoir of marine biological diversity of global significance. The Canary Current LME (CCLME), spanning from Morocco to Guinea, is one of the world's major cold water upwelling boundary current LME. It ranks third in the world in terms of primary productivity, and it has one of the highest fisheries production of any African LME. More than 1.6 million tons of fish are legally captured in West African waters each year, with an estimated wholesale value of US$2.5 billion, contributing significantly to regional and national economies.

1.2 Description of the Project

1.2.1 WARFP Program Context

The ACGF project falls under the West Africa Regional Fisheries Program (WARFP), which currently operates in eight (8) countries: in seven (7) through three SOPs and in one (1), Ghana, through an Investment Project Financing (IPF). The Program's overall objective 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. This objective is to be achieved by all WARFP countries. The SOP approach was chosen recognizing that a regional fisheries reform would happen

gradually over an extended period of time. Accordingly, Phase 1 focuses on building the capacity of local and national fisheries institutions; Phase 2 would move from near shore waters to intermediate waters and regionally integrated fisheries management; and Phase 3, through possible collaboration with the International Finance Corporation (IFC), would support private sector engagement. Figure 2 below summarizes the overall design and of the WARFP and the degree of advancement of the individual projects.

The Program has four components as outlined below:

i) Component 1 builds the capacity of a regional body, governments and stakeholders to develop and implement policies and systems that ensure that fish resources are used in a manner that is environmentally sustainable, socially equitable and economically profitable.

ii) Component 2 reduces IUU fishing activities that threaten the sustainable management of fish resources in the entire region by strengthening fisheries Monitoring, Control and Surveillance (MCS) systems. It also provides legal assistance for strengthening the alignment of national fisheries legislation with the United Nations Convention on the Law of the Sea (UNCLOS) and the CSRP.

iii) Component 3 increases the benefits derived from fish caught in the Exclusive Economic Zones (EEZs) of the countries, in particular by investing in regionally significant infrastructure and institutional capacity for improved handling of landed fish and reduction of postharvest losses through the development of the community led management.

iv) Component 4 supports project implementation and regional coordination, ensuring that regular M&E is conducted and the results are fed back into decision making and project management.

1.2.2 Proposed ACGF Project Activities

This ESIA has been prepared for the proposed second round of ACGF financing (ACGF Proejct) under the Liberian component of the first phase of the West African Regional Fishery Program for Liberia, Sierra Leone, Senegal, and Cabo Verde (WARFP SOP A1 or WARFP). The initial ACGF financing to the WARFP was endorsed in 2011. The grant was specifically intended to support activities included in Component 3 of the project in Liberia (P124242/TF10654). It was meant to finance the rehabilitation and reclamation of parts of the Mesurado Pier for fish landing, which included two main activities:

i) construction of a jetty for industrial fishing vessels to land and offload and/or transship fish; and
ii) product storage and transport facilities.

The current proposed ACGF project is intended to complete construction works initiated under WARFP component 3 above, while leveraging the WARFP's pilot investment in the construction of the Robertsport coastal fisheries landing cluster, Liberia's largest landing point, to connect it with the Mesurado complex into an integrated logistics corridor and coastal fisheries value-chain hub. More specifically, ACGF support will allow further development of the Mesurado Pier complex while supporting the Robertsport artisanal fisheries landing cluster to achieve the following:

1. expand its fish handling, storing, processing, and value adding capacity for both demersal and small pelagic species; and

2. set up a private-public partnership (PPP) management and operations model that is geared not only to meeting local market demand but also to realizing higher-value opportunities made possible with the reconstruction of the Mesurado complex.

Broadening the intended focus of the original ACGF financial support beyond enabling industrial fisheries export to also capture the country's booming small coastal fisheries is expected to open up new business and export revenue-generating opportunities for the local fisheries sector with a much higher direct positive impact on the local community livelihoods and economy.

2. PROJECT ACTIVITIES

Ongoing Construction Activities

Mesurado

The ACGF project will be applied to support the completion of the following activities including Site Preparation; Construction of jetty; Renovation of ice plant; and Removal of Wreck from the area. The various components and stages are as follows:

2.1 Site Preparation

- Geotechnical Survey – will comprise core sampling of five borehole locations over the water. The core sampling is needed to ascertain the geological formation, sequence, thickness and strength of seabed materials (soils) in a confined situation and also the type and color of materials and what can and should be built on the materials.

2.2 Construction of Jetty

- Construction of load-out jetty on piles connected to the lee breakwater about 12 meter wide and 23 meter long. The platform shall be equipped with mooring furniture such as mooring dolphins, adequate lighting and restricted access to the area.

2.3 Renovation of Old Ice Plant

- Rehabilitation and conversion of an abandoned ice plant building into offices to be used as the National Fisheries Monitoring Center and Fisheries Inspection Laboratory. The side and main entrance views of the old ice plant is shown below in Figure 1.

Figure 1 Old Ice Plant to be used Fisheries Monitoring Center and Inspection Laboratory

2.4 Removal of Wrecks

A reputable Marine Wreck or Salvage Company will be obtained to remove all existing wrecks from seabed in the area.

The deliverables for the proposed project are:

i) Load-out jetty to allow reefer vessels to take on Liberian fishery products for export. (the construction of an adjacent off-loading pier is currently being finalized under WARFP SOP A1)

ii) Administrative offices to accommodate the Bureau of National Fisheries Monitoring Center and Laboratory responsible for Inspection, testing and certification of fish and fishery products destined for human consumption to local and international markets.

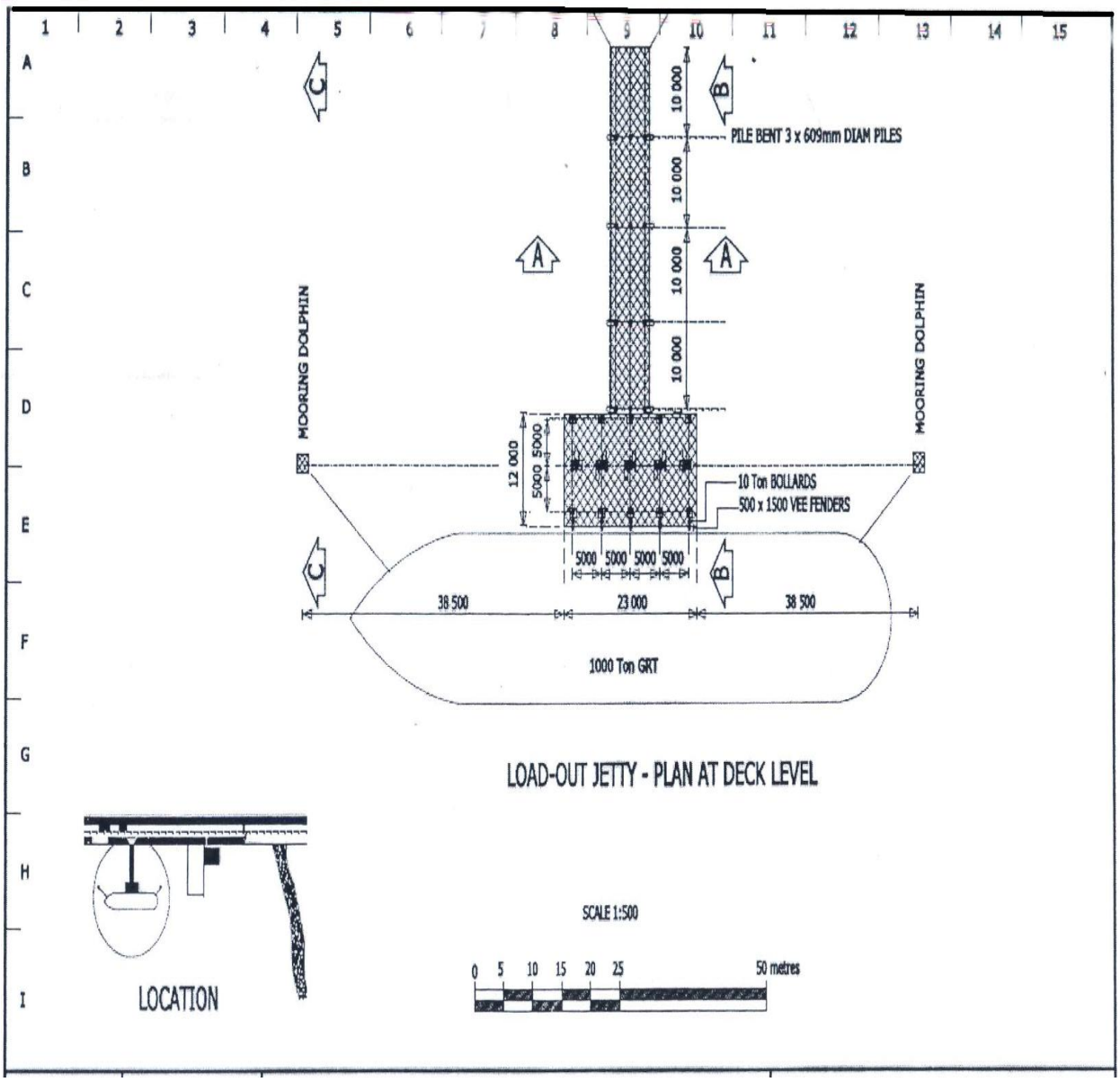

Figure 2 Load out Jetty illustrated by the Engineering Consultant

Robertsport

The proposed project activities shall be implemented in two phases. Phase one will complete the on-going construction activities by installing specialized fish handling, refrigeration, and ice-making equipment as well as related small works related mainly to the following facilities being built under WARFP SOP A1:

- Fishermen Changing and Fishing Gear Store
- Fish Handling and Market Complex
- Fish Drying Shed A
- Fish Drying Shed B
- Bunkerage / Aboveground Fuel Station

- Rehabilitation of Kru Town Cold storage facility

Phase two is operations and maintenance which will include management, coordination, implementation of project activities, monitoring and evaluation of project components, and provision of technical assistance. Phase two also provides standard operating procedures of how the proposed project will work on a daily basis.

3. JUSTIFICATION AND OBJECTIVE OF THE ESIA

The ESIA was developed to fulfil the requirement of the Environmental Protection Management Law (EPML) of Liberia and the World Bank Operation Policy (WB OP) on Environmental Assessment. The EMPL requires project proponent to submit project brief to the EPA for screening. The project brief is screened and the EPA communicates the screening result to the proponent which states the level of environmental assessment that should be carried out before a permit is issued for the project to go ahead. In the opinion of the EPA, no further environmental assessment was required for this project as the potential impacts to the environment were deemed to be minimal and the mitigation measures for those potential impacts were found to be adequate. Based on OP 4.01 Environmental Assessment, the project was categorized as B and this required partial environmental assessment to be carried out. Therefore, this ESIA has been developed to fulfill the requirement of OP 4.01.

The ESIA will help the Project Implementation Unit and the Contractor to address the environmental impacts of the project, enhance project benefits, and introduce standards of good environmental practice. The primary objectives of the plan are to:

i) Define the responsibilities of project proponents, contractors and other role players, and effectively communicate environmental issues among them.
ii) Facilitate the implementation of the identified mitigation measures by providing the instructions on how to handle the issues, and providing an implementation schedule
iii) Define a monitoring mechanism and identify monitoring parameters to ensure that all mitigation measures are completely and effectively implemented.
iv) Identify training requirements at various levels and provide a plan for implementation.
v) Identify the resources required to implement the ESMF and outline corresponding financing arrangements.
vi) Identification of the environmental and social impacts of the project activities as well as mitigation measures for the identified impacts.

4. PHYSICAL ENVIRONMENT

4.1 Site Location

Mesurado

port

The proposed project site is located within the general enclosed industrial area of the Freeport of Monrovia at the landward end of the northern break water. There is an access road that leads to the end of the break water, which is also one of the main entrances to the port. There are also various old and abandoned structures on and around the site of which the old Mesurrado ice making factory is a permanent standing structure.

Surrounding features of the site to the North is the proposed site for Cold Storage; old Mesurrado Fish Company's processing facility and Armed Forces of Liberia (AFL) Coast Guard Base; south is China Union Mining Company's peer; to the East is the ocean shoreline; to the West is exit out of the port towards deep sea. In the basin of the port, there are a lot of wrecked vessels at the location of the project site which are visible at low tide. Also, the remains of various marine structures such as jetty and off-loading facilities are still in the basin and below sea bed. Prior to the war, the area has been heavily used for various activities such as ship repair wharf and fisheries off-loading facility as shown in the photograph below.

The Freeport of Monrovia where the project site is located is owned by the Government of Liberia. The entire Freeport facility including the project is fenced in and under 24/7 surveillance. There are no squatters within this area.

Figure 3 View of Proposed Site with Marine Structures and Access Road to end of break water

Several kilometers outside of the Freeport of Monrovia and the project location, to the southeast is the Mesurado Wetlands. The Mesurado Wetlands is one of 5 sites designated as wetlands of International Importance in Liberia. The site is important for the protection of three mangrove species (Rhizophora harrisonii, R. mangle and Avicennia africana), which are threatened by intense charcoal burning and fuel wood collection. Several species of birds use the site including the African spoonbill Platalea alba, Common Pratincole Glareola nuchaltis and Curlew Numenius arquata use the site as habitat and feeding grounds. It also hosts the vulnerable African dwarf crocodile, the Nile crocodile and the African sharp-nosed crocodile and plays an important role in shoreline stabilization and sediment trapping. The site is currently used for fuel wood. It is important to emphasis that the wetlands is fully separated by the port area by existing heavy urban and industrial development on the landward side and by the semi-full enclosure of the Freeport's breakwaters, on the seaward side, and will not be impacted by the project activities. The map below shows the general location of the Freeport including the project site (at the very top corner inside the Freeport's basin) in relation to the Mesurado Wetlands.

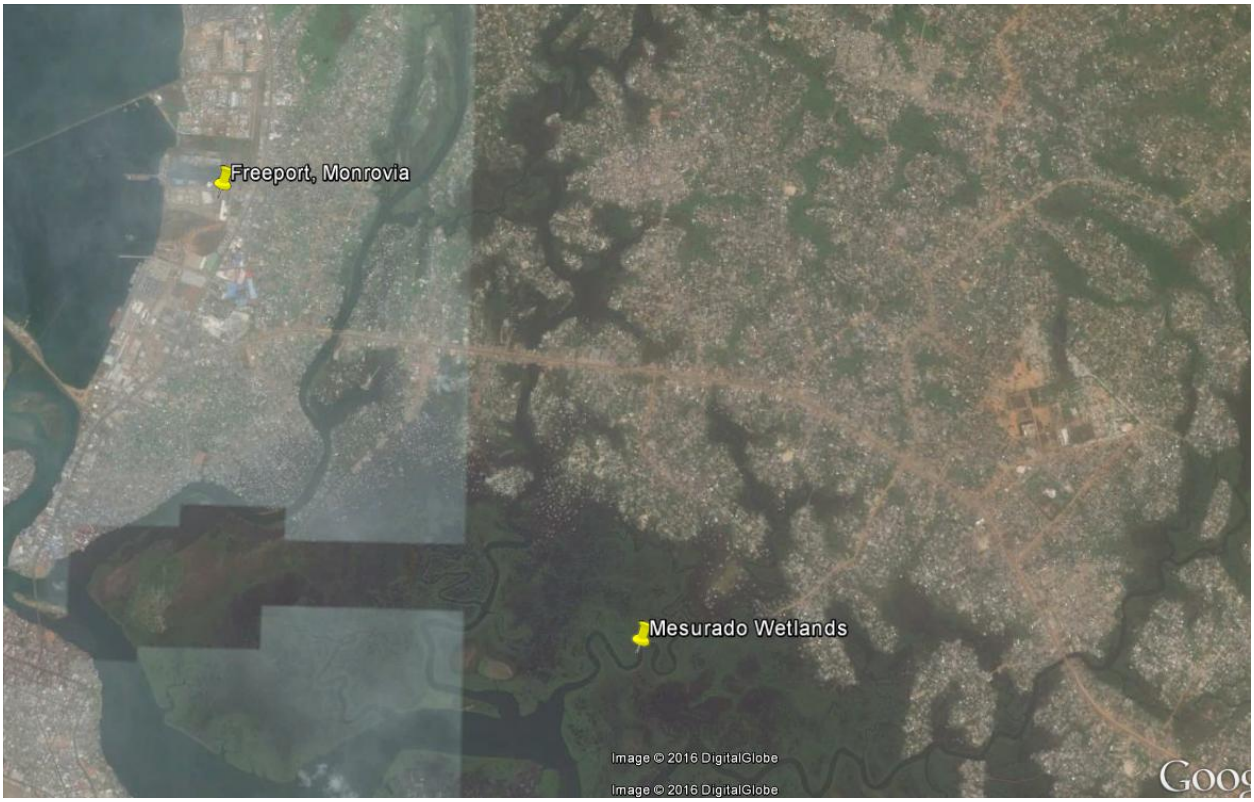

Figure 4 Freeport of Liberia and Partial View of the Mesurado Wetlands

Robertsport (Fanti Town)

The proposed project site is located in Fanti Town, Robertsport, Grand Cape Mount County. The size of the site is five (5) acres of land located adjacent to the west of Fanti Town, a congested roaming residential community along the shoreline of Lake Piso. The 5 acres of land is a public deeded land set aside by the locals and senior government officials of Grand Cape Mount County for the exclusive used of Community Fisheries project.

The site is a flat rectangular low land area with coastal sandy and clayish soil covered with a lot of grass as shown in Figure 1 photographic view below. It is located within considerable distance away from the following landmark / features. To the North is Lake Piso (an open coastal lagoon); to the South is Grass Field Town, a residential community with an old airstrip which is not in use currently; to the West and partly Southwest is a secondary forest approximately 200 meters away from the proposed project site home to about 40 Vervet Monkeys; and to the East is Fanti Town, where the current Fish landing site is located. Similar to the Mesurado wetlands, the wetlands fringing Lake Piso are also designated RAMSAR site. The lake shoreline bordering the proposed project site, however, has no wetlands (including mangroves), reefs or valuable other native plants to protect. In this context, it is important to note that (1) the Robertsport landing site originally selected for construction (see Fig. 6 and 7 below) under the original WARFP SOP A1 is not physically adjacent to wetlands and (2) is already fully develop, with the ACGF project activities not extending beyond the existing construction footprint or beyond intended cumulative site use already addressed under WARFP SOP A1.

The construction site was acquired several years ago. An ARAP for the site was developed in 2011, and by September 2011 payments to PAPs had by been completed and relocation to a newly identified site

also completed. Separate USAID-financed program has recently installed basic utilities, including piped water as well as rehabilitated adjacent roads and electricity connections.

Figure 5 View of Project Site in Robertsport

4.1.1 Topography

Mesurado

The landscape of the project site is flat and naturally drained towards the south west. The shoreline *inside* the Freeport's industrial complex is significantly terraformed to accommodate shipping and auxiliary activities. The actual jetty construction site is off shore, originating and protruding *into* the harbor basin directly from the norther breakwater, and not impacting on the actual configuration shoreline inside the port. Any impact on water circulation is also minimal as compared to the very significant level of enclosure provided by the two main port breakwaters. The shoreline *outside* of the Freeport of Monrovia is broken by rivers, estuaries, tidal creeks, swamp, sand bars, lagoons and mangroves swamps.

Robertsport

The landscape of the area is flat and naturally drained towards the south west. The shoreline along Lake Piso is broken by little estuaries, tidal creeks and mangrove swamps. The altitude rises between 1.5 to 3 Meters above sea level. Robertsport is a coastal town with a population of about 4000 inhabitants, according to the 2008 National Census. The Predominant livelihood activity in the area is fishing. The artisanal fishing industry is operated by both men and women. The men operate the fishing canoes and carry out the actual fishing activities, while the smooking and processing are carried out by women.

Lake Piso is one of the five sites designated as Wetlands of International Importance in Liberia. Lake Piso is a major habitat and feeding ground for several important specials of birds, mammal, fish, reptiles and amphibians. The site is important both as a nursery and spawning ground for fish and sea turtles and as feeding and roosting places for large numbers of shore and sea birds. Mammals such as antelopes, duikers, monkeys, bushbucks, and a few crocodiles are also found in the area.

In addition to its enormous biological value, some 38 communities, totaling about 7000 people, depend upon Lake Piso for transportation, commercial and non-commercial fishing, and sand mining for construction activities. As noted above, however, project activities will not interfere with these long-established uses of the Lake. The Robertsport (Community) Co-Management Association established under WARFP SOP A1 is now managing the fishing activities in the lake, effectively ensuring that the landing cluster improvement activities carried out by the ACGF project will not result in new entries or increasing the fishing effort beyond historic levels.

Figure 6 Fanti Town, Robertsport

4.1.2 Geology of the Area

Mesurado

The project site stands on an outcrop, a ridge of diabase, dark colored, fine-grained rock. Most of the crystalline rocks are of the Precambrain age. Predominantly, these rocks upon which Monrovia is built are of the Pan African age, and extend along most of the coastline up to the Cestos Shear Zone.

Bushrod Island, on which the Freeport of Monrovia is located, is a characteristic feature of the coastline of the Pan African age that has a number of natural ports. A typical feature around the port is the Mesurrado River which empties into the Atlantic Ocean to the west about 1km from the Freeport of Monrovia.

The mouth of the Mesurrado River is obstructed by shifting sandbars and submerged rocks that the natural harbor presence is a result of a sand spit, located towards the southeast of the Freeport of Monrovia on which the popular densely populated urban district of West point is located.

Robertsport

The regional geology of the project area is dominated by Precambrian rock formation of the West African Craton, which falls within the pan African Age Province of western Liberia about 3,000 million years ago. The rock types are dominated by paleoproterzoic granites**.**

5. LEGAL FRAMEWORK AND POLICY REQUIREMENTS

5.1 National Environmental Policy Requirements

The most relevant document for the development of ESIA in Liberia is the Environmental Impact Assessment Procedural Guideline (EPA 2006). This document describes in detail the procedure to be followed for preparing an EIA in Liberia. Figure 8 below outlines the steps have to be followed under EAP 2006.

Other relevant Liberian environmental legislation concerning Environmental Impact Assessments inlcude:

- The Environment Protection Agency (EPA) Act, (EPA, 2002)
  The Act provides the Agency with the authority of government for the protection and management of the environment in Liberia. It provides for an Environmental Administrative Court to hear from aggrieved parties. It requires that an Environmental Impact Assessment (EIA) be carried out for all activities and projects likely to have an adverse impact on the environment.
- The Environment Protection and Management Law, (EPA, 2002)
  The Act enables the Environment Protection Agency to protect the environment through the implementation of the Law. It arranges the rules, regulations, and procedures for the conduct of EIA. It establishes regulations for environmental quality standards, pollution control and licensing, among others.
- The National Environmental Policy Act, (EPA, 2002) defines policies, goals, objectives, and principles of sustainable development and improvement of the physical environment, quality of life of the people and ensures coordination between economic development and growth with sustainable management of natural resources.

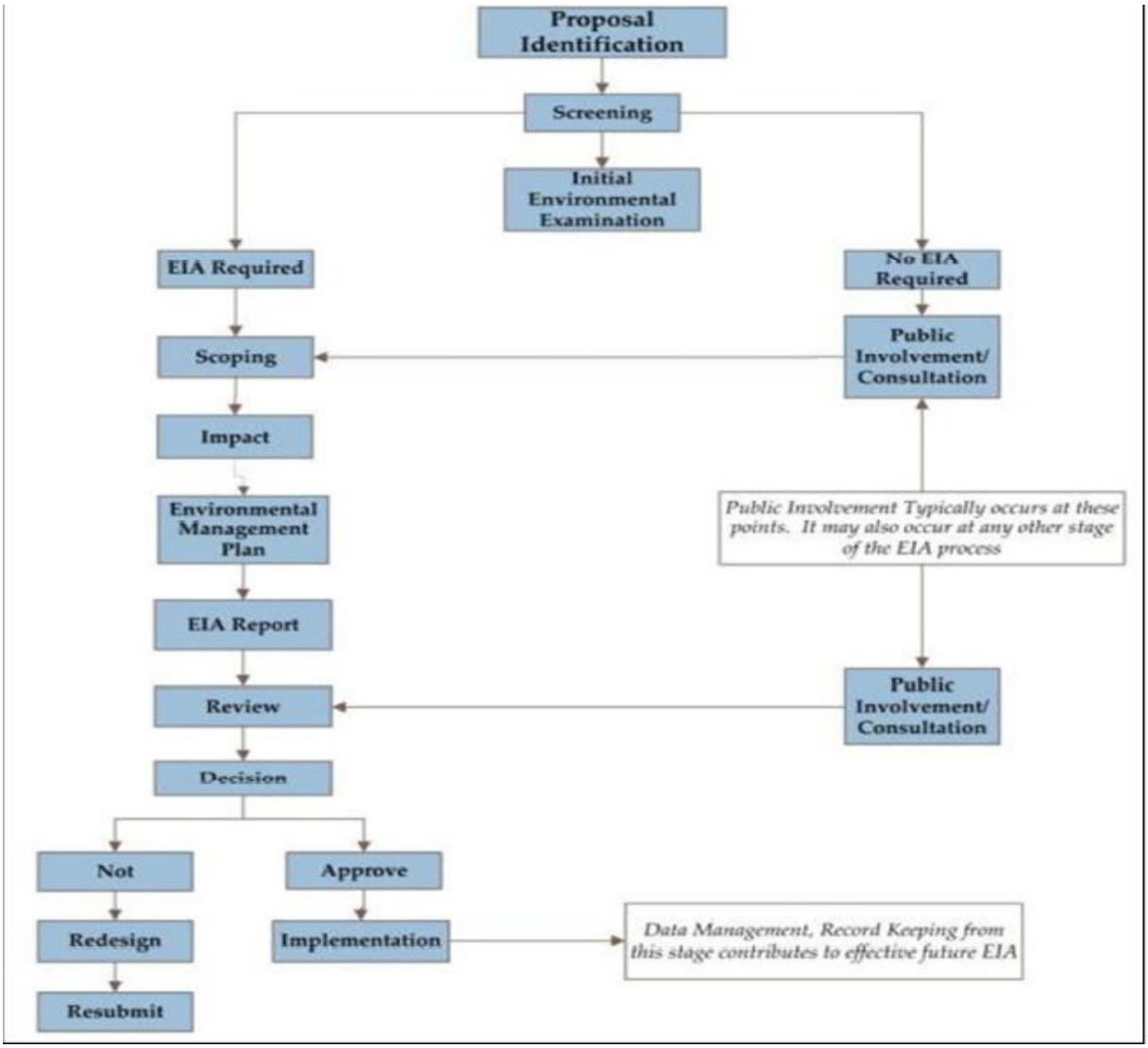

Figure 7 EIA Process in Liberia

Additional relevant legislations that may apply to this project include the following:

- Section 369 of the Administrative Regulations of Liberia Maritime Authority provides procedures for registration of commercial fishing vessels operating within the jurisdictional waters of the Republic of Liberia;
- Revised Public Health Law of 1976, for Hygiene and Sanitation, published by the Ministry of Health and Social Welfare, Republic of Liberia;
- National Food Safety Guidelines (NFSG), Section 4.2 deals with the processing of frozen fish. The NFSG was published December 2011, by the Ministry of Health and Social Welfare, Republic of Liberia; and
- Natural Resources Law of Liberia 1958, Section 99, 1 and 2 of Chapter 4, and Subchapter B of Title 24 empowered the Ministry of Agriculture to engage development project.

5.2 Multilateral Environmental Agreements

Liberia is signatory to several multilateral environmental agreements which might relevant for this project. The following table provides a list of some the most relevant multilateral agreements Liberia is signatory to:

Table 1 Relevant International Environmental Conventions Ratified/signed by the GoL

Convention	status	Year	Objectives
African Convention on Conservation of Nature and Natural Resources	Ratified	1978	To encourage individual and joint action for the conservation
Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Ratified	1981	To prevent trade of endangered or threatened species
Framework Convention on Climate Change and the Kyoto Protocol	signed	2002	• To achieve stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic system • To strengthen the commitment of developed country parties with a view to reduce their overall emissions
Stockholm Convention on Persistent Organic Pollutants (POP)	signed	2002	• To strengthen National Capacity and to enhance knowledge and understanding amongst decision makers, managers, industry and the public at large on POPs • To develop a National implementation Plan (NIP) to manage the elimination of POPs.
Ramsar Convention on Wetlands of International Importance	signed	2003	• To manage wetland systems so that the human uses of these areas are undertaken in such a way as to retain their natural capital for future generations. • To encourage and support countries to develop and implement national policy and legislative frameworks, education and awareness rising programs, as well as inventory, research and training projects.
Convention on the Conservation of Migratory Species of Wild Animals	Ratified	2004	Aims to conserve terrestrial, marine and avian migratory species throughout their range
Convention on Biological Diversity (CBD)	Ratified	2000	• Promote Conservation of Biological Diversity. • Sustainable use of its components. • Fair and equitable sharing arising out of the utilization of genetic resources

5.3 Fisheries Sector Legislation

The 1954 law (revised in 1973) on Natural Resources is still in force in Liberia. The part on the fisheries puts particular emphasis on the registration of boats, authorized fishing materials, prohibition of the use of dynamites and other harmful fishing methods; authorized mesh sizes of nets; authorized fishing grounds, etc. A draft fisheries regulation was prepared in 1999, but is not yet approved by the Government. The new fisheries legislation should have a lot more "international" character, including provisions for a code

of conduct for responsible fisheries and respect for international agreements, conventions and protocols, with emphasis also on control and monitoring. At the level of the Ministry of Agriculture, the Directorate of Quarantine and the Environment outlined instructions for inspections in the fisheries sector.

5.4 Institutional Framework for Environmental and Social Management of the project

5.4.1 Sub-regional level: Project Coordination Unit

The Coordinating Unit of the WARF/PCU is the organ of coordination and supervision of implementation of the activities of the project in the 2 countries, in collaboration with the national steering and coordination structures which include the essential categories of actors concerned with the project.

5.4.2 National Level

National Steering Committees of the WARFP

The National Steering Committee of the WARF consists of the following structures: the Ministry of Agriculture as chair; Ministry of Defense; Ministry of Justice; Ministry of Finance; National Ports Authority; Office of Maritime Affairs; Office of Immigration and Naturalization; Environment Protection Agency; the Nations-United Office for the Civilian Affairs.

National Coordination of the WARFP

The National Coordination of the WARFP is assured by a National Coordination Unit that has the human and technical material resources to ensure evaluation and monitoring of fisheries resources, but which lacks an environmental expert. A Consultant is needed to support the Coordination Unit, as well as the EPA (Environmental Protection Agency).

National Institution for Environmental and Social Management

The management of environmental affairs is incumbent upon the Environmental Protection Agency (EPA) which is responsible for the Environmental Impact Assessment. In terms of capacities, the EPA has the technical expertise to ensure monitoring of the procedures for Environmental Impact Studies, supervision as well as control of conformity and legal status, particularly of the development projects. The human resources exist but the control and monitoring resources are lacking. In the framework of this ESF, EPA will play a major role as this institution has to approve the screening procedure; to validate the ESIA and the conduct the ESMF monitoring plan. For this, EPA needs to be supplied by the WARFP to realize all these activities.

6. SAFEGUARDS POLICIES OF THE WORLD BANK

6.1 Analysis of Safeguards policies

The environmental and social safeguards policies of the World Bank consists of both, the Operational Policies (OP) and the Procedures of the Bank (BP). The safeguards policies are conceived to protect the environment and the society against the potential negative effects of the projects, plans, programs and policies. The most recent environmental and social safeguards policies are: OP/BP 4.01 Environmental Assessment, including public participation; OP/BP 4.04 Natural Habitats; OP 4.09 Management; OP/BP 4.11 Cultural Heritage; OP/BP 4.12 Involuntary Resettlement; OP/BP 4.10 Indigenous Peoples; OP/BP 4.36 Forests; OP/BP 4.37 Dam Safety; OP/BP 7.50 Projects on International Waterways; OP/BP 7.60 Projects in Disputed Areas. OP 4.01 (Environmental Assessment) is the only WB OP that applies to this project.

Environmental Assessment OP 4.01

The objective of OP 4.01 is to ensure that the projects financed by the Bank are viable and feasible at the environmental level, and decision making is improved through appropriate analysis of actions and their likely environmental impacts (OP4.01, para 1). This policy is triggered if a project is probably going to have risks and potential environmental impacts (negative) in its zone of influence. OP 4.01 covers the impacts on the physical environment (air, water and earth); living standard, health and the security of the populations; physical cultural resources; and global and trans-boundary environmental preoccupations. OP 4.01 also describes the requirements for public consultation and disclosure. For projects classified as A and B, the borrower consults the groups affected by the project and Non Governmental Organizations (NGOs) about the environmental aspects of the project and takes into account their points of views. The report is disclosed on the Bank's website as well as in country.

Natural Habitats, OP 4.04

OP/BP 4.04, Natural Habitats does not permit financing projects that degrade or convert critical natural habitats, and seeks to mitigate adverse impacts on non critical natural habitats. The natural sites such as mangroves present a particular interest for fisheries and are important for the preservation of coastal biological diversity or because of their ecological functions (spawning zones./grounds, etc.).

Natural habitats nearby project locations include the Mesurado Wetlands (Freeport of Monrovia) and Lake Piso (Robertsport – Fanti Town); however, project activities won't have any foreseen impacts on these natural habitats and the policy is not triggered.

Several kilometers outside of the Freeport of Monrovia and the project location, to the southeast lie the Mesurado Wetlands (Figure 5). The Mesurado Wetlands is one of 5 sites designated as wetlands of International Importance in Liberia. The site is important for the protection of three mangrove species (Rhizophora harrisonii, R. mangle and Avicennia africana), which are threatened by intense charcoal burning and fuel wood collection. Several species of birds use the site including the African spoonbill Platalea alba, Common Pratincole Glareola nuchaltis and Curlew Numenius arquata use the site as habitat and feeding grounds. It also hosts the vulnerable African dwarf crocodile, the Nile crocodile and the African sharp-nosed crocodile and plays an important role in shoreline stabilization and sediment trapping. The site is currently used for fuel wood. It is important to emphasis that the wetlands is fully separated by the port area by existing heavy urban and industrial development on the landward side and by the semi-full enclosure of the Freeport's breakwaters, on the seaward side, and will not be impacted by the project activities.

Lake Piso (Figure 7) is one of the five sites designated as Wetlands of International Importance in Liberia. Lake Piso is a major habitat and feeding ground for several important specials of birds, mammal, fish, reptiles and amphibians. The site is important both as a nursery and spawning ground for fish and sea turtles and as feeding and roosting places for large numbers of shore and sea birds. Mammals such as antelopes, duikers, monkeys, bushbucks, and a few crocodiles are also found in the area. In addition to its enormous biological value, some 38 communities, totaling about 7000 people, depend upon Lake Piso for transportation, commercial and non-commercial fishing, and sand mining for construction activities. As noted above, however, project activities will not interfere with these long-established uses of the Lake. The Robertsport (Community) Co-Management Association established under WARFP SOP A1 is now managing the fishing activities in the lake, effectively ensuring that the landing cluster improvement activities carried out by the ACGF project will not result in new entries or increasing the fishing effort beyond historic levels.

Pests Management, OP 4.09

This policy supports integrated approaches in the fight against pests. It identifies a number of harmful pesticides that cannot be financed within the framework of implementation of a project. It also requires that the borrower elaborates an appropriate pest management plan aimed promoting an integrated pest management approach, and at reducing the risks of chemical usage when chemicals are needed after all. The purchase of pesticides is not envisaged under the WARFP project. Also, the activities envisaged in the Project are not going to trigger this Policy.

Involuntary Resettlement OP 4.12

The objective of OP 4.12 is to avoid or minimize the involuntary resettlement where ever is feasible, while exploring all other viable alternative to the projects. Furthermore, OP 4.12 aims to compensate people for loss of land and assets and, in addition, to bring assistance to displaced people through the improvement of their former ways of life, their capacity to generate income, their levels of production, or at least to restore them to pre-location levels. OP 4.12 encourages the community participation in planning and the conduct of the resettlement and the provision of assistance to affected people, regardless of the legal status of the land tenure. This policy not only covers the physical resettlement, but also all loss of land or other goods causing (i) resettlement or loss of shelter; (ii) loss of assets or access to goods; and (iii) loss of sources of incomes or means of livelihood. The policy also applies to the involuntary restriction from access to designated parks and to protected areas, caused by the destructive impacts on the means of livelihood of the displaced people. The requirements for disclosure are those that are required under OP 4.01.

The construction of the jetty in Mesurado is not going to require acquisition of land (displacement) or loss of socio-economic activities. The designated project site belongs to the Government of Liberia and has been given to the BNF for the construction of the jetty. The entire Port area including the project site is fenced in, and there are no squatters within the facility.. Therefore, no land acquisition is required. .The site in Robertsport was acquired in 2011. An ARAP was developed, and the PAPs duly compensated and resettled to a new site. Therefore, the additional ACGF grant will not trigger OP 4.12.

Indigenous Populations OP 4.10

There are no groups who meet the criteria of OP 4.10 on Indigenous Peoples present in the project area. Consequently the activities foreseen within the framework of the WARFP will not trigger this Policy.

Forests OP 4.36

OP 4.36 does not support commercial exploitation in primary humid tropical forests. Its global objective is to reduce deforestation, reinforce the contribution of forested zones to the environment, promote reforestation. The World Bank does not finance the operations of commercial exploitation or the purchase of equipment destined for the exploitation of the humid primary tropical forests. The activities foreseen in the implementation of the WARFP will not trigger this Policy.

Safety of Dams OP 4.37

This policy distinguishes between big dams and small dams. The policy requires the conduct of periodic technical survey and safety inspections by independent experts specialized in the security of dams for big dams. The Project is not concerned with the construction of or the management of these big dams because it will not finance these types of works.

Physical Cultural Heritage OP 4.11

OP 4.11, Physical Cultural Heritage requires proper management of of known physical cultural resources in the project area, and procedures for managing chance finds if there is a risk that those may be encountered. The project is not going to trigger this Policy. For precautionary reason, a chance find procedure has been added in the annex, which could be triggered in case of any chance finds.

Projects on International Waterways OP 7.50

The policy seeks to ensure that riparian and/or coastal states are informed in case of porjects on international waterways and that these states have no objection to the interventions of the project. All investment projects are covered. There are some international rivers in Liberia including the St. John River, Cestos River, St. Paul River and Mano River, but the Project does not envisage any specific activities on these international water bodies. Therefore, the project will not trigger this policy.

Projects in Disputed Areas OP 7.60

Projects in disputed areas may raise a number of delicate problems affecting relations not only between the Bank and its member countries, but also between the country in which the project is carried out and one or more neighboring countries. In order not to prejudice the position of either the Bank or the countries concerned, any dispute over an area in which a proposed project is located is dealt with at the earliest possible stage. The Bank may support a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed for country A should go forward without prejudice to the claims of country B.

The project does not have any activities in zones in litigation. Consequently, the Project activities are not going to trigger this policy.

6.2 Conclusion

The only WB OP that is triggered by this project is OP 4.01: Environmental Assessment. The remaining operational policies are not triggered by the Project. Therefore, this ESIA has been developed as the safeguards instrument as required by the policy to mitigate the potential impacts of the project activities.

7. PROJECT ATLTERNATIVES DISCUSSIONS

Generally, the objective of considering range of reasonable alternatives to the project is to analyze other project options, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. This is the process of considering feasible alternative to the project. In this case of this project, consideration of feasible alternatives could not be applied. Though the proposed additional ACGF grant is considered as a "new" project, the grant will actually be applied to facilitate the completion of ongoing construction activities at Mesurado and Robertsport under the West African Regional Fishery Program (WARFP).

8. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The operation of both the Mesurado and the Robertsport landing sites will cover all fishing activities, including landing and handling of fisheries products, temporary storage, processing, transportation, including products and other type of solid, liquid or gaseous merchandise. The environmental concerns include the disposal of solid and liquid wastes, insecurity and lack of protection of the staff and lack of monitoring of environmental activities.

8.1 Potential Negative Impacts of Construction Phase

The construction works have the potential to cause hindrances and nuisances and temporary disruptions of local activities on the sites, as well as on the water body within the port basin. The environmental and social considerations include the risks of pollution of the water body by the garbage from the yard, the risks of accidents during the construction.

Construction related impacts

Pollution of the sites and the water body by wastes

Overall, it is the civil engineering works that would generate solid and liquid wastes from the work site. Sources of wastes generation include earth and rubbles from site preparation, excavations, foundations, drained oils from engines; etc.). With both construction sites already set up and operational and site preparation largely advanced as construction activities have been going for year, there is limited concern for waste generation from site preparatory activities.

These pollutions resulting from the construction/rehabilitation activities are big threats to adjacent waters as well as on hygiene and health of the surroundings. It is the same way with manipulation of fine materials (cement and sands) which could have moderate impact on the body. The materials normally

used for the construction of infrastructure (concrete, embankment stones) have no negative effects on the environment; on the other hand, the walls of the steel plates undergo serious corrosion in hot regions, due to salt water and particularly brackish water. They could not therefore be used except in combination with anticorrosion products, it important to limit the choice of these products to non-toxic painting so as to avoid contaminations.

Dredging activities

No dredging activities will be taking place under ACGF project.

Some limited bottom preparation works will take place on the site of the construction of the Mesurado out-loading jetty.

Accidents and other occupational health and safety issues

Working near and above water bodies

A major health and safety risk associated with this project is the fact construction activities are being carried out in very proximity to large water bodies, and in some cases, works are actually carried out within the water body itself. Works in these areas must be carefully planned to mitigate the risk of drowning for instance. Emergency response plan should developed and emergency response equipment, especially those relating to emergency rescue readily made available on site.

Exposure to waterborne diseases and poor sanitation

In general, the physical environment at the project site is unhealthy due to inadequate access to safe water and sanitation services. Regarding the water supply, the prevalence of diarrheal diseases (and their consequences as cholera and dysentery) and intestinal parasites prevalence can increase. Improving water supply also helps to reduce the impact of other infectious diseases.

Poor Protection of staff

On the construction sites, poor protection of staff could cause discomfort, and nuisances by noise, dust and gases, does not only lead to deterioration in staff health, they can also contribute to accidents at work. Furthermore, poor displaying of works could also cause some accidents. Accidents from machinery is not a major concern for this project. Most of the construction activities will not require the use of heavy machinery. However, providing staff with the requisite personal protective equipment and proving training on the use of hand-held tools are essential.

Impacts on local socio-economic activities and social cohesion

Socio-economic impact

Mesurado Jetty:

Construction of the jetty will not lead to social losses because no socio-economic activities are conducted on the site. The construction activities will not constrain fishing in the nearby waters

Robertsport

On the social level, construction of the fishery landing infrastructures did require the acquisition of land and displacement of some community residents. Compensation and relocation of PAPs have already been completed under the original WARFP SOP A1 project. PAPs have since been relocated to a new site. Therefore, this project will not lead to physical or economic displacement, and it will not be supporting land acquisition.

Social Cohesion

However, influx of potential construction works seeking employment opportunities may have the potential to disrupt local social cohesion. This is particularly important in the case of Robertsport. This was among the concerns raised by the local populations in the Robertsport during the public consultation exercise. The local population expressed the need for them to be given priority in case of employment opportunities over people migrating to the site in search of employment. This will need to be handled delicately as the majority of the equipment installation/construction finalization works to be carried out under the ACGF project require specialized skills not available locally. As with WARFP SOP A1, specially effort will be made to strike balance between providing employment opportunities for local on one hand, while ensuring on other hand that the quality of works cannot be compromised.

Communicable diseases

The presence of a large number of workers, principally males, may give rise to an increased spread of communicable diseases such as HIV/AIDS in particular and other sexually transmitted diseases. This is particularly important for the Robertsport site. Besides the construction activities which would inevitably attract more people to site, the artisanal fisheries activities attract people from all around Liberia. The majority of the people are those who go to the site to buy fish and still only for a short period of time, which could last several days or weeks. Specific measures including HIV/AIDS awareness program should be undertaken by the contractor to safeguard its workforce and the larger population. Where possible, contact between the workforce and the larger population should be minimized.

8.3 Potential Negative Impacts of Operational Phase

Several activities concerning the daily operations on the jetties and the fish processing facilities could generate negative impacts.

Marine pollution from waste water

The main concerns for the jetty operation will be general waste management issues and discharge from vessels which are usually sources of pollution during shipping and yard operations. This includes waste and wastewater discharges, accidents and spillage of fuel, used oil, etc. can be major sources of pollution. The major quantity of liquid waste that would be generated in the normal day to day operations at the proposed project includes sewage, and wastes water from domestic activities. These wastewaters together as sewage have a potential to pollute marine water or soil, if disposed untreated

Marine pollution from hazardous chemical

In the landing zones, liquid petroleum, chemical or other liquids could contaminate the marine waters. They could also cause fires and explosions. Leaking petrol, oil derivatives, liquid chemicals or other liquids could be produced. With these pollutions, the possible secondary effects of deterioration of the aquatic fauna could be the sanitary risks linked to the consumption of fish.

Marine pollution from artisanal fishery activities

The boats generate huge quantities of liquid wastes (disposal of waste waters coming from cleaning of the cisterns and loading holds, as well as maintenance and the draining of the engines). Generally, there are no particular collection and storage device for these wastes which are often discarded into the sea. A large

proportion of pollution of the waters of the harbor can also be the result of direct disposal of domestic used waters also coming from the sanitary facilities installed in the boats. Water pollution constitutes a risk for swimmers and the consumption of sea products (particularly mollusks), with major risks of infections and poisoning.

Solid wastes disposal

The fisheries produce qualitatively and quantitatively very variable wastes according to the different activities that are conducted there: wastes emanating from the maintenance and repair activities, domestic wastes, commercial packaging, fermented stuff, special solid wastes. Generally, the fisheries do not have a system for management of these wastes in terms of collection, storage and disposal in accordance with the national legislations in force.

During the operation phase of the project, one of the activities that has the potential to generate wide range of impacts is the eventual (post-project) introduction of fish processing. Fishing processing activities generate impacts that have implications on the environment as well as on the health and safety of those involved the processing industry and, in some case, the wider population.

Environment concerns related to fish processing

Environmental issues that would be associated with the processing phase will primarily include the following:

- Solid waste and by-products
- Wastewater
- Water consumption and management
- Emissions to air and energy consumption

Solid waste and by-products

Fish processing activities generate potentially large quantities of organic waste and by-products that need to be managed daily to in order to avoid adverse impact on the environment and on the health of those involved in the processing activities. Some measure have been recommended in the ESMP that would help reduce the production of solid wastes and by-product, hence mitigate the impact on the environment.

Wastewater

Fish processing activities also requires large amounts of water, especially for washing and cleaning purposes. Water is also used as media for storage and refrigeration of fish products before and during processing. The waste water generated may be contaminated with chemicals that are typically used for cleaning, including acid, alkaline, and neutral detergents, as well as disinfectants. This has the potential to contaminate surface and ground waters sources, if released in the environment untreated. The ESMP provides mitigation measure for handling waste water as well as measures for reducing the quantity of waste water produced during fish processing.

Waste management at the sites must be taken very seriously. Improper waste disposal activities could pollute the marine as well as pose threat to the Lake Piso, in case of Robertsport.

Air Emissions

Odor is often the most significant form of air pollution in fish processing. Major sources include storage sites for processing waste, cooking by-products during fish meal production, fish drying processes, and odor emitted during filling and emptying of bulk tanks and silos. This could be particularly concerning for Roberstport. The fish landing and processing facility is not far away from the rest of the community. If odor is not managed properly during the operation, it could be a potential source of conflict with the community.

Odor control and prevention measures will need to be applied to mitigate the impact it could have on staff and the surrounding environment. A very effective way of preventing odor is to ensure that stock of

materials of raw materials are reduced, as well as waste, and by-products. Ensuring that they are stored only for a very short period of time can be helpful. Where possible, ensure that are always stored in a cold, closed, well-ventilated place.

Besides the environmental issues related to the operation of fish processing, there are also occupational health and safety hazards that need to be addressed. The OHS hazards which may apply to this project include the following:

- Physical and Biological hazards
- Exposure to chemicals
- Exposure to heat and cold
- Exposure to particulate emissions from smoking activities

Insecurity and disruption of socio-economic activities

Mesurado Jetty:

Use of the jetty will not lead to insecurity of people and construction materials. The Mesurado site will not generate any negative socio-economic impact. There are no socio-economic activities taking place at the site. The site is fenced in and there is no human settlement.

Robertsport

Construction activities did lead to disruption of activities at the site. The construction activities had caused physical and economic displacement in the project area. PAPs were duly compensated and had been relocated to a new site as required by OP 4.12. No new land acquisition will occur under this project, as land required for the construction works had already been acquired, and the PAPs duly compensated.

9. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This Environmental and Social Management Plan (ESMP) for the Project is based on the potential impacts of the project assessed during the ESIA. An Environmental Mitigation and Monitoring Plan (ESMP) has also been included in this ESIA (see Annex).

It is expected that before construction activities begin, this ESMP and the EMMP will be used as the basis for the contractor environmental and social management plan. The contractor would develop the Contractor's Environmental Management Plan that is site and activity specific to ensure that impacts identified this ESIA and those that may be identified by the contractor on site are managed.

9.1 Objectives of the Environmental and Social Management Plan

The ESMP will help the project to address the adverse environmental impact of the project, enhance project benefits, and introduce standards of good environmental practice. The primary objectives of the plan are to:

- Define the responsibilities of project proponents, contractors and other role players, and effectively communicate environmental issues among them.
- Facilitate the implementation of the mitigation measures identified as defined in this ESIA by providing the instructions on how to handle the issues.
- Define a monitoring mechanism and identify monitoring parameters to ensure that all mitigation measures are completely and effectively implemented.
- Identify training requirements at various levels and provide a plan for implementation.

- Identify the resources required to implement the ESMP and outline corresponding financing arrangements.

9.2 Responsibilities

The ESMP makes a distinction between responsibilities of the Project Implementing Unit or its and the Contractor. In most cases this responsibility is clearly attributable. So e.g. the Contractor will be directly responsible for all environment, health and safety (EH&S) measures related directly with construction sites and activities; this includes items as diverse as solid waste management, availability of PPE (personal protection equipment) for workers, health care services for the work force, implementation mitigation measures, etc.

There are responsibilities which are inherently undertaken by the Project Owner or the Project Implementing Unit. Land acquisition and compensation issues are the direct responsibility of the Project owner. No land acquisition is however anticipated under this project. The Project Owner, in this case, the Bureau of National Fisheries (BNF), has the following overall responsibilities:

- To make sure that the required measures are properly implemented, whether by him directly or by a third party.
- To formulate clear conditions (in the tender documents) for all obligations of the contractor.
- To monitor implementation of these measures and to take adequate steps in case of non-compliance

The project will retain the service of a supervising engineer or Owners Engineer (OE). In case the Owners Engineers act on behalf of the project owner. The OE will have the responsibility to supervise the contractors. The supervision works of the OE is normally related to the construction period and construction related issues e.g. EH&S measures related directly with construction sites and activities in addition to ensuring the quality of works are met as defined in the contract.

In addition to the general description of the roles of the BNF and the contractor, the following section describes roles that other stakeholders will play to ensure implementation of the EISA findings and the ESMP:

- The construction contractor is responsible for implementation of the mitigation measures provided in this EISA through the development of construction stage environmental and social management plan (ESMP) that will address the requirements of the ESIA report.
- The PIU will coordinate the activities of capacity building and environmental training in the implementation of the project and is responsible for the application of the back-up measures of the project.
- The Freeport of Monrovia will also oversee environmental and social management during utilization of jetties.
- **Environmental Protection Agency of Liberia** will provide technical support to the project coordination and will assure the national external monitoring for implementation of the environmental measures at the jetties.
- **The World Bank** through its usual project implementation support mission with monitor the implementation of the ESIA report.

9.3 Cost of ESMP Implementation

The Contractor is largely responsible for the implementation of the ESMP, except for specified activities that the Project Owner is inherently responsible as specified in earlier section on responsibilities. The cost estimate provided in the EMMP (see Annex) is mainly for monitoring activities. Generally, obligations of the contractor(s) for implementing the part of the ESMP for which they are responsible will have to be, as mentioned, in their proposals and cannot be specified reasonably estimated here. Where estimates have been provided for such cost, it should only serve an advisory purpose. The contractor cannot use that as a basis for reneging on their obligation to implement the ESMP.

Some of the main elements the contractor could consider in developing their cost estimates will be the following:

- Preparation of detailed Sub-management Plans for each relevant item
- Staffing of the EH&S unit on site.
- Required equipment of the EH&S Unit to enable it to carry out its tasks (including office space and equipment, clerical support, computers, monitoring devices for air, noise, water etc., laboratory costs, transportation, etc.).
- Specific equipment to be installed on site (drinking water treatment and distribution, waste water treatment plants, waste storage and handling facilities and material, oil spill fighting material, etc.).
- Provision of PPEs

The total cost for implementation of the ESMP is 70,000 USD. The EMMP provides detailed breakdown of the cost. However, as mentioned earlier, most of the cost estimated in the ESMP are cost associated with monitoring activities.

9.4 Capacity building and training for environmental and social management

The Bureau of National Fisheries (BNF) has gained good experience over the course of the WARFP SOP A1 implementation in managing and monitoring the construction related environmental and social issues. The BNF also is well familiar with the Bank's environmental and social policies that are applicable under the WARFP, and the one that applies to this project. However, during the operational phase of the project, monitoring of environmental performance indicators, which are important parameters used to measure whether the objectives of the ESMP are achieved, may prove challenging for both the BNF and the EPA.

The EPA is the agency in Liberia that has the statutory mandate to manage the environment. It has developed ESIA guidelines against which project are screened and the level of study required carried out. The Agency issues Environmental Permit which has conditions that are supposed to be met by project proponent. However, given the limited capacity of the EPA, monitoring of permit conditions can be challenging. For instance, capacity to measure emission level and effluent toxicity is lacking in-country. Environmental standards

It clear that some of the capacity issues may be beyond this project. However, it is important to highlight them as they may serve as serious impediment for the monitoring institutions. Given the capacity gap, the environmental indicators can also be developed bearing in mind the monitoring institutions' capacities.

10.1 Pre-Construction Environmental and Social Management.

10.1.1 Development of a Resettlement Action Plan (RAP) for the Robertsport Site

Development of a resettlement action plan was one of the pre-requisites for starting construction activities in Roberstport. Pre-construction survey identified 30 structures and about 119 person within the construction site. An ARAP had to be developed and implemented since 2011. Relocation of PAPs to a newly identified site was also completed in 2011. The Site is partially fenced in, however, there has been no encroachment on the site since compensation payment and relocation were finalized.

10.2 Construction Phase Environmental and Social Management

10.2.1 General environmental measures for mitigation of negative impacts

General Mitigation Measures:

- Communication and sensitization Campaigns before and during works
- Respect for hygiene measures at the works facilities
- Works Sign board and respect for the safety rules during the works
- Collection and disposal of wastes emanating from the works
- Sensitization Campaigns (hygiene, works safety etc.)
- Close involvement of the local collectivities in the monitoring of implementation of works
- Compensation in case of destruction of goods or loss of activities due to the project

Safety at Construction Site:

- Safety works dresses (Dress, helmets, boots, masks, gloves, glasses, etc.)
- Strict respect o protective port equipment
- Putting in place of a First Aid Box
- Regular medical monitoring of the staff and fisheries operators
- Regular toolbox talk to discuss the risks and hazards associated with assigned tasked
- Regular training for staff
- Provision of emergency response equipment

10.3 Operation Phase Environmental and Social Management

The following measures should be implemented by the pier management unit. Monitoring should be conducted by EPA.

Mitigation Measures against unhygienic conditions and safety of the sites:

- Prohibition to empty wastes from toilets and laundry into coastal waters
- System for collection and treatment of all untreated wastes
- Limitation of discards to the maximum (to allow discharge treated used waters only)
- Installation of sufficient sanitary blocks and regular maintenance (cleaning, draining, etc.)
- Setting up of a collection and disposal system for solid wastes
- Putting up Street light on the sites
- Protection of staff and users
- Prohibition of disorganized occupation of the site
- Protection of facilities (permanent control and surveillance of access)

- Fire Fighting Systems
- Surveillance and rescue equipment (patrol boats, etc.)

Management Measures for petroleum and oils:

- Waterproofing for transshipment, loading and storage areas
- Construction of loading, discharge and storage infrastructures
- Cleaning of the infrastructures and facilities of the users
- Security devices and auxiliary materials (recuperation equipment; absorbent agents; sand
- reserves; fire fighting systems; sprinkler systems; foam generators; standby generators;
- special water pumps)
- Insulated storage and retention containers
- Materials for fighting against spills (absorbents, shovels, pumps, containers, gloves)
- Communication Materials (radio transmitters, walkie-talkie, cell phone)
- Safety Materials (signals, etc.)
- Recovery, treatment or recycling of all petroleum residues, used oils.

Management of used waters and solid wastes:

- Cover and waterproofing of storage areas
- Evacuation of excess materials
- Waste containers (dustbins)
- Recuperation and evacuation of drainage wastes
- Constructions of sanitary infrastructures (toilets, latrines, etc.)
- Organization of engine washing and maintenance areas
- Acquisition of barrels for storage of drained oils

Measures for materials and goods storage area

- Stabilization of the storage areas
- Setting up of a drainage system in these areas and the surrounding areas
- Covering of the storage warehouses for bulk materials

Protection of the staff using and managing the jetties

- Safety working gears (dresses, helmets, boots, masks, gloves, glasses, etc.)
- Strict respect of port's protective facilities
- Putting in place a First Aid Box
- Regular medical monitoring of staff and fisheries operators

Management of the sanitary facilities and drinking water:

- Decontamination of the reservoir waters and regular clearing-out the bottoms
- Maintenance and regular draining of the toilets and septic tanks

10.3.1 General Environmental and Social Safeguards Measures

In addition to mitigation measures recommended above, the following general measures are also recommended to ensure effective execution of works, environmental protection, and safety of staff and community residents.

Respect for the national laws and regulations

The Contractor and subcontractors must: know, respect and apply the laws and regulations in force in the country relating to the environment, to the disposal of solid and liquid wastes and noise standards, to the working hours, etc.; to take all appropriate measures in order to minimize the impacts on the environment; to assume the responsibility for all complaints linked to failure to respect the environment.

Permits and authorizations before works

All implementation of works must be subjected to initial procedure of information and administrative authorizations. Before beginning works, the Contractor must obtain all the necessary permits for the implementation of planned works. Before the start of works, the Contractor must confer with the residents with whom he can make arrangements for facilitating the progress of the works.

Meeting of works take off

Before the starting of works, the Contractor and the consultant, under the supervision of the National Coordinating Unit, should organize meetings with the authorities, representatives of the populations situated in the zone of the project to inform them of the works to be implemented and their duration, of the calendar of works and the sites likely to be affected.

Preparation and Takeover of the site

The takeover of the site must be according to a defined calendar in agreement with the affected populations and the consultant. Before the installation and the beginning of works, the Contractor must ensure that compensations are paid to the rightful owner by the consultant.

Environmental and Social Management Program

The Contractor must establish and submit, for the approval of the consultant, a detailed program of environmental and social management of the works that comprises a plan of occupation of the land by the facilities; a wastes management plan for the works; the program of information and sensitization of the population; a plan for management of safety and accidents.

Display of the -internal regulations and sensitization of the staff

The Contractor must display internal regulation in a visible way in the various facilities of prescribing specifically: respect for the local customs; protection against the STD/HIV/AIDS; and the hygiene rules and safety measures. The Contractor must sensitize his staff particularly on the respect for the customs of the populations of the region where the work is done and on the risks of STD and HIV/AIDS.

Use of local labor

The Contractor is required to hire (outside of its technical staff) more labor in the zone where works are being done. Where qualified staff is lacking in the surrounding area it is allowed to hire the labor outside of the work zone.

Respect for work schedules

The Contractor must ensure that the work schedules respect the laws and national regulations in force. All derogation is submitted, as far as possible, for the approval of the consultant, (except in case of exception granted by the consultant), the Contractor must avoid executing works during the hours of rest, Sundays and public holidays.

Protection and Safety of Construction work staff

The Contractor must place at the disposal of the staff protective clothing that are in a good state, as well as all protective accessories and security appropriate for their activities (helmets, boots, belts, masks, gloves, glasses, etc.). The Contractor must keep strict watch on the wearing of the protective facilities in the works areas. A permanent control must be done to this effect and, in case of default corrective measures (warning, penalization, and dismissal) must be applied to the concerned staff.

Responsibility for Hygiene, Security and the Environment

The Contractor must designate a person responsible for Hygiene/Safety/Environment who will ensure that the hygiene, safety and protection rules of the environment are followed rigorously by all and at all levels of execution, for the workers as well as for the population and other people in contact with the works area. The contractor must put in place a medical and life saving service. The Contractor must prohibit access of the works area to the public, and protect the area with fencing and road signs to indicate the different entrances and to take all measures for order and security to prevent accidents.

Measures against hindrances to traffic

The Contractor must avoid obstructing public access. He must permanently maintain the flow of traffic and access for the residents during the construction. The Contractor will ensure that no excavation or trench remains open when not in immediate use, without adequate sign boards accepted by the consultant; and ensure that the temporary deviations allows movement without any danger.

Care for the works area and re-organization

At handing over of the site, the Contractor should ensure it is clean for immediate use. He cannot be relieved of his commitments and responsibility concerning their use without the good state of the site having been confirmed. The Contractor will take care of necessary arrangements to restore the site to a good condition. He is held responsible for the removal of all equipment and materials and properly dispose off what may be considered as waste. The contractor cannot abandon them on the site or in the vicinity. Once the works are completed, the Contractor must (i) withdraw the materials, solid and liquid wastes, excess materials, fences etc. (ii) rectify the defects of the drainage system and fill all the excavated zones; (iii) afforest the zones initially deforested with suitable species, in collaboration with the local forestry services,; (iv) protect the remaining dangerous works (wells, open trenches, protrusions, etc.); (vi) make the pavements, sidewalks, gutters, rails and other works returned to the public; (vi) decontaminate the polluted soils (the contaminated parts must be cleaned and covered with sand); (vii) clean and destroy the drainage pits. After the withdrawal of all materials, minutes reporting restoration of the site must be written and included in the minutes of receipt of works.

Protection of unstable zones

During the dismantling of the works in unsteady places, the Contractor must take the following precautions not to accentuate the unsteadiness of the ground: (i) avoid any heavy circulation and any overload in the area of unsteadiness; (ii) preserve as much as possible the plant cover or reconstitute this latter by using local species adapted in case of risks of erosion.

Notification of reports

The consultant notifies the contractor in writing of all cases of defect or non execution of the environmental and social measures. The Contractor must correct all defects in accordance with the

instructions duly notified to him by the consultant. The resumption of works or extra works resulting from non respect of contract provisions are at the cost of the Contractor.

Sign boards for the works site

The Contractor should place, before the start of the works and every time the need arises, sign boards a long distance from the site (exits, routes used by the engines, etc.) in accordance with the laws and regulations in force.

Protection of the wet lands, fauna and flora

It is prohibited for the Contractor to put up temporary amenities (storage and parking areas, paths for bypassing or work, etc.) in wetlands

Protection of sacred sites and archaeological sites

The Contractor must take all necessary measures to respect cult and cultural sites (cemeteries, sacred sites, etc.) in the neighborhood of works and must not damage them. If during the works, vestiges of worship, historic or archaeological interest are discovered, the Contractor must follow the following procedure: (i) stop works in the concerned zone; (ii) inform immediately the consultant who must make arrangements to protect the site to avoid any damage; a protective perimeter must be identified and constructed around the site and no activity should be undertaken in it; (iii) prohibit removal and displacement of the objects and vestiges. Works must be suspended until the national body responsible for historical and archaeological sites grants authorization for continuation of works.

Management of solid wastes

The Contractor must deposit domestic wastes in insulated trash cans should be emptied periodically. The Contractor must eliminate or recycle wastes in an ecological and rational way, or send them, if possible, to existing dump sites.

Protection against noise pollution

The Contractor is required to limit the noises in the work area that could seriously be a nuisance to the residents, either over a long time, or by their long duration outside of the normal hours of work. The levels not to be exceeded are: 55 to 60 decibels during the day; 40 decibels at night.

Protection against STD/HIV/AIDS and illnesses linked to the works

The Contractor must inform and sensitize his staff on the risks linked to STD/HIV/AIDS. He must provide staff with condoms against STD/HIV-AIDS. The Contractor must inform and sensitize his staff on safety and hygiene at work. He must provide first aid facilities and provide basic medicine to the work staff free of charge.

Pedestrian footbridges and river access

The Contractor must constantly ensure access to the coastal properties and must ensure the easy entry by carts and pedestrians, stall for exhibition of goods, footbridges provided with guardrail, placed the trenches or other obstacles created by works.

Public services and assistance:

The Contractor must imperatively provide access to public and emergency services in all places. When a street is blocked, the Contractor must study with the consultant arrangements for the maintenance of the access for vehicles from the fire and ambulance services.

Journal of building site:

The Contractor must update a journal of the building site, in which will be consigned the complaints, failures or incidents with a significant impact on the environment or with an incident with the population. The Contractor must inform the public in general and the bordering populations in particular, of the existence of this journal, with the indication of the place where it can be consulted.

11. GRIEVANCE REDRESS MECHANISM

Grievance redress mechanisms is important for projects where ongoing risks or adverse impacts are anticipated. The GRM serves as a way to meet requirements, prevent and address community concerns, reduce risk, and assist larger processes that create positive social change as well maximize project impacts by to mediating conflict and cutting down on lengthy litigation, which might cause delay in project implementation. It will also provide people who might have objections or concerns about the project, a public forum to raise their objections and through conflict resolution enable issues to be discussed adequately.

The project will not use a new grievance redress mechanism, as the WARFP already put in place a mechanism for resolving conflicts and grievances. Grievances arising from the project activities are resolved generally at three different levels: i) The Community level, ii) Project Implementation Unit, and iii) Court of Law. Aggrieved parties also have the option to report their grievances directly to the Bank through the Bank's Grievance Redress Services.

The Robertsport Community Level GRM

At the community level, conflicts and grievances are first settled through the Co-Management Association (CMA). The CMA is comprised key stakeholders in the artisanal fishery sector at the community level including fisher chiefs, elected fishers, female fish processors, respected community figures (such as elders), women representatives, and ethnic group leaders resident in the community all of whom serve for a specific term. The CMA has an elected Board, which, among other responsibilities, has the mandate to resolve conflict and grievances at the community level. Grievances are received and registered by the CMA at the community level. The CMA also screens and assesses the grievances to verify if they are appropriate or valid and whether they can be resolved locally. Grievances that are found to be appropriate or valid and that can be resolved locally are handled by the CMA Board.

The BNF Level GRM

Grievances that cannot be resolved at the community level are transferred to the Bureau of National Fisheries for resolution. Also, aggrieved parties that are not satisfied with the outcome of the grievance redress process at the level of the CMA can register their grievances with the BNF. They BNF within a specified number of days will respond to the aggrieved parties and set a date for hearing. The aim here is to achieve settlement, without resulting to lengthy court procedures. It is only when settlement cannot be reached at this level that aggrieved parties can appeal to a court of law. So far, all grievances arising under the program have been resolved at the level of the CMA.

Court of Appeal

Aggrieved parties always have the option to refer their case to a court of appeal. This is usually a last resort, as aggrieved parties are always encouraged to make use of the project-level grievance resolution mechanism. No grievance has ever been taken to this level under the WARFP, and it is not anticipated that the activities under the ACGF grant, which are essentially a continuation of ongoing WARFP activities, will generate grievances that cannot be resolved either at the level of CMA or at the level of the NBF.

The World Bank Grievance Redress Services

The World Bank's Grievance Redress Service (GRS) provides an additional, accessible way for individuals and communities to complain directly to the World Bank if they believe that a World Bank-financed project had or is likely to have adverse effects on them or their community. This another way to ensure responsiveness and accountability in World Bank-financed projects. The GRS ensures that grievances are promptly reviewed and responded to, and problems and solutions are identified by working together. Stakeholders are aware that this mechanism exists, and that complaints can be lodged directly to the Bank, without having to go through the mechanism at the project level.

12. CONSULTATION AND DISCLOSURE

The environmental and social studies were done on the basis of a participatory methodological approach that was based on firstly 'on-the-site visits', desk review of relevant existing documents and secondly, on meetings, interviews with the various Ministries, Departments, technical institutions, local authorities and some local players at targeted sites.

For the Robertsport sub project, a combined Team of Consultants, environmentalist and economist, facilitated a 'Citizen right-to-know' meeting in Fanti Town, Kru Town and Grass field with segments of the population in potential impacted communities. The meeting focused dialogue around the proposed investment. It was revealed from this meeting that fairly good knowledge of the Project exists within cross section of the Residents of Roberstsport City. Many of the citizens are aware of the socio-economic benefits of the Project and have overwhelmingly pledged support. Especially welcoming of the project were the Women and youth. Along the fish supply chain they play significant marketing roles and as a result of the project they see enhanced participation.

During each of the meetings that were held, the content of the project in terms of economic, social, cultural and environmental mitigation and improvement were presented to the groups consulted. This process was initiated early in the environmental study. Hence, opinions and comments from the populations and target groups were included in the ESIA.

The various meetings held by the Consultant with relevant authorities and officials at national and local levels manifested the importance and the priority placed on this project by the Governments of both countries and local officials. Summary of the overall, recommendations made by stakeholders during the public consultation is provided in Annex 4.

10. ANNEXES

Annex 1: Cultural Resources and Chance Find Procedures

Liberia is party to the Convention for the Protection of the World Cultural and Natural Heritage of 1972 that calls for the recognition and protect cultural and natural heritage for future generations. The Bank's EIA requirements also requires borrower to identify physical cultural resources likely to be affected by the project and assesses the project's potential impacts on these resources as an integral part of the EIA process.

Chance Find Procedure

- In the event of an unanticipated discovery of cultural heritage, archaeological materials or human remains, the following procedure will be followed:
- Work will be stopped in the immediate area and the "find" will be protected;
- The Contractor or Subcontractor will immediately notify the BNF Resident Project Representative/Environmental Officer;
- BNF will be required to inform the relevant government agencies for identification and custody of the find;
- Construction will be directed elsewhere along the transmission line route while identification is being carried out;
- Based on identification results, the relevant government institutions in charge will give notification if work can continue in the area or not;
- Where it is determined that work cannot continue in that area, the line will be rerouted so as to avoid any impact on the resources.

Annex 2 Environmental Mitigation and Monitoring Plan

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
PHASE 1: Construction								
A.	**1.** Site clearing for construction which could lead to loss of vegetation, biodiversity and soil erosion	-Ensure construction areas are sitted away from ecological sensitive areas -Ensure that site clearing is limited to only areas that are required for construction activities (avoid unnecessary clearance) -Ensure that erosion mitigation measures are in place before site clearance work begins -Where possible, site clearance should be planned at the time when there is minimal risk of erosion (i.e. in the dry season) -Ensure workers are provided with the requisite training	Construction contractor	○ Erosion control measures in place ○ Evidence of siltation or erosion ○ Evidence of encroachment on sensitive ecosystems such as wetlands ○ Training records	BNF Safeguards Specialist/external agencies including the EPA	-Sites inspection -Inspection of records	Before and During site clearance	Not Applicable (Site clearance has already been carried out)
	2. Pollution/contamination of surface and ground water sources from used oil, fuel and other hazardous chemicals associated with the construction	-Ensure that chemical storage containers are in good condition -Storage facilities should have impervious surface, bund and secondary containment system to prevent ground water resources	Construction Contractor	○ Reports of environmental incidents involving surface and ground water contamination ○ Evidence of properly	BNF Safeguards Specialist and other external agencies including	○ Visual site and facility inspection ○ Inspection of records ○ Monitoring of	Once monthly or as more frequently as may be deemed appropriate	10,000 USD/yr (training costs, cost of pollution prevention materials

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
	activities	-Limit the use of hazardous chemical where possible -Ensure that chemicals and storage facilities are sitted away from water resources -Ensure that used oil and other used chemicals are disposed of through certified service providers -Ensure that spill containment/response plan is developed -Provide training for staff responsible for storing chemical		constructed storage facilities ○ Records of used oil/chemical disposal through certified service providers ○ Presence/absence of site spill response plan ○ Evidence of training on chemical storage procedures and spill response management	the EPA, World Bank	surface and ground water resources		including monitoring activities)
	3. Noise Pollution from construction activities	○ Choose inherently quiet equipment ○ Ensure that equipment are well-maintained ○ Keep equipment speed as low as possible ○ Shut down or throttle down to a minimum equipment that may be intermittent in use	Construction Contractor	○ Number of complaints by community relating to noise pollution ○ Records of community notification on noisy activities ○ Condition of equipment in	BNF Environmental Safeguards Specialist	○ Inspection of records ○ Interview of community residents/ officials ○	Once monthly during construction activities or as more frequently as may be deemed appropriate	5, 000 USD (most of the mitigation activities will not generate extra cost. This cost is

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		○ Utilize and properly maintain silencers or mufflers that reduce vibration on construction equipment ○ Restrict access to the site for truck traffic outside of normal construction hours ○ Proper site logistics and planning ○ Limit site working hours if possible ○ Schedule noisy activities during the morning hours ○ Inform the locals when noisy activities are planned ○ Enforce noise monitoring		use on site				mainly for monitoring activities.
	4. Air emissions, dusts that may affect air quality	○ Avoid burning of material resulting from site clearance ○ Cover any excavated dusty materials or stockpile of dusty materials entirely by impervious sheeting ○ Maintain trucks and equipment properly ○ Adopt a traffic management plan	Construction contractor	○ Number of complaints from community ○ Evidence of dust suppression by water ○ Evidence of onsite traffic management plan.	BNF Safeguards Specialist and Relevant External Agencies including the EPA and World	○ Review of site records ○ Visual Inspection of site actions ○ Measurement of air quality	Bi-annually/or more frequently as may be deemed appropriate	5,000 USD /yr. (most of these mitigation activities will not generate extra cost. The cost is mainly

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		while avoiding congested routes ○ Adopt proper maintenance procedures for on-site construction equipment and the use of diesel fuel of acceptable quality ○ Turn off equipment when not in use ○ Dust suppression by regularly spraying water on dusty roads, especially roads passing through community areas that are used by project vehicles and equipment		○	Bank			for monitoring activities, mostly per diem paid to project staff during field visits)
	5. Occupational Health and Safety Issues including accidents and other hazards that may affect staff as well as project community residents	○ Develop and implement site EHS Plan ○ implement site speed Health and Safety Plan ○ Where possible, fence construction site to avoid intrusion by community dwellers ○ Provide appropriate training for staff on site ○ Ensure hazardous substances are being	Construction Contractor (However, some activities such as securing and fencing of site may be carried out by the client before construction	○ Construction site EHS Plan developed ○ Number of trainings provided to employees ○ Provision of appropriate PPEs to staff ○ Number of accidents involving staff or community	BNF Safeguards Specialist and relevant Agencies including the EPA and the World Bank	○ Review of records ○ Visual site inspection ○ Interview with staff, community residents	Once monthly or as frequently as may be deemed necessary	20,000 USD/yr. (Bulk of the cost is for the purchase of appropriate PPEs for staff.

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		kept in suitable, safe, adequately marked and locked storing places ○ Ensure containers of hazardous substances are clearly marked, and that material safety data sheets are available ○ Ensure workers dealing with hazardous substances are adequately informed about the risks, trained in handling those materials, and trained in first aid measures to be taken in the case of an accident ○ Designate an area where contaminated materials and hazardous waste can be stored for proper disposal according to environmental guidelines ○ Implement a fall protection program and materials ○ Eliminate pools of stagnant water, which	activities can commence)	residents ○				

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		could serve as breeding places for mosquitoes o Train personnel for correct mode of application of pesticides o Ensure hygiene practices are followed to avoid family exposure to pesticide residue o Select biodegradable pesticides whenever possible o Provide firefighting equipment such as dry powder extinguishers o Conduct fire fighting and leak checks training drills for the construction staff o Prohibit smoking as well as litter or weed build up in the area as these may pose fire risks						

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
	PAHSE 2: OPERATIONS ACTIVITIES (solid wastes and by-products, waste water, air emissions and OHS issues)							
B.	**1. Waste Water Management**	○ Ensure that waste water storage tanks are effectively bunded and provide overfilling protection on bulk storage tanks ○ Minimize waste water production by recycling water where possible ○ Choose cleaning agents that do not have adverse impacts on the environment in general, or on wastewater treatment processes and sludge quality for agricultural application ○ Equip the outlets of wastewater channels with screens and fat traps to recover	**Facility management Contractor**	○ Evidence of waste water storage tank designed as required ○ Performance Indicators for Energy and water consumption for common fish production processes as recommended by IFC EHS guidelines should be used as possible (http://www.ifc.org/wps/wcm/connect/c7d2710048855d048d9cdf6a6515bb18/Final%2B-%2BFish%2BProcessing.pdf?MOD=AJPERES)	BNF Safeguards Specialist, External Agencies such as EPA and the World Bank	○ Review of records ○ Visual Inspection of site relevant activities ○ Interview of project staff and community residents ○ Monitoring of surface and ground water resources in project areas	Bi-annually or as frequently as may be deemed necessary given site conditions and environmental permit requirements	5,000 USD/yr. (the cost are mainly for monitoring activities since most of the mitigation measures are activities that would normally be included in the design of processing facilities

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		and reduce the concentration of coarse material and fat in the combined wastewater stream ○ Ensure that waste waters are not directly discharge into water sources or released directly into the environment ○						

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
	2. Solid Wastes and by-products: Fish processing activities generate potentially large quantities of organic waste and by products from inedible fish parts and endoskeleton shell parts from the crustacean peeling process. The actual proportion depends on the edible fraction of each species being processed	○ Encourage fishing vessels to reduce the capture of "nontarget species" to reduce the amount of waste in the byproduct line; ○ Design fish processing operations to enable the recovery of waste streams in accordance with Good Manufacturing ○ Off-cuts and wastes should be recovered and taken to the by-product facility in time to prevent product deterioration.	**Facility Management Contractor and relevant BNF Staff**	○ Quantity of non-target species captured ○ Quantity of off-cuts and wastes taken to by-product facility for processing ○ Records of information dissemination to vessels relating target/non-target species	BNF Safeguards Specialist and other relevant agencies and institutions including the EPA and World Bank	○ Inspection of records ○ Visual Site Inspection ○ Interview with staff and community residents and other stakeholders	Bi-annually or as frequently as deemed necessary	5,000 USD/yr. (the cost are mainly for monitoring activities)
	3. Air Emission Odor is one of the significant air pollution issues associated with fish processing. This can be a source of major concerns for project community if not properly managed.	○ Reduce the stock of raw materials, waste, and by-products and store this stock for short periods of time ○ Ensure raw materials, wastes, and by-products are stored only in a cold, closed, well-ventilated place ○ Seal by-products in covered, leak-proof containers; ○ Ensure that working	Facility Management Contractor/fish processors	○ Complaints filed by community regarding odor from processing facility	BNF Safeguards Specialist	○ Inspection of records ○ Interview	Bi-annually or as frequently as may be deemed necessary	

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		and storage areas are kept clean and remove waste products immediately from the production line; ○ Empty and clean fat traps on a regular basis; ○ Install appropriate processing equipment						
	4. Occupational Health and Safety (OHS) and Food Safety issues related to fish processing including physical and biological hazards, exposure to chemical, heat, cold, etc	**Particulate Emissions** ○ Use of integrated smoking units with incineration and heat recovery ○ Clean the kiln exhaust using filters, incinerators, and / or wet scrubbers; ○ Ensure that smoke from the fish processing process is emitted from a stack of sufficient height ○ Provide workers with training in the proper use and maintenance of cutting equipment (including the use of machine safety devices, handling / storage and upkeep of knives, and	Facility Management Contractor/Fish Processing Contractor	○ Accident and incident records from fish processing activities ○ Number of training provided to staff on safe methods of processing ○ Records of PPE provided to staff ○ Hazard communication plan developed ○	BNF Safeguards Specialist and relevant institutions including the EPA and World Bank	○ Review of site records ○ Visual inspection of site facilities ○ Interviews	One monthly or as frequently as may be deemed necessary	20,000 USD/yr. (The cost is mainly for PPEs provision, training and monitoring activities)

	Activities/Potential Environmental Impacts	Specific Mitigation Measure/ Response or Description of Mitigation Measure	Party Responsible for Mitigation	Monitoring/Verification Method				Estimated Cost/ Budget notes
				Monitoring Indicators	Party Responsible for Monitoring	Monitoring Method	Frequency/Timing	
		emergency shutoff procedures) and personal protective equipment (e.g. metallic gloves and leather aprons for cutting activities, and protective footwear with rubber soles);						

Annex 3 Persons Met and Consulted for Mesurado Component

Name	Position	Institution
Yevewou Subha	Coordinator	UNC/WARF
Sheck SHERIF	Monitoring, Control and Surveillance Officer	UNC/WARF
Jeffrey Georges	Deputy Director of Operation	Free Port of Monrovia
Joyce KUMAH	Focal Point Environment	Bureau Of Fisheries
William BOEH	Director of Fisheries	Bureau Of Fisheries
Glasgow B. TOGBA	Division of Marines fisheries	Bureau Of Fisheries
Samuel M. LYNCH	Chief Safety and Navigation	Bureau of Maritime Affairs
Mme Anyaa VOHIRI	Executive Director	EPA
Varney L. CONNEH	EIA Coordinator	EPA
Johnathan DAVIES	Inspector	EPA

WEST AFRICA REGIONAL FISHERIES PROGRAM (WARFP – LIBERIA)

MINISTRY OF AGRICULTURE

Bureau of National Fisheries
P. O. Box 10-9010
1000 MONROVIA 10, LIBERIA

PUBLIC CONSULTATION MEETING MINUTES

Minutes of the Public consultations on the ESIA for construction of the Robertsport fish landing site cluster.
Held at Fanti Town, Robertsport, Grand Cape Mount County, Liberia
On July 15, 2016

Background

The West Africa Regional fisheries Program (WARFP) in Liberia, with support from the World Bank, commissioned the construction of the Robertsport Fish Landing Site Cluster in 2014. The objective of WARFP is to strengthen the capacity of Liberia to govern and manage targeted fisheries, reduce illegal fishing and increase local value added to fish products.

Preparatory to the commencement of works were the acquisition and documentation of 5.1 Acres of land in Fanti Town, Robertsport. As it was envisaged that the construction and operation of the cluster could generate some negative environmental and social impacts, an environmental and social impact assessment (ESIA) became necessary to determine the potential environmental and social impacts of the project as well as suggest appropriate mitigating measures in order to manage the potential negative impacts and improve the project benefits. A key step in the ESIA process was to hold public consultations to document and validate the relevant environmental and social issues identified.

A one-day public consultative workshop was held in Robertsport, Grand Cape Mount County, Liberia on July 15, 2016. The purpose of the consultative workshop was to hold a public dialogue on the environmental and social impacts identified by the ESIA report for the construction of the Fish Landing Site Cluster at Robertsport , and the mitigation measures to minimize the negative impacts on the environment and enhance the socio-economic benefits to the community and local economy.

Participants at the meeting

The meeting brought together participants from a cross section of the Robertsport community, including; traders/businessmen & women, Transport union, Marketing association, CMA & fishing communities, relevant government agencies and the local county

authority. The attendance list and pictures from the consultations are provided in the sections below.

Methodology and Results

The consultation begun with a brief opening ceremony performed by the acting Superintendent of Grand Cape Mount, Mr. Eric Y. Pinney, followed by self-introduction of participants. The public consultation was conducted through opened dialogue with the community, facilitated by the Project Coordinator and Community Development Specialist of WARFP. There were brief presentations of the background and description of the WARFP including key activities to be implemented under the project to construct the Robertsport Fish Landing Site Cluster, and the issues identified by the ESIA report as having the potential to impact the impact the environment and community during the construction and operation phases, and the proposed mitigation measures. The stake holders were also informed responsibility for project implementation and funding source were revealed as the BNF and World Bank, and involvement of all stakeholders in the monitoring of implementation was reiterated.

Each presentation was followed by plenary discussions during which the views of participants on issues of concerns were discussed. Clarifications and answers were also provided on other project related issues. The following issues were presented during the workshop to stimulate the discussion:

Positive Environmental and social Impacts/ Benefits

- Creation of job opportunities during construction and operation of the landing site,
- Increased income for fishers and community dwellers, and revenue for government,
- Reduced Post harvest losses

Negative environmental and social Impacts

- Air pollution – dust emission during construction and odor during operations
- Noise – during construction
- Waste (domestic, solid, liquid, and hazardous)
- Pollution of surface and ground water resources
- Loss of vegetation during land preparation for construction
- Work accidents, occupational health
- Communicable diseases

The mitigation measures for the negative impacts of the project were discussed. The grievance redress mechanism was also discussed.

Results

The environmental and social impacts and the mitigation measures identified by the ESIA report were discussed and validated. The responsibilities for implementation and monitoring

of the environmental management plan were also discussed. It was generally agreed that the impacted communities and key stake holders, including the Environmental Protection Agency (EPA), Forestry Development Agency (FDA), BNF and the Piso conservation forum be involved with monitoring of the management plan.

Following the presentations the key concerns, questions and responses provided are captured below:

1. **The number of jobs/employment created by the project during both construction and operations**.
   Skilled and unskilled labor will be required for the construction works to participate in the provision of various services (masonry, Carpentry Electrical and casual works). During operations labor (skilled and unskilled) will be required for fish transportation, processing and marketing. Sales personnel, shop attendants, boat & engine repair technicians, net repair etc. will be among activities that will attract tens of employment.

2. **How will the waste water from the fish Handling and processing activities be managed?**
   Waste water from the washing and processing activities will be collected through a system of pipes to a holding tank from which it will be threated before it is discharged into the environment.

3. **When will construction of the bridge linking the Kru towsn community to the Kru Town cold store be completed?**
   Construction of the bridge linking Kru Town to the cold store will be considered during the interim phase of WARFP as funding becomes available. Rehabilitation of the building to house the cold store and ice store is expected to be completed by end of project phase in September 2016. However, refrigeration and other equipment are not expected to be installed until a later date when funding is sourced to procure them.

4. **Will there be an alternative access road connecting Fanti town, since the existing road through the landing site will be blocked by the perimeter fence?**
   There are provisions for an access road along the fence of the landing facility to connect to Fanti Town. The road will be done by Phoenicia Architecture company (PAC) as part of the external works, and is expected to be completed by September 2016.

5. **Who will manage the Landing site upon completion?**

   There were concerns about the form of management that will be operated the site. Will the county, Community or CMA be part of a selection process to identify/select a suitable investor for the proposed PPP for the facility? An opened selection process will be implemented to identify suitable investors for the site. An EOI has already

been developed to solicit interest and a panel will be constituted to evaluate the applications. An appropriate form of management (PPP) will be instituted for the site.

6. **How will the county benefit from the operation of the facility?**

   The benefit to the county should be in the form of increased revenue generated from taxes, and improvement in the livelihoods of its inhabitants who will invest part of their income in the development of the county. Direct financial benefits to the county authority could be through special levies and direct budgetary allocation from central government.

7. **Will there be electricity and water at the site what will be there sources?**
   Electricity for the sight will be supplied from generators for now until city power is available from the West Africa Power Pool project. However, there will be solar street lights around the site. The primary water source will be from the city water supply. The USAID project has already installed a connection point near the facility. There will need to be an alternative source of water via a borehole in the future.

8. **Will there be a jetty for use by the canoes to land their catch?**
   There will not be a jetty constructed in the lake. There may be a wharf developed along the shore for mooring of canoes against during discharge of their catches and to help protect the shoreline from erosion due to increased human activity in the area. But this will require funding which is not available at the moment.

9. **What will be the source of fire wood for smoking of fish at the site, and how can the Forestry Development Authority (FDA) assist in providing wood source to minimize deforestation of vegetation for fire wood?** The FDA representative at the meeting informed that there were strict regulations and control against the harvest of mangrove for firewood. He proposed the need to establish wood lots of acacia trees to be harvested in the future for fish smoking.

ATTENDANCE REGISTER

WEST AFRICA REGIONAL FISHERIES PROJECT- LIBERIA

Consultative Workshop on the Environmental Social Impact Assessment (ESIA) Report for Robertsport Fish Landing Site Cluster

Attendance List

Date: July 15, 2016

No.	Name of participant	Organization	Community	Phone Number	E-mail /Phone No.	Signature
1.	Miatta Paasewe	Business	Grassfeild	0770302668		M. Paasewe
2.	Charles W. Simpson	CMA	Central Island	0775216211	—	[illegible]
3.	Eric Y. Kinney	MIA	Gbassalor	0775216885		[illegible]
4.	Boakai Kiazolu	B.N.F	Robertsport	0775037698		[illegible]
5.	Georgia Coleman	Business	Kru Town	0888212160		[illegible]
6.	Cecelia M. Kromah	L.M.T.U	Grass field	0775082288		[illegible]
7.	Noah C. Toe	Town Chief	Fanti Town	0770418519		[illegible]
8.	Musu Pusah	Marketier	Lanjah			M.P
9.	Koppa Waah	Governor	Kru Town			K.W
10	Alfred Kanneh	youth & sports	Grassfield	0777989644		[illegible]
11.	Ofesi Bacon	Youth & Sports	Grassfield	0776264417		[illegible]
12.	Romeo Varney	FDA	Tosor	0777834883		[illegible]
13.	Tatta B. Moore	Bussiness	Robertsport	077561819		Moore
14	Peter Cole	Treasurer	Fish Town	077795095		[illegible]
15	Varney Kromah	town chief	Up town	0770314091		V. Kromah

Appendix 1: Attendance List

16	J. Edmund Kollie	CMA	Grassfield	0882829202		[illegible]
17	Forsky Chambers	CMA	Kru Town	0886482368		[illegible]
18	Omoko Stephen	F.T	Kru Town	0880131090		[illegible]
19	Safiah Jlakson	F.T	Kru Town	0775216770		[illegible]
20	Leroy Bruma		Kru Town	0886763954		[illegible]
21	Lonnie Scott	—	—	0774560451		[illegible]
22	Anthony B. Bailey	CPAP	Fanti Town	0886817156		[illegible]
23	Forstina Bafour	Fish Monger	Fanti town			f B
24	John Adams	CMA Secretary	Fanti Town	0880603858		[illegible]
25.	Moanie Smith	PAP	Fanti Town			MS

WEST AFRICA REGIONAL FISHERIES PROJECT- LIBERIA

Consultative Workshop on the Environmental Social Impact Assessment (ESIA) Report for Robertsport Fish Landing Site Cluster

Attendance List

Date: July 15, 2016

No.	Name of participant	Organization	Community	Phone Number	E-mail /Phone No.	Signature
26	Anthony Keibn	Business	Grassfield	0886538874		[signature]
27	[illegible]	BNF	Central [illegible]	0773[illegible]		[signature]
28	Mohammed Akiawu	FRTUL	Grassfield	0886-134718 0776-134718		[signature]
29	Mohammed H. Tallah	Business man	Grassfield	0886-476627		M. H. Tallah
30	[illegible] Sambolah	Business	Gallierah	0776817128		[signature]
31	Omol [illegible]	Business	Grassfield			[signature]
32	Mohammed Abu	Fisherman	Fant town	0774[illegible]2812		[signature]
33	Nelson Nomi	Folymen	Grassfield	0777171376		[signature]
34	Godwin Kennedy	EJF	~	0776 41-5528		[signature]
35	Fabolia Kamara	Emisuil Form Weseo Fishe	Kru town	0777353535		[signature]
36	Yormah M. Peters	WARP	Robertsport	0770193032	[illegible]	[signature]
37	Solomon N. Dargon	BNF	Observer Manager	0777660069		[signature]
38	Yevewuo Z. Subah	WARFP		0886517742	yevewuoz.subah@yahoo.com	[signature]

Pictures from the Public Consultations of July 15, 2016 on the Robertsport ESIA Report


A. Group Photo of Participants


B. Registration of Participants

C. Kru Governor, Mr. Koffa Weah, Remarks


D. CMA Co-Chair, Edwin Korha Remarks

E. Acting Superintendent, Mr. Eric Pinney

F. Cross section of participants at the Robertsport Consultations (July 15, 2016)

G. Facilitation by the Coordinator and Community Development Specialist of WARFP