THE REPUBLIC OF LIBERIA

Liberia Water & Sewer Corporation (LWSC)

The Liberia Urban Water Supply Project

(P155947 – P169031)

Environmental and Social Impact Assessment

[Revised Edition for Additional Financing]

April 2019

Table of Content

Table of illustrations

ABBREVIATIONS

AF	Additional Financing
ARAP	Abbreviated Resettlement Action Plan
BP	Bank Procedure
ECMU	Environmental Compliance Monitoring Unit
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPML	Environmental Protection and Management Law
ESAP	Environmental and Social Assessment Procedures
ESCA	Environmental and Social Compliance Audit
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
GPS	Global Positioning System
HDPE	High-density polyethylene
IWRM	Integrated Water Resources Management
LHS	Liberian Hydrological Survey
LWSC	Liberian Water and Sewer Corporation
MCC	Monrovia City Corporation
MDF	Management and Development Foundation
MGD	Million Gallons per Day
MHSW	Ministry of Health & Social Welfare
MIA	Ministry of Internal Affairs
MLME	Ministry of Lands, Mines & Energy
MPEA	Ministry of Planning & Economic Affairs
MPW	Ministry of Public Works
MSDS	Material Safety Data Sheet
NECOLIB	National Environmental Commission of Liberia
NEP	National Environmental Policy
NGO	Non-Governmental Organization
NMR	No Mitigation Necessary
NRW	Non-Revenue Water
OBA	Output Based Aid
OP	Operation Policy
OXFAM	Oxford Committee for Famine Relief
PRS	Poverty Reduction Strategy
SESA	Strategic Environmental and Social Assessment
STP	Sewage Treatment Plant
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNMIL	United Nations Mission in Liberia
USD	United States Dollar
WATSAN	Water and Sanitation
WB	World Bank
WHO	World Health Organization
WSS	Water Supply System
WTP	Water Treatment Plant

EXECUTIVE SUMMARY

The Liberia Urban Water Supply Parent Project (P155947) (US$10 million) was approved on March 24, 2016 and became effective on April 12, 2017. The PDO is to increase access to piped water supply services in the project area in Monrovia and improve the operational efficiency of LWSC. The project is performing well and has made substantial progress towards delivering results. Then, the initial formal request by the Government of Liberia (GoL) on June 27, 2018 was for US$10 million to extend the transmission and distribution network to reach additional customers and to further improve the capacity of the Liberia Water and Sewer Corporation (LWSC) to sustain and expand its services. A subsequent request on March 21, 2019 sought to increase the additional financing by US$20 million to support urgent repairs to the 36" main waterline which transports water from the White Plains Water Treatment Plant to the city of Monrovia and its environs.

This Additional Financing AF in the amount of US$30 million will be used to scale-up the rehabilitation and extension of Monrovia's piped water system, as well as to reinforce LWSC's operational efficiency. The parent project was conceived as a "first step" to carry out urgent rehabilitations and alleviate the most binding constraints of the Monrovia water supply distribution network and thus lays the basis for additional investments to further expand access to safe piped water. The PDO thus remains relevant, as large sections of the population remain dangerously exposed to unsafe water.

The AF will increase the funding and scope for both the infrastructure-focused Component 1 and capacity-building Component 2. The components of the project are:

- **Component 1 - Infrastructure Investments in Monrovia:** The focus of this component is to rehabilitate and expand the piped water network of LWSC in Monrovia, with the aim of a reduction of nonrevenue water, an increase in access using the existing reinforced concrete tanks built in the 1960s to balance pressure in the system. Priority undertakings identified in cooperation with the client during a detailed scoping study will include the repair and reconditioning of parts of the main eastern transmission line, the installation of bulk meters, expansion of distribution and branch lines in areas of Monrovia and construction of water kiosks which began with identification of suitable locations of the kiosks with communities' leadership.
- **Component 2 - Institutional Strengthening and Capacity Development:** The objective of the second component is to strengthen LWSC's capacity to sustain and expand services. The proposed sub-activities include: (a) improving cost recovery and reducing non-revenue water by supporting better metering and leak detection processes as well as the development and maintenance of a network information system, hydraulic model and financial model, and an annual independent audit of the existing performance contract; (b) improving customer services, in particular the rate of new connections and response to grievances; (c) assisting the project implementation unit and other key staff with training and critical equipment.

The Project has been classified as a Category B project and triggers the standard OP/BP 4.01 Environmental Assessment, as well as OP/BP 4.11 Physical Cultural Resources, OP/BP 4.12 Involuntary Resettlement, and OP/BP 7.50 International Waterways. An exemption for the original project was processed in late 2015. The description of project activities was broad enough to encompass the proposed expansion under the AF and confirmed by LEGEN on January 28, 2019.

This updated Environmental and Social Impact Assessment (ESIA) for the Project has been carried out in accordance with the World Bank and the EPAL's guidelines for environmental and social impacts assessments.

The updated ESIA was intended to examine the project's potential negative and positive environmental and social impacts in light of the triggered safeguard policies, and to propose an Environmental and Social Management Plan (ESMP) that outlines measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. In line with requirements under OP/BP 4.12, a Simplified Social Management Plan was prepared as a separate document. As for March 2018, the team did not find a case for the need of Abbreviated Resettlement Action Plan (ARAP) or Resettlement Action Plan (RAP). However, in case during implementation a case is found, a Grievance Redress Committee instituted in some communities will guide the process for settling grievances. Before construction starts, new consultations with impacted people will be carried out and minutes will be shared with the World Bank for review and clearance.

Cumulatively, the project components have no foreseen major negative environmental impact. The adverse environmental impacts are expected to be moderate, of limited significance and magnitude, and restricted to the construction phase. The ESMP outlined in this document describes how these impacts will be managed and minimized. No physical displacement of Project Affected People (PAPs) has been identified. Land acquisition may be needed for the reservoir. However, the exact location of the reservoir will be determined by the hydraulic modeling and detailed design during project implementation. There will be minor economic disturbances, mostly related to temporary disruption of entrance ramps, terraces, a fence and stairs during pipe laying. These will be reconstructed by the project in equal or better quality. Given that no form of displacement – economic or physical – will be required, the preparation of a Resettlement Action Plan (RAP) is not necessary at this stage, but if required due to future, unexpected displacement related challenges, will be guided by the outline given in the separate project Resettlement Policy Framework.

1 DESCRIPTION OF THE PROJECT AREA

1.1 Location

Liberia is located on the West Coast of Africa and it lies between longitudes 7o30' and 11o30' west and latitudes 4o18‟ and 8o30' north. The country is bordered on the west by Sierra Leone, on the north by Guinea, on the east by Côte d'Ivoire and on the south by the Atlantic Ocean; and it covers a surface area of approximately 111,370 km^2 (or approx. 43,506 square miles).

1.2 Climate

The climate of the country is tropical with two seasons: rainy from May to October and dry season from November to April. The average rainfall is to be the highest along the coast and it generally decreasing northwards. Overall the country's mean annual temperature ranges between 240C and 300C, with a lower range in the coastal areas. These temperatures and humidity conditions are linked to the rainfall pattern. During the rainy season, cloud reduces temperature as well as reducing the diurnal temperature range.

1.3 Geology and Geomorphology

The geology of Liberia is dominantly characterized by metamorphic rock basement of granitic gneisses and schists that are widely intruded by swarms of igneous rocks (Dolerite dikes); which dictate the rolling hill topography for much of the terrain. The occurrence of sedimentary rocks is limited to two relatively small and isolated basins along the western section of the coastline, primarily in the areas of Monrovia, Marshall, and Buchanan.

The basement rocks are deeply weathered and show themselves on the surface as lateritic type regoliths or saprolites, with thickness being of the order of a few tens of meters. They have remained in-situ for millions of years. The rocks have recorded several episodes of deformation (folding and faulting etc.) and the dominant structural grain is aligned northeast/southwest, as can be seen from the linear orientation of colors shown on the geologic map in Figure below. This structural grain is generally oriented in the same direction as the major rivers, and this suggests structural controls in the formation of the water courses.

1.4 Hydrology

Liberia is blessed with a system of rivers both large and small, as shown in the drainage map. The six major rivers of the country are, from east to west, Cavalla River, Cestos River, St. John River, St Paul River, Lofa River and Mano River; and some of the smaller ones include the Du, Farmington, Timbo, Sehnkwehn, Sinoe, Duobe and Dubo. While the larger rivers drain from the Northern Highlands most of the smaller ones drain from the steep escarpment that separates the Rolling Hills from the Dissected Plateau.

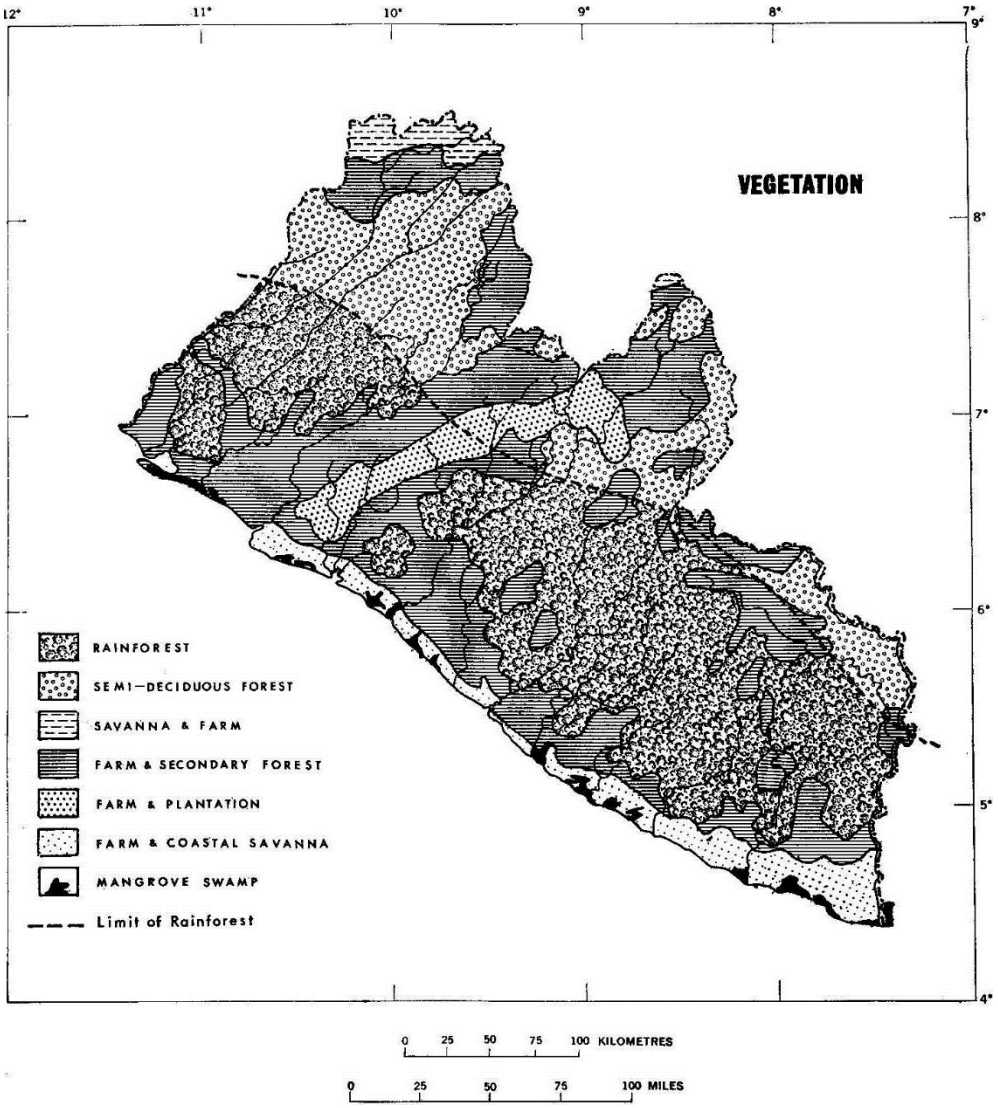
A characteristic of rivers in crystalline basement rocks as well as relatively small watersheds is that they hardly form any well-developed valleys with flood plains, and flow almost entirely over bed rocks and rapids. Consequently, the major rivers of Liberia are also only navigable by canoes and only for short stretches between rapids.

1.5 Ecology and Biodiversity

Liberia generally has a tropical rainforest ecology that extends eastward from eastern Sierra Leone, to Cote d'Ivoire, Western Ghana and Nigeria; with marked breaks around eastern Ghana, Togo and Benin. The country's type vegetation is shown in Figure 2.

Biodiversity in Liberia is represented by the variety of wildlife in its forests, wetlands, mountains, rivers, mangroves, beaches, estuaries and open sea, and the attendant ecosystems. The Liberia forest ecosystem, a major component of the Upper Guinea Forest hotspot identified globally by Conservation International is divided into four classes: a) primary dense forest, b) climax secondary forest, c) secondary forest, which has not reached its climax, and d) other mixed vegetation.

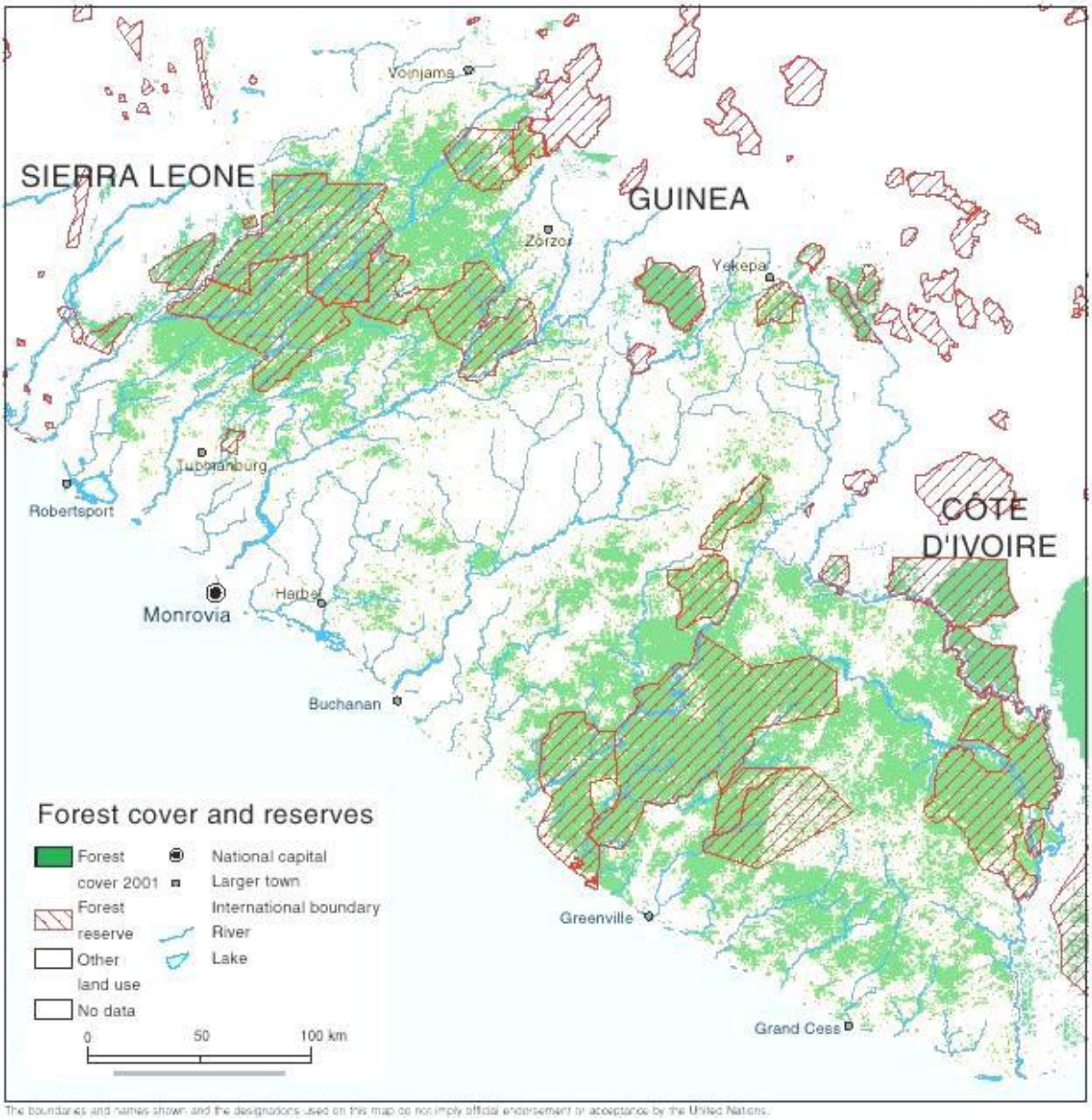
Figure 1: Vegetation in Liberia



According to Liberia EPA (State of Environment Report 2006) Mount Nimba, the Cestos-Senkwen watershed, and Lofa-Mano and Sapo National Park areas contain many endemic species; and these four areas are among 14 other centers of plant endemism within the upper Guinea hotspot of West Africa. The forests of Liberia are home to many species of fauna and flora. There are over 2,000 flowering plant species, with 59 of them endemic to the country and one endemic genus. Among the plant speciesare about 240 timber species, of which 30 have been exploited.

The forests also contain many of the regions endangered fauna species, including the pygmy hippopotamus, forest elephant, Diana monkey, and Jentink's and zebra duikers. However, the consumption of bush meat is a threat to biodiversity while commercial logging, shifting cultivation and other activities are threatening the forest cover; with up to about 480,000 acres (192,000 hectares) of forestland being lost annually. The map below (Figure 2) shows the forest cover in Liberia.

Figure 2: Forest cover and reserves in Liberia



1.6 Description of the environment of project sites

i. Population

Population data for Monrovia is estimated at 1,02 million inhabitants. The base year is 2008, from which population is projected for each year from 2010 to 2030, covering the project milestones; which projections were made taking into consideration recent events in the last decade in Liberia, and growth rates of 3.5, 3.6, 3.7, 3.8 and 3.9% were adopted for Monrovia.

ii. Water Resources

The water resources of Monrovia and its environs (Greater Monrovia as it is commonly called) are the St. Paul River on the western side, the Mesurado River in the central part, and the Du River on the eastern side; coupled with a locally extensive system of aquifers in a fluvial-marine sedimentary basin, a series of coastal lagoons and abundant rainfall. The average annual rainfall in the city is about 4,642mm.

The city's principal source of water supply is the St. Paul River; on the bank of which the White Plains Water Treatment Plant is located. The average total annual flow of the St. Paul River, at Walker Bridge, is about

8.1 x 1010 m^3; and the computed average discharge of the river is 215m^3/s. Groundwater flow contribution to the total discharge, using baseflow separation estimation technique, is about 30%.

Flow and/or discharge data are not available for the Mesurado River and Du River. However, the Mesurado River known to be the primary sink for the city's wastes is visibly contaminated, if not highly polluted in its central section, while the Du River is more or less pristine. The project design outlined in the main section of this assessment will not impact the Du River, nor the natural habitats of Providence Island and End Point in the Greater Monrovia area.

In terms of ground water occurrence, Monrovia is situated in the Roberts Sedimentary Basin; which stratigraphy is represented by the following formations in order upwards from the granitic gneiss basement: Unconsolidated sand, silts and mud; Paynesville Sandstone; Edina Sandstone; and Farmington River Formation. The basement gneiss and Paynesville Sandstone are intruded by a swarm of igneous (Dolerite or Diabase) dikes and sills.

Most recent data from pumping tests at Soul Clinic and Barnersville - proposed sites for groundwater satellite stations show minimal yield insufficient to meet the expected design volume of 2.5mgd. As a result, the proposed locations have been modified to serve as community water schemes pending the expansion of major waterworks at White Plains.

iii. Water Demand

The present and projected water demand for Monrovia is estimated as per table 1 below:

Table 1: Estimated water demand

Year	Daily Water Demand	
	Cubic meter	MGD
2015	124,316	32.80
2020	150,091	39.60
2025	182,964	48.27
2030	225,191	59.41

iv. Water Infrastructure

The basic source of potable water supply in Monrovia is the White Plains Water Treatment Plant (WTP) distributed through a North-Southerly transmission mains and distribution network.

The Water Treatment Plant is in a state of disrepair. The Plant is going to be entirely rehabilitated in 2015 and its capacity will increase to 16 MGD. With a lot of determined efforts, LWSC has managed to keep the plant running against all odds, albeit at a fraction of its original design capacity.

The source is complemented by two LWSC operated Deep Wells in Paynesville and a plethora of not less than 1,500 manually operated Shallow Wells commonly managed by the communities where they are installed. Other sources include private wells, boreholes and rainwater.

v. The issue of shallow wells

In the case of shallow wells, the majority has been found to be contaminated with unsafe levels of E.coli in Monrovia in a 2011 water quality study. The potential for contamination comes from the shallowness of the hand-dug borehole, which ranges between 20 – 40 feet. But they are easy to construct with prices ranging from US$850 to US$2,100. Most of these hand pumps were donated and installed across the country by donors who usually involve local contractors to build them. To keep the hand pumps working, two people in the community are usually trained to maintain the pumps and spare parts are supplied to last for about two

years. Problem arises when the spares run out and the community is unable to raise funds to procure the spares for maintenance. When this happens, the community reverts to status quo - fetching water from the creeks for household use. The quality of such water from the creeks cannot be guaranteed and thus heightens the threat of spreading waterborne disease in the community.

With about 1,500 hand pumps in Monrovia, the need for constant monitoring of the sources water quality cannot be overemphasized. This exercise is often performed across the country by LHS under the Ministry of Lands and Mines and Energy; although the Ministry of Health and the Public Works department also claim to have the responsibility for it. There is need for government to place the responsibility of monitoring water quality in the hands of one Agency to avoid inefficiency arising from duplication of functions. This will lead to enhanced public health standards.

vi. Land use

Over its 187 years of existence, the City of Monrovia has grown from what is now known as Central Monrovia built on a series of four hills that comprise the headland of the Mesurado Peninsula. Firstly, the city expanded eastward into Sinkor and then, with construction of the Old Bridge across Mesurado River it spreads out northwards into Bushrod Island which, with the opening of the Free Port flourished with commercial and industrial activities.

The operation of the Free Port of Monrovia naturally compelled construction of complementary infrastructures such as railroads, highways etc. to facilitate export promotion commodities. Accompanying these infrastructures are bridges built across the St. Paul River and Stockton Creek, which connected and facilitated the city spread northwest from Bushrod Island to Brewerville, Caldwell, New Georgia and; eastwards into Gardnersville.

The urban spread is currently about 12 miles radius from Central Monrovia including Sinkor eastward, and townships of Congo Town and Paynesville and other peripheral townships, commonly referred to as Greater Monrovia. In 1980, LWSC stratified the land areas in Monrovia according to their uses. Based on the table, it is estimated that Monrovia spans a land area of approximately 3,129ha, made up of:

- Central Monrovia – 498 ha;
- Sinkor – 1,286 ha; and
- Bushrod Island – 1,343 ha.

The suburbs of Paynesville City to the east, Brewersville City to the northwest and the Townships of Gardnersville, Barnersville, New Georgia and Caldwell to the northeast are legally outside the jurisdiction of the Monrovia City Corporation, but along with central Monrovia they are generally considered part of Monrovia city. This is the context in which the name (Monrovia) is being used.

vii. Waste Water generation and infrastructure

As a result of the increase of water supply, it is expected that wastewater will increase proportionally.

The existing but dilapidated wastewater infrastructure includes the Fiamah Sewage Treatment Plant (STP), nine (9) lift stations and a network of sewer pipes. The most critical of these facilities is the STP, which is presently discharging raw sewage into the environment without treatment.

Because of the non-functional state of the Fiamah plant and the threat to public health standards this could bring to overall public health, authorities adopted intermediate intervention using communal toilets for Greater Monrovia and its environs.

The Fiamah STP is located along the southern bank of ‘Sinkor, which is a stream with an extensive tract of swamp that extends from the Airfield to the 12th Street area. It runs from Lakpazee and Wroto Town and passes between Fiamah/ICA Camp and Matadi; and is an area of rapidly spreading human settlement. Its

characteristic swamp has particularly been "invaded" for construction of dwellings, which are now more of a cluster of slums; with the area immediately north and east of the STP not exempted.

During the operational period of the STP, the effluent from the treatment process was discharged into constructed lagoons (ponds) in the northeast corner of the facility, from where it was released into the natural stream. The facility is however dilapidated and non-operational, and has been so for the last 20 years or more.

During the Ebola crisis, liquid waste were transferred from various ETU's and deposited in the digester at the Fiamah STP.

A technical Working Group [TWG] has been set up comprising delegates from EPA, PCC, WHO, MOH, LWSC, & NPHIL to deliberate on the removal of the Ebola liquid waste from the digester as decommissioning of the digester in preparation of reconstruction of the STP

Consequently, the plant is still receiving raw sewage through daily discharges from vacuum trucks from LWSC, UNMIL and other private sewer operators. Raw sewage, including sludge, is simply being discharged on land and the wastewater left to either flow overland or infiltrate through the soil.

Figure 3: Assessment for the disposal of Ebola Liquid Waste

Technical Working Group on Ebola liquid waste disposal at the Ebola mass grave deliberating positive way forward to remove and dispose the liquid Ebola waste from Fiamah to Disco Hill Ebola mass grave.

2. PROJECT DESCRIPTION AND JUSTIFICATION

2.1 Project Context

Large sections of Liberia's population are dangerously exposed to unsafe water and sanitation. Total improved sanitation remains below 17% and almost half of the population practice open defecation (World Health Organization & UNICEF, 2015). Access to improved water has improved, but less than 3% of the population has access to piped water. Even in the capital city, an estimated 80% of the population relies on point sources such as hand-dug wells which may be "improved" in a technical sense, but unsuitable in dense urban environments. A 2011 water quality study in Monrovia found the majority of "improved" wells to be contaminated and unsafe to drink from (UHL & Associates, 2011). Expanding safe piped water, especially in urban areas, is thus a critical priority.

WASH related diseases remain common due to the lack of access to safe water and sanitation. Diarrhea is widespread among children, with 22% of under-five year olds suffering from diarrhea in the past four years, a value higher than in Haiti or the DR Congo, and more than twice the rate in India (Demographic and Health Survey, 2013). Urban children are affected almost as often (20.1%) as their rural counterparts (23.8%). Cholera remains endemic with 60 registered cases in 2014 (UNICEF, 2015). Moreover, "lack of access to safe water [and] proper hygiene" also "contributed to the propagation of the [Ebola] virus" and was even a "critical factor" in schools, as a recent report on *Recovering from the Ebola Crisis* highlighted (UN / World Bank / EU / AfDB, 2015).

In urban areas, the Liberia Water and Sewer Corporation (LWSC) is responsible for water and sanitation supply. LWSC has gone through a long post-war crisis, but a new management team put in place after a World Bank financed audit in 2011-12 has made significant improvements. LWSC has increased its revenues by 145% between FY11 and FY14, increased customers connected by 20%, and streamlined its staffing.

In spite of institutional reforms, funding for water and sanitation has remained weak. Domestic and donor funding to the sector – currently around US$ 25 million annually – are low compared to needs estimated at US$110m in 2014 (Government of Liberia, 2013). While the government has provided LWSC with an annual subsidy to meet operational costs, it has not financed significant infrastructure investments. Capital investments in urban water have been entirely financed by donors. In Monrovia, the AfDB is rehabilitating the White Plains water production plant that supplies the capital's existing water network. Work to restore production from the current 6 mgd to the plant's pre-war capacity of 16 million gallons per day (mgd) has started with an expected completion in late 2016.

The rehabilitation and extension of Monrovia's water distribution network, which is the focus of this Project, is thus a top-priority. The existing network will be a constraint on LWSC's ability to distribute the additional production capacity and is a major bottleneck in the expansion of the utility's customer- and revenue base. At present, the total network length is merely 231 kilometers and supplies approximately 6,400 active accounts (cities of similar population size in the United States have networks up to 30 times larger). Moreover, large parts of the present network are in a state of disrepair and non-revenue water is in excess of 50% of production. For these reasons, the rehabilitation of Monrovia's distribution network proposed in the appraised project was also a key priority identified in Liberia's Sector Investment Plan (Government of Liberia, 2013, p. 17; p.23).

2.2 Project Description

The Liberia Urban Water Supply Project (P169031), for which this additional financing is proposed, has started to address these infrastructure and institutional performance issues. To achieve the PDO and key results, the parent project has provided a credit of US$10,000,000 to fund two project components:

(a) infrastructure improvements in Monrovia and (b) capacity building for the LWSC, including the development of improved project management and monitoring and evaluation (M&E) arrangements. Specifically:

2.2.1 Component 1 – Infrastructure Investments

The parent project is investing US$8 million in infrastructure improvements, of which about US$1.9 million to finance targeted repairs and rehabilitations of the existing distribution network and US$6.1 million for the extension of the distribution network to new areas and customers. This includes repairs along key sections of the Eastern Transmission Line to reduce water losses and improve water flows to Central Monrovia, as well as urgent rehabilitations along Somalia Drive and Central Monrovia to restore water supply in the city center. Key transmission lines along Gardnerville Road and Roberts field Highway will be rehabilitated to reduce bottlenecks and create backup capacity in these areas. Furthermore, the setting- up of six pilot district metered areas (DMAs) to track and address Non-revenue Water (NRW) will help LWSC to improve its operational efficiency more effectively.

Under Component 1, the parent project is also investing in the extension of the transmission and distribution network to reach additional customers and improve the LWSC's revenue and profits. In the areas of SKD Boulevard, Paynesville, Gardnersville, Barnersville, Johnsonville, Robertsfield Highway, Kakata Highway, Junction Road, Kessely Boulevard, Nizohn and Chicken Factory Community, and Nicklay Town, the parent credit is funding 70 km of new distribution lines as well as up to 60 new kiosks and standpipes.

The Component 1 infrastructure interventions are listed in detail in Table 2 below.

Table 2: Summary of Component I under the parent project in Monrovia water supply network

#	COMPONENT 1	EXPECTED IMPACTS	ESTIMATED COST
1A	**Existing Network: Targeted Infrastructure Repairs and Improvements**		
(a)	Eastern Feeder: Repair of all damaged facilities (e.g. valves)	Improvement of water flows to central monrovia and existing reinforced concrete tanks Reduction of physical losses. Pressure increase. Isolation of branchlines from feeder for easier operation & Maintenance.	$63,000
(b)	Repairs in Central Monrovia & Somalia Drive Areas	Restore Water Flows into Central Monrovia and existing reinforced concrete tanks. Reduction of physical losses.	$630,000
	Replacement 24" Valve on Gabriel Bridge		
	Replacement of damaged and inaccessible section (under buildings) on King Sao Bosso Street		
	Rehabiliation and reconnection of Ducor tank		
	Laying of 12" pipe on Keng Zulu		
	Replacement of damaged pipes on Somalia Drive's bridges		
	By-pass of the old booster station		
(c)	Installation of Bulk Meters Throughout the Network	Allow localization of water losses & reduction of non-revenue water	$800,000
(d)	Rehabilitation of existing 8" pipe on Gardnerville road from SD to Barnersville estate	Reduction of key bottlenecks in transmission & back-up in case of breakdowns . Restoration of water-supply in Barnersville estate. Up to 300 connections possible.	$52,000
(e)	Rehabilitation of the existing 10" pipe on Robertsfield Highway	Supply of new communities. Up to 450 connections possible	$100,000
Subtotal			*$1,645,000*
1B	**New Pipe Extensions and Infrastructure**		
(a)	Laying of 16" transmission line on Gardnerville Road	Reduction of key bottlenecks in transmission lines. Back up in case of breakdown in other feeders. Up to 300 connections possible.	$1,600,000
(b)	Laying of 12" transmission line to SKD Boulevard	Reduction of key transmission bottlenecks. Back up in case of damage in other feeders. Up to 650 connections possible.	$840,000
(c)	Branchlines along Gardnersville Road	New communities supplied. Up to 900 connections possible.	$265,000
(d)	Branchlines along Kessely Boulevard, in Nizohn and Chicken Factory Community, and Nicklay Town	New communities supplied. Up to 1,100 connections possible	$630,000
(e)	Branchlines along SKD Road	New communities supplied. Up to 650 connections possible	$210,000
(f)	Branchlines along Robertsfield Highway	New community supplied. Up to 2000 connections possible	$540,000
(g)	Branchline expansions in Paynesville Coca Cola Community along Kakata Highway	New community supplied. Up to 1300 connections possible	$560,000
(h)	Branchlines in Paynesville Duport Road Area	New community supplied. Up to 1250 connections possible	$291,000
(i)	Branchlines in New Virginia Community	New community supplied. Up to 1250 connections possible	$325,000
(j)	Refurbishment and construction of 60 water kiosks / standpipes	Increase in access to safe water for poor population	$105,000
Subtotal			*$5,366,000*
1C	***Other Investments***		
(a)	Mobilisation, Maintenance & Demobilisation of Construction Sites		$300,000
(b)	Spareparts for 24" and 36" lines (pipe parts and fittings)		$150,000
(c)	Miscellaneous / Contingency		$539,000
Subtotal			*$989,000*
GRAND TOTAL			**$8,000,000**

Figure 4: Overview Map of Rehabilitation and extension of water supply service in Monrovia

2.2.2 Component 2 – Capacity Building

The project is also investing US$2 million into initiatives to strengthen the LWSC's capacity to sustain and expand its services. This is carried out with a particular focus on cost recovery and customer service. Cost recovery is a project priority because the LWSC is currently incurring NRW more than 60 percent of production. Reducing these losses is a key target of the capacity-building efforts and will include the setting-up of DMAs, staff training in NRW monitoring, leak detection methods, the introduction of device-assisted meter reading, and associated staff training to replace the error-prone manual process. Improving Customer Service is also critical as the LWSC currently struggles to react swiftly to customer complaints and requests. The project is thus reviewing, retraining, and re-equipping the LWSC connection teams, opening two additional customer service centers, and investing in a best-practice grievance redress system. The component is also financing public consultations and key operational equipment for the utility.

2.3 Justification for the Project

2.3.1 Project Performances

The project is performing well and has made substantial progress towards delivering results. Progress against the PDO has picked up significantly, and both the DO and Implementation Progress ratings which have been moderately satisfactory over the past 12 months are now satisfactory. Disbursements, under the IDA credit, have accelerated. Despite the project's significant effectiveness delay at the outset, disbursements are catching up with the original schedule. The project is compliant with legal covenants, and there are no

outstanding fiduciary issues. Further, most of the issues identified during the last ISM are solved including signing of major contract and commencement of implementation, recruitment and deployment of audit agencies as well as picking up of disbursement.

2.3.2 Considerable progress has been made against key tasks in Components 1 and 2

Total disbursements stand at US$ 4,780,000 (47%) as of March, 2019, and further payouts are expected in the Q4 of FY19.

a. Progress on Component 1 – Infrastructure Improvements: The project's infrastructure works for the Rehabilitation and Extension of Monrovia Water Supply Distribution System, and thus over two thirds of the parent credit amount, are concentrated in one major contract. This contract has been signed on June 12, 2018, and works have been launched on August 13, 2018. The contract duration is twelve months. Therefore, the works commissioning is expected by August 30, 2019. The associated supervision engineering firm has signed its contract on May 21, 2018. The component is thus well on its way to implementation with a further rapid increase in disbursements expected as works progress.

b. Progress on Component 2 – Capacity Building: LWSC has started a detailed review of its NRW performance and completed a NRW strategy, including advanced work on the creation of DMAs. The contract for the creation of a device-assisted meter reading and customer feedback system is expected to be signed on September 7, 2018. A first additional customer care center at the Fiamah site has been completed on August 28, 2018. The capacity building component is thus well under way and making good progress.

Therefore, in light of the progress of the parent project and the favorable water supply situation after the completion of the rehabilitation of the main water plant of Monrovia, the AF is sought to increase the project's development effectiveness. A written request for AF from the Liberian Government was received on June 27, 2018. It should be noted that the parent project had been deliberately conceived as a "first step" to "carry out urgent rehabilitations" and "alleviate the most binding constraints" and thus "lay the basis for additional investments to expand access to safe piped water further" (World Bank, 2016). This AF is thus a logical next step in the progressive improvement of Liberia's urban water supply.

The project is thus expected to: (a) reduce the risk and prevalence of water borne diseases in Liberia's capital; (b) raise the standard of living and economic output of the people of Monrovia; (c) improve the local environment and institutional capacity of LWSC.

2.4 Rational for Additional Financing and Proposed Changes

The AF in the amount of US$30 million will be used for feasibility study, design and rehabilitation or replacement of the 36" pipeline, to scale-up the rehabilitation and extension of Monrovia's piped water distribution system, as well as to reinforce the LWSC's operational efficiency. Planned interventions are based on an existing feasibility study completed in 2015. The AF will increase the funding and scope for both the infrastructure-focused Component 1 and capacity-building Component 2. The project will improve network resilience and reliability, consumer access to safely managed water and the financial sustainability of the utility.

The production increase with the completion of AfDB intervention and recent study on the NRW have revealed that the transmission mains are also used as distribution mains with consequent significant water losses and pressure, thus restricting water to reach existing upper city reservoirs. These strategic city reservoirs were foreseen to supply water the Central Business District and to regulate the water demand and supply on daily basis in Monrovia.

Therefore, the AF will complement the parent project by restructuring the current transmission and distribution main by laying a dedicated express line from Fish Market Airfield Station to New Port Street Booster Station (Central Monrovia) for about 7.2 Km and use the current transmission line as eastern

distribution main from the city reservoirs, construction of new transmission line (36"), and feasibility design and rehabilitation or replacement of the 36" pipeline.

In addition, the feasibility study supported by an earlier technical assistance program identified the critical need to complement the current city reservoirs with a service reservoir in Paynesville areas to increase water supply access and reliability in Paynesville and Roberts Highway areas with high rising water demand. The AF will support the construction of the Paynesville service reservoir with a capacity of 4,500 cubic meter (m^3) including required connections to the nearby existing distribution network.

Additional Financing under Component 1: The AF will fund key interventions that will improve the conveyance of water by the main transmission line towards central Monrovia's main reservoirs, conduct a feasibility study to rehabilitate or replace the existing 36" line from the White Plains, and increase the storage capacity in Paynesville areas to increase access and enhance the quality and quantity of the water supply service to existing customers. This is expected to lead to at least 10,000 new house connections and 50 standpipes thus serving additionally an estimated 65,000 Liberians, almost doubling the number of beneficiaries under the parent credit while improving the supply service to existing customers through a better regulation of the water demand and supply. Specifically, Component 1 will finance:

1. Express line to Newport Booster Station and restructuring of current eastern main transmission line section (US$ 5,100,000): The persistent restriction of water supply in central Monrovia is largely due to the outdated and damaged state of the main transmission line along Tubman Boulevard, in particular around the Monrovia Central Business District (Capitol Hill to Mamba Point areas). The AF will relieve this critical bottleneck and support the increase of water transmission to central Monrovia by supporting a parallel express line up to 6 kilometers of transmission pipes with associated valves and chambers. This will also result in a head loss and leakage reduction and thus water savings for about 5,000 new connections and 25 public standpipes.
2. Construction of a new 36" transmission line from White Plains.
3. Feasibility study and rehabilitation or removal of the 36" line from White Plains to the White Flower in Congo Town.
4. Paynesville service reservoir and connection to existing network (US$ 3,500,000): This will support the supply and construction of a 4,500 m^3 ground reservoir and connection to the existing distribution network in the area. The reservoir will serve as a break pressure tank to ensure the constant supply and operational pressure in the service area to increase the supply service quality to 24 hours a day to about 70,625 customers and allow connection to about 5 000 new customers and the construction of 25 public standpipes.

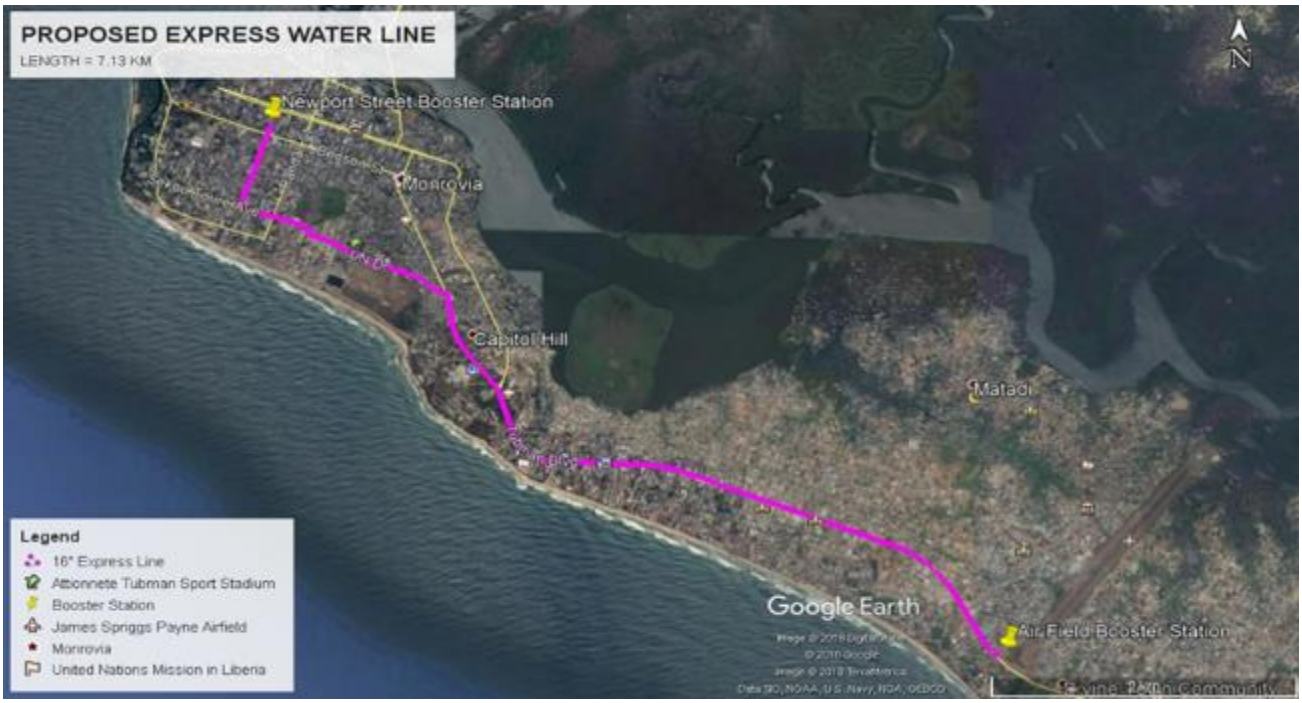
Additional Financing under Component 2: The AF will fund capacity building interventions at LWSC with US$ 1.7 million. These measures are critical to ensure the sustainable operation and maintenance of the new infrastructure. A focus will be placed on improving cost-recovery by supporting the operation of District Metered Areas, staff trainings and equipment, the furnishing of spare parts and operational tools (e.g. spare meters, pipes, repair equipment) and support to the project implementation unit (PIU).

Table 3: Project components and budget

Project Components	**Parent Credit (US$)**	**AF (US$)**	**Total (US$)**
1. Component 1 - Infrastructure	**8,000,000**	**28,300,000**	**36,300,000**
(a) Rehabilitations and Repairs	1,900,000	24,800,000	26,700,000
(b) Network Extension	6,100,000	3,500,000	9,600,000

2. Component 2 - Capacity Building	**2,000,000**	**1,700,000**	**3,700,000**
(a) Cost Recovery	300,000	500,000	800,000
(b) Improve Customer Service	400,000	50,000	450,000
(c) Public Consultations	50,000	100,000	150,000
(d) Key Operational Equipment	550,000	600,000	1,150,000
(e) Project Implementation Unit	700,000	450,000	1,150,000
Total Project Costs	**10,000,000**	**30,000,000**	**40,000,000**

Figure 5: Map of Proposed Express Line to Newport Street Booster Station to Be Supported by Additional Financing



Description: Laying out a new feeder from the Airfield Booster Station in Sinkor to Newport Street Booster Station, 16" diameter parallel to the old one, will supply water to the Upper Monrovia and its Central Business District. The old pipe will be put now be used as distribution line with selected modifications to accommodate the setting-up of new Districts Metered Areas (DMAs).

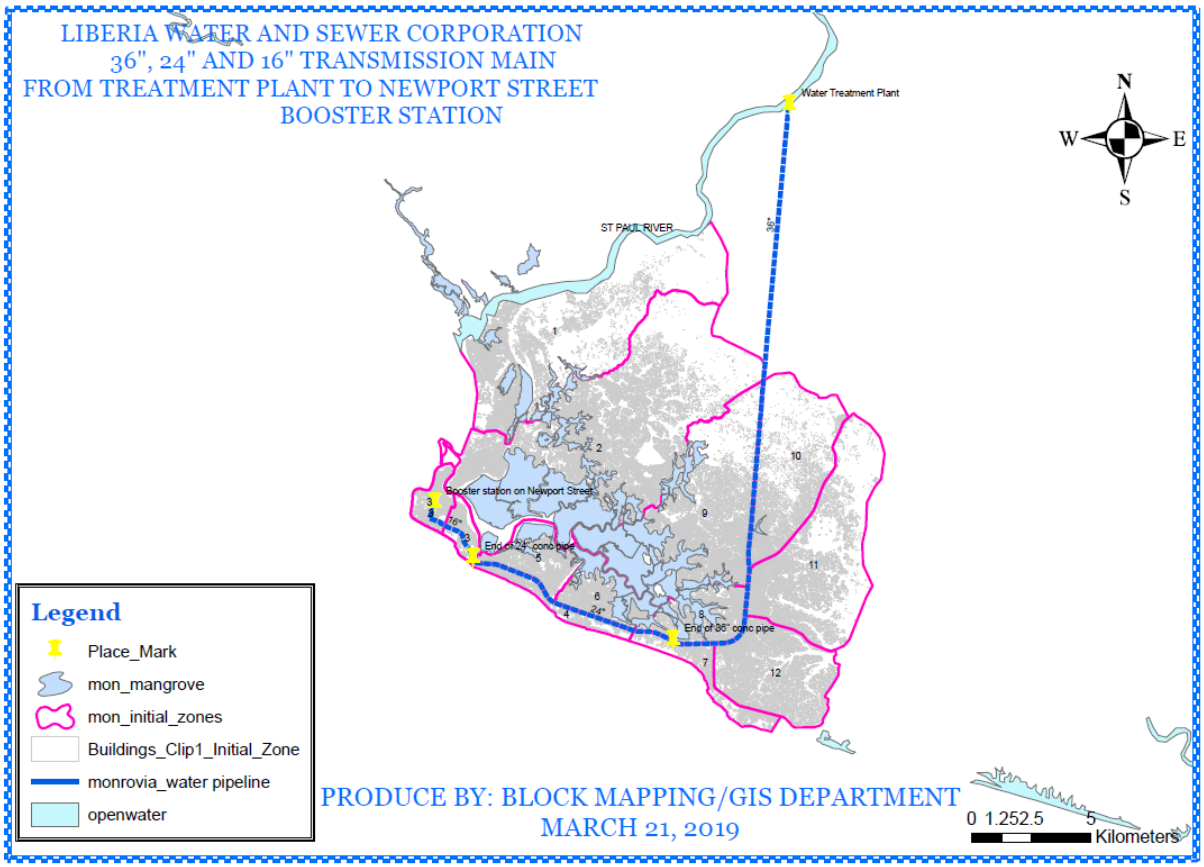
Expected Impact:
(i) Head losses and leakages reduction: Energy and water savings and
(ii) Increase access and service quality for the Upper and Central Monrovia for 102,408 inhabitants (2018) and 204,722 (2040).

Figure 6: Paynesville service reservoir

Description:
Ground reservoir construction and connection to the existing distribution network. The main features of this intervention are as follows:
(i) a feeder line branching from the eastern transmission line and serving a water tank;
(ii) A 4,500 cubic meter ground reservoir serving as a break pressure tank (to avoid water hammer from direct pumping into the transmission lines) to ensure constant pressure in the new network and constant water supply in the service area; and
(iii) Main distribution lines to feed the existing distribution network by the reservoir.

Impacts:
(i) 22,127 new people supplied with the expended piped water supply system and
(ii) Increase of distribution service quality for 169 856 people for 24 hours water.

Figure 7: Map main pipeline White Plains WTP to Monrovia



Description:
Main dilapidated 36" pipeline replacement. The main features of this intervention are as follows:
(i) replacement of 10 kilometer of pipeline;
(ii) water meters on branches to distribution lines

Impacts:
(i) water supply to Monrovia will be stabilized and experience less break downs
(ii) Nonrevenue water will further be reduced by 5%.

3 OVERVIEW OF WORLD BANK OPERATIONAL POLICIES AND THE ESIA

This environmental and social impact assessment (ESIA) has been conducted in line with the World Bank Operation Policies for Environmental and Social Impacts Assessments (OP/BP 4.01) and associated safeguard policies.

For purposes of this policy, the project has been rated as category B i.e. project impacts will be site-specific, and few, if any, will be irreversible; in most cases mitigatory measures can be designed readily. The scope of the ESIA derives from its B rating and is to examine the project's potential negative and positive environmental and social impacts, and recommend any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. Table 4 provides a list of safeguard policies and explanation of which are triggered by the project, determining the focus and extent of the ESIA and associated documents.

Table 4: Relevant World Bank's Operational Policies

Safeguard Policies	**Triggered**	**Explanation**
Environmental Assessment OP/BP 4.01	Yes	The proposed intervention will rehabilitate and extend parts of the piped water supply network in Monrovia with a significant net positive social and environmental benefit through enhanced access to safe water and with few if any irreversible negative impacts. However, during construction some site-specific negative impacts may occur temporarily e.g. noise, dust, disturbance of businesses or minor construction related incidents.
Natural Habitats OP/BP 4.04	No	The project is located in urban Monrovia, where the ecosystems' bio-logical communities are not formed largely by native plant and animal species, and human activity has already essentially modified the area's primary ecological functions. Hence, the project area does not affect natural habitats as per the definition thereof in Annex A of OP/BP 4.04 and the policy is not triggered.
Forests OP/BP 4.36	No	The project is located in urban Monrovia and does not entail forest management and is not expected to impact on forests.
Pest Management OP 4.09	No	This policy is not triggered as the project will not be involved in helping the borrower manage pests that affect public health
Physical Cultural Resources OP/BP 4.11	Yes	The project will finance the construction and rehabilitation of pipelines in dense urban areas which may affect physical cultural resources adversely, though this is unlikely.
Indigenous Peoples OP/BP 4.10	No	This urban project is located in Monrovia, the capital city of Liberia, no indigenous peoples are expected to be affected.
Involuntary Resettlement OP/BP 4.12	Yes	The construction and rehabilitation of pipelines in urban areas may cause disturbances of communal structures or ancillary structures of private properties and income generating opportunities built onto road reserves.

Safety of Dams OP/BP 4.37	No	The project does not entail construction of dams, nor does it rely on dam structures. Existing reservoirs consist of reinforced concrete tanks (i.e. not dam structures in the sense of OP/BP
Projects on International Waterways OP/BP 7.50	Yes	OP 7.50 is applicable to the proposed project since the water supply system to be supported by the project sources water from the St. Paul River shared between the Republic of Liberia and the Republic of Guinea and is therefore an "international waterway" for purposes of the policy. *An Exception to Notification Requirements under OP7.50 has been granted by World Bank management.*
Projects in Disputed Areas	No	The project is not located in a disputed area.

As outlined in Table 4 above, the project triggers the standard OP/BP 4.01 Environmental Assessment, as well as OP/BP 4.11 Physical Cultural Resources, OP/BP 4.12 Involuntary Resettlement, and OP/BP 7.50 International Waterways.

The precise environmental impacts and risks and required mitigation measures under OP/BP 4.01 and OP/BP 4.11 are described in the following sections of this ESIA. In particular, the Environmental and Social Management Plan (ESMP) presented in Section 6 will detail mitigation measure and also provides the institutional arrangement for their implementation including monitoring arrangements.

The ESIA and ESMP draw presented here draw on a detailed field study carried out in Monrovia by the consultancy firm Hydroconseil in close cooperation with LWSC technical staff and World Bank water and sanitation and safeguard specialists. Information has been collected on a wide variety of variables required to anticipate and manage project impacts, including socio-economic aspects of the impacted area, expected effects on air and noise, impact of construction (e.g. on traffic and public safety), affected stakeholders and LWSC skill gaps and training needs.

The scope of expected involuntary resettlement is also described in this ESIA and judged to be limited, restricted to minor economic disturbances, and affecting not fewer than 1,000 persons. The detailed mechanisms for managing these limited disruptions will be outlined in a separate Resettlement Policy Framework document.

OP/BP 7.50 will not lead to follow-up actions in the context of this particular project (P155947), because an exception to the policy's notification requirements has been granted by World Bank management. This is because alterations to the existing scheme are minor and will not adversely change the quality or quantity of water available to the other riparian of the St. Paul River, nor be adversely affected by the other riparian's possible water use. The proposed activities therefore qualify for the exception defined in paragraph 7 (a) of OP 7.50.

4 LIBERIA'S POLICY, LEGAL & INSTITUTIONAL FRAMEWORK

An understanding of Liberia's national environmental policy and legal and institutional framework is critical to put expected project impacts into context and to develop realistic and lawful mitigation measures and an effective Environmental and Social Management Plan (ESMP).

4.1 Policy Framework

4.1.1 National Environmental Policy (NEP)

Under the auspices of the National Environmental Commission of Liberia (NECOLIB), which was established in 1999 and since been transformed into the Environmental Protection Agency (EPA), a National Environmental Policy approved in 2002.

The objectives of the National Environmental Policy (NEP) of Liberia are to ensure the improvement and maintenance of the integrity of the environment; to improve the quality of life of the Liberian people and all who are resident in Liberia; and to ensure that economic development and growth on the one hand and the sustainable management of natural resources on the other are fully reconciled and coordinated.

The NEP focuses on four key areas: (1) Socio-economic dimensions and cross-cutting issues; (2) Sustainable management of sectoral systems; (3) Working with and through people; and (4) Policy implementation. In conformity with the NEP, the EPA has been established in 2003 and is being overseen by a Board of Directors and Environmental Policy Council. The principal goals of the NEP are to:

a) Develop and implement systems and guidelines for assessing environmental impacts of development and economic activities;
b) Increase public education and awareness on issues of environment and development;
c) Develop national and local environmental management capacity;
d) Empower communities, through participatory learning and action, to manage their natural resources and environment; and
e) Ensure the sustained involvement of all stakeholders, including but not limited to the private sector and non-governmental organizations (NGOs), in all aspects of the environment and natural resource management efforts.

The Act creating the EPA also established the National Environment Policy Council as the ultimate policy-making body on the environment. The Council provides policy guidance and formulates and coordinates environmental policies and regulations. The EPA Board of Directors oversees the implementation of the national environment management policy and functions of the EPA.

In order to ensure effective environment management at local level, the EPA Act established county and district environment committees, whose main role is to ensure environmental concerns are included in local government plans and projects and to disseminate environmental information.

This ESIA and ESMP are consistent with the principle goals of the National Environmental Policy, in particular, its requirement to assess environmental impacts for development and economic activities.

4.1.2 Poverty Reduction Strategy (PRS)

A further national policy of relevance to the proposed project is Liberia's Poverty Reduction Strategy, which is based on four pillars: (I) Consolidating Peace and Security; (II) Revitalization of the Economy; (III)

Strengthening Governance and the Rule of Law; and (IV) Rehabilitating Infrastructure and Delivering Basic Social Services.

The project under consideration falls under Pillar IV, of which the water and sanitation sector is a part. The overriding policy goal of the Government of Liberia, with regards to water and sanitation, is to reduce the water and sanitation related disease burden. To achieve this goal, the government plans to address three strategic targets: (a) increasing access to safe drinking water; (b) increasing access to human waste collection and disposal facilities; (c) improving the sustainability of water and sanitation facilities. The Government has prioritized the rehabilitation of damaged facilities for water supply and waste disposal, and the construction of new ones as necessary, among the first lines of action.

The proposed project is thus fully aligned with the priorities defined in the poverty reduction strategy, with the project's development objective addressing targets (a) and (b) explicitly.

4.1.3 National Integrated Water Resource Management Policy

The WATSAN Sector Working Group and the Inter-Ministerial Technical Committee on Water and Sanitation, under the leadership of Ministry of Lands, Mines and Energy, prepared the National Integrated Water Resources Management (IWRM) Policy and validated it in 2007.

The IWRM Policy promotes a new integrated approach to managing water resources in ways that are sustainable and beneficial. The approach is based on the continued recognition of the social value of water, while at the same time giving due attention to its economic value. Integrated water resource management is a long-term process that promotes the coordinated development and management of water, land and other related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Although the state is the ultimate custodian of the water resources, the aim of the IWRM Policy is to achieve a public sense of resource ownership, and thus mobilize people at all levels to take responsibility for its management, protection and conservation. The policy is designed as a broad-based charter, which must be recognized by all concerned sector institutions, and taken into account by all projects and programs, including the project under consideration.

A review of the IWRM Policy has shown the proposed project is well aligned with the policy's key principles, including its prioritization of drinking water access, and emphasis on developing capacity along with infrastructure in order to ensure operational efficiency and the financial viability of public utilities can ensure sustainability of access and water resources.

4.1.4 WASH Sector Strategic Plan & Sector Investment Plan (SIP)

The Government of Liberia has developed a Water, Sanitation and Hygiene Sector Strategic Plan in 2011, which was subsequently operationalized as a more detailed and operational Sector Investment Plan (SIP) that defines specific investment priorities for the period 2012-17. This SIP has identified the rehabilitation of Monrovia's distribution network as a top-priority (Government of Liberia, 2013, p. 17; p.23). The proposed project is thus fully aligned with the key sector investment planning document of the Liberian Government.

4.2 Legal Framework

4.2.1 Liberia Water and Sewer Corporation Legislature Act (1973)

The legal basis for the project is rooted in the provisions of the 1973 National Legislature Act that created the Liberia Water and Sewer Corporation (LWSC) to provide water and sewage services and allowing LWSC to enjoy all the rights and privileges of a public corporation under the Laws of Liberia.

As the project implementation partner, LWSC is legally responsible in Liberia for providing commercialized pipe-borne water supply and sewerage services in urban areas. LWSC's powers include, but are not limited to, the following:

- To engage in the management, development, construction, installation, manufacture, operation, transmission, distribution, sale, and supply to all areas of water and sewage services and of equipment and facilities relating thereto.
- To establish and maintain water and sewer facilities, offices and/or agencies within and everywhere inside Liberia; and to exercise any or all of its corporate powers and rights in Liberia and in any foreign country or countries, if need be.
- To determine fair and reasonable rates, fees, and charges which shall be charged in connection with the provision of water and sewage services.
- To manufacture, import, buy, sell, install, collect, generally deal in water and sewage services and to manufacture, buy, sell and deal in all materials used in connection with the aforesaid services.

The 1973 Act thus provides LWSC with the legal mandate and rights to undertake the investments to be financed under the project.

4.2.2 Environmental Protection and Management Law (EPML)

At national level, the legal basis for this ESIA and follow up assessments and monitoring is provided by the provisions of the Liberia Environmental Protection and Management Law (EPML) of 2002 and its companion Act creating the Environmental Protection Agency, both of which came into effect in 2003.

As far as the conduct of an ESIA study in Liberia is concerned, the legal framework is primarily provided firstly by the Environmental Impact Assessment, Audit and Monitoring part, of the EPML, which makes an environmental impact assessment study mandatory for types of projects and activities such this one.

The EPML includes a list of projects and activities for which an environmental impact assessment is mandatory. The type of activities under which this project falls is the Group "Building and Civil Engineering Industries", which includes the "Construction and expansion/upgrading of roads, harbors, ship yards, fishing harbors, air fields and ports, railways and pipelines" and "Reservoir".

The project and its activities (esp. related to pipeline rehabilitations and extensions) are on the mandatory list and thus subject to Part III of the EPML that details the guidelines and procedures that should be followed in applying for, licensing, implementing, and reporting on this environmental impact assessment as well as managing and monitoring the impacts it has predicted.

This ESIA and ESMP are fully aligned with the EPML and will function as the basis for the local approval process. The full project permission process and environmental impact assessment steps are detailed in Sections 6 through 23 of Part III of the EPML, and include the following:

1. Developer or proponent applies for an EIA (Annex 6.0) License, with submission to the County Environmental Officer, prior to the commencement of activities;
2. Developer or proponent publishes a Notice of Intent;

3. Developer or proponent submits a Project Brief to the EPA; and the Project Brief is subjected to Screening (Produced and submitted to EPA and Copy in Safeguard Office of the PIU).

Screening is the process whereby the EPA and relevant line ministries and agencies of government jointly or singularly review the Project Brief to determine if the project is subject to a full environmental impact assessment, and what, if any, level of further study is required.

If it is determined that the project will have a significant adverse environmental impact then the Developer or Proponent must conduct a "Scoping Processes". The scoping process culminates in the compilation of a Scoping Report outlining both the technical and sociological criteria and related environmental aspects considered, and the major issues that the stakeholders feel need to be studied in more detail.

It is expected that this World Bank ESIA will function as the basis and important input for the scoping report and possible full impact assessment, subject to review by EPA and the relevant line ministries and agencies of government, and other stakeholders as deemed necessary. Following its review, EPA will make a decision on the project; which may come as (a) Approved unconditionally; (b) Approved conditionally; with the conditions outlined; (c) Requires further study and/or submission of additional detail; or (d) Rejected.

If the project is approved, the Developer or Proponent will pay the required fee to the EPA; and the EPA will issue the Permit/License within three months of receipt of the Environmental Impact Assessment and associated Environmental Impact Statement. In the case of this project, the environmental legal procedures were followed leading to the issuance of an environmental permit subject to renewal annually based on audit result (Annex 7).

The procedures outlined in the Environmental Protection and Management Law of Liberia conforms well to the World Bank ESIA and vice versa; both of which are aligned with international standard Environmental Impact Methodology (informed by the UNEP Model impact assessment process).

4.3 Institutional framework

Both for project implementation and the environmental impact assessment and mitigation measures, it is critical to understand the institutional framework and distribution of responsibilities in the water sector. Table 5 below presents the institutional framework on Water Supply and Sanitation (WSS) sector in Liberia with the ministries and agencies and their functions within the system.

Table 5: WSS Institutional Framework and Responsibilities

	MINISTRY / AGENCY	**RELEVANT WSS FUNCTIONS/ RESPONSIBILITIES**
1	Ministry of Lands, Mines & Energy (MLME)	Responsible for policy development & land and water resource management through the Department of Mineral and Environmental Research. The Liberian Hydrological Survey (LHS) is one of the two arms of the department.
2	Ministry of Health & Social Welfare (MHSW)	The Division of Environmental and Occupational Health handles matters relating to water and sanitation. Food hygiene in public eating places, construction/supervision of water wells and pit latrines. MHSW is mandated to conduct sanitary inspections including drinking water.

	MINISTRY / AGENCY	RELEVANT WSS FUNCTIONS/ RESPONSIBILITIES
3	Ministry of Public Works (MPW)	Responsible for the design, construction and maintenance of roads and highways, bridges, storm sewers, public buildings and other civil works. MPW is responsible for the administration of urban and town planning. Mandated, through its Department of Rural Development & Community Services, to ensure that safe drinking water and adequate sanitation facilities are provided in rural communities.
4	Ministry of Planning & Economic Affairs (MPEA)	Responsible for regional development planning and coordination.
5	Liberia Water & Sewer Corporation (LWSC)	Mandated to provide safe water supply and sanitation services to urban centers including Monrovia and the capital cities of the political sub-divisions in conjunction with the relevant line ministries and agencies of Government.
6	Environmental Protection Agency (EPA)	Mandated to set environmental standards and to ensure environmental compliance. EPA is responsible to provide guidelines for the preparation of ESIA and environmental audits
7	Monrovia City Corporation (MCC) (or other City Corporations)	Responsible for the management of Monrovia, including environmental sanitation. Departments of MCC involved are Waste, Environmental health and Sanitation
8	Ministry of Internal Affairs (MIA) through Office of the Development Superintendents	Responsible for development planning and implementation in their respective counties.

As outlined in section 1.1 above, the Liberia Water and Sewer Corporation (LWSC) was formed by an act of the National Legislature as a Public Corporation in 1973. The mandate of LWSC is to provide safe water supply and sanitation services to the urban areas in conjunction with the relevant line ministries and agencies of government including the Ministry of Health and Social Welfare (MHSW), the Ministry of Lands, Mines and Energy (MLME) and the local municipal authorities.

LWSC is the institution that is mandated with meeting the Urban Water Supply and Sanitation (WSS) needs in Liberia. The Corporation is also responsible for the operation and maintenance of the municipal sewage system in Monrovia. In addition, LWSC operated water treatment plants and distribution networks in other urban centers in Liberia including ten (10) county administrative centers.

Finally, there are several NGOs and international agencies such as UNESCO, WHO, EU, OXFAM, Save the Children, LIURD, MDF and ACIF.

4.4 Result framework:

It is proposed that the Results Framework as agreed in the parent project design is largely maintained except:

(i) The introduction of new indicators to capture the number of people in urban areas that are already connected and provided with enhanced water supply services (quantity and quality), and water storage capacity constructed under the project and;

(ii) Targets revised to reflect the scale-up resulting from the AF. Furthermore, the unit of measure used for the indicator related to LWSC staff trained has been revised from the binary (yes or no question) to the actual number of staff trained.

Figure 8: Map of proposed express line to Newport Street Booster Station

Description: Laying out a new feeder from the Airfield Booster Station in Sinkor to Newport Street Booster Station, 16" diameter parallel to the old one, will supply water to the Upper Monrovia and its Central Business District. The old pipe will be put now be used as distribution line with selected modifications to accommodate the setting-up of new Districts Metered Areas (DMAs).

Expected Impact:

a) Head losses and leakages reduction: Energy and water savings and

b) Increase access and service quality for the Upper and Central Monrovia for 102,408 inhabitants (2018) and 204,722 (2040).

5 POTENTIAL PROJECT IMPACTS AND MITIGATION MEASURES

5.1 Environmental Impact Identification and Rating

Activities associated with each of the project components were identified and listed in consultation with the project team. Similar project components known to have different activities at other location were grouped together because their impacts would be similar. The socio-economic impacts were however treated as site specific although many similar themes emerged at diverse locations. For example:

- Laying of pipeline for water also consists of a set of generally similar activities; and;
- Construction and operation of boreholes also consist of a similar set of activities
- Rehabilitation of reservoir (cleaning, painting, fencing, apply of rust arrestor and waterproof slab, sealing of a minor and inoperative outlet)

The environmental aspects were later categorized, and resources affected by the impacts listed. Based on observations made during the site visits, interviews, specific adverse impacts and / or risks were identified. A detailed description of the project area itself is contained in Annex 1. Unless explicitly mentioned in the section below, no other significant impacts are expected (e.g. no impacts are expected on natural habitats such as Providence Island or End Point, or nearby Du River).

5.2 Detailed Identified Project Impacts

5.2.1 Disturbance to traffic and damage to public utilities

The proposed interventions will necessitate road cuttings, excavations of trenches, and in some cases the removal of existing public utilities resulting in the interruption of the services for a period of time.

The construction activities may necessitate partial or total traffic interruption, and temporary road cuts and vehicle and pedestrian traffic deviations. These could result in traffic congestion and risk of accidents. Further, the supply of construction materials and disposal will generate circulation of trucks increasing the traffic load on the various highways.

5.2.2 Impact on buildings (houses, businesses and schools)

Excavations to unearth and replace defective pipelines and to place transmission lines will create temporary difficulties of access to the adjacent buildings and some disturbance of the neighboring residents and users. However, no permanent physical displacement is expected nor will land acquisitions be required.

Minor, temporary economic disruptions will occur - mostly related to temporary disruption of entrances, terraces, a fence and stairs. These will be reconstructed by the project in equal or better quality. Further during construction phase, temporary trench crossings will be supported, and pedestrian access to schools, shops, courts, doctor's surgeries, pharmacists, and other premises frequently by the public will be maintained with the use of walking boards.

Agreements has been reached between LWSC and occupants of affected properties to allow for the temporary disruption and subsequent reconstruction. No expansion of easements is expected to be necessary.

Details of the impact on buildings and temporary economic disruptions are provided in the separate Resettlement Framework and Abbreviate Resettlement Action Plan document.

5.2.3 Air quality problems

Smoke emissions from the use of machines and dust production while grading excavating, could result in annoyance to the site workers, nearby residents and activities and the pedestrians.

5.2.4 Noise generation

The use of excavation machines and construction equipment could potentially impact on workers and neighborhood residents.

5.2.5 Storing of fuels and lubricants on site

The Contractor will need to store some fuel, oils and lubricants on site for the machines and pipe laying activities. This can create a risk of water and soil contamination in case of a spill.

5.2.6 Construction Safety

Excavations and other construction site activities such as the use of cranes and elevated working environments must be effectively managed to prevent injury to workers and disruption of the project;

The excavation of 1.0 m-deep trenches for placement of pipelines and excavation for emplacement of foundations are potential risks to vehicles and workers; the vehicles and machine operations on site and a long pipe alignment can create health and safety risks for both workers and pedestrians.

5.2.7 Construction Materials and Waste Management

Construction materials and waste management: The construction activities will necessitate temporary on-site storage of construction materials and excavated materials; poor management of the stored materials and wastes can result in dispersion of materials in the nearby drainage systems and creeks, streets and adjacent properties. Appropriate disposal of construction wastes could minimize similar issues at the final disposal site.

5.2.8 Pumping and discharging of storm water and off-site

The Contractor may need to extract storm waters from the trenches and other construction works to insure working conditions; the discharge of the pumped water can impact surface waters and drainage systems and cause erosion.

5.2.9 Risk of flooding

The lower elevations and canals, drains and banks of the adjacent rivers are subject to flooding in case of heavy rains in concomitance with high water tide impeding the discharge to outfalls at the rivers and Atlantic Ocean. The flooding can negatively impact the access to the treatment plant and damage the electro-mechanical systems of the treatment plants

5.3 Institutional Capacity risks

These are rated Substantial due to the decline in organizational structure and knowledge, and erosion of management, planning and technical skills during the civil war, which have only been partly reversed. The recent turn-over of much of the upper management after the formation of a new government has increased this risk. The risk will be mitigated through targeted capacity-building activities and the recruitment of a PIU, as well as ongoing technical assistance support provided by the World Bank

5.4 Risk to physical-cultural resources

As the project will require excavation, in areas where no excavation has been carried out before, as well as in areas with existing or prior human habitation, there remains a possibility of discovering cultural resources. Therefore, even if this is a remote possibility. The Policy on Cultural Heritage may triggered as a matter of precaution and the Chance Find Procedure outlined in Annex 4 will be followed during the construction period if necessary.

5.5 Safeguards

Social safeguards. Overall social impacts of the project are expected to be positive. The project will not finance civil works with significant resettlement impacts. No physical displacement of Project Affected People (PAP) has been identified, some land acquisitions will be required for the reservoir. There will be

only minor economic disturbances, mostly related to temporary disruption during pipe laying due to encroachments on the rights-of-way. These will be reconstructed by the project in equal or better quality. The Resettlement Policy Framework and Simplified Social Management Plan of the parent credit will be reviewed and updated and redisclosed as necessary. As no form of economic or physical displacement is expected, the preparation of a Resettlement Action Plan (RAP) is not necessary. Should unexpected displacement-related challenges occur, the development of a RAP will be guided by the RPF.

Gender. The project is classified as gender informed; gender-specific actions are to be undertaken during project implementation and are reflected in the results framework. The work force for the project will come from the local labor market and no influx of workers is foreseen. However, for the works contracts the standard contracts with appropriate gender-based violence clauses will be used.

6 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

The ESMP describes the key environmental mitigation measure identified during the impact assessment study. In addition to the mitigation measures, the ESMP also provides an overview of the institutional arrangements for the implementation and monitoring of mitigation measures. A detailed description of the exact procedures and processes for implementing the ESMP is contained in the Project Implementation Manual (PIM) which guides LWSC in general, and the Project Implementation Unit (PIU) in particular. The ESMP is to be read and implemented in association with the World Bank's General and Water and Sanitation Specific Environmental, Health, and Safety (EHS) Guidelines.[1]

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

a) Define the responsibilities of the project proponent (in this case LWSC), contractors, the World Bank, and other stakeholders, and effectively communicate environmental issues among them.
b) Facilitate the implementation of the mitigation measures identified by providing the instructions on how to handle the issues, and providing an implementation schedule
c) Define a monitoring mechanism and identify monitoring parameters to ensure that all mitigation measures are completely and effectively implemented.
d) Identify training requirements at various levels and provide a plan for implementation.
e) Identify the resources required to implement the ESMP and outline corresponding financing arrangements.

6.1 Institutional Requirements and Roles

6.1.1 Liberia Water and Sewer Corporation

Overall implementation and monitoring of the ESMP is LWSC responsibility. LWSC is also responsible for the preparation of a RAP, should the need arise, though this is currently not expected given the lack of physical or economic displacements. However, based on consultations carried out with PAPs, an ARAP may not be necessary however, a Simplified Social Management Plan was developed to curtail temporary disruption of business activities (Annex 7). A Project Implementation Unit (PIU) has been established, to conduct the daily task of project implementation and periodic assessment of its progress. The PIU is composed of: (a) a project coordinator ("PIU Director"), ideally a hydraulic engineer; (b) Financial management specialist, a certified accountant; (c) Social and Environmental Safeguard Specialist; (d) Procurement specialist; (e) Monitoring & Evaluations specialist. To the extent possible, these staff will be drawn from LWSC's permanent staff, especially those who have experience working on the AfDB project, rather than hired as consultants.

6.1.2 Owner's Engineers (OE)/Construction Supervising Engineer

In addition to the PIU, LWSC will also hire a consultancy firm, usually a group of engineers with appropriate experience in managing installation works of this nature, to oversee the technical due diligence of the construction activities. Principally, the firm will ensure that construction of the infrastructure component is executed as designed and that installed components meet intended functions and operability requirements. As part their responsibility, the OE will be required to ensure the implementation of the environment, health and safety specifications of the installation works. LWSC should ensure that this role in inserted in the OE's scope of work during tendering.

For institutional capacity building on safeguard issues, capacity building of project team, especially on environmental and social safeguards issues, can also be included in the OE's responsibilities. Incorporating

[1] Available online: www.ifc.org/ehsguidelines

this in the OE's responsibility could help strengthen the institutional capacity to meet the safeguards requirements as well as enhance positive environmental and social benefits.

6.1.3 Construction Contractors

Actual implementation of the ESMP is the responsibility of the Construction contractors responsible for executing the construction works. LWSC will ensure that all relevant environmental, health and safety specifications and requirements are included in design and contracts to form the basis for contractors' compliance monitoring during the execution of work. For instance, the specifications may include but not limited to the requirement for contract develop detailed Environmental Mitigation Plan (EMP) and Health and Safety Plan (HSP) which must be approved by the client before work can start.

All new works contracts will follow the new standard contracts that include Gender Based Violence (GBV) clauses.

6.1.4 World Bank

Though project implementation is the client's responsibility, the Bank will provide implementation support, ensuring that the loan proceeds are used for the loan purposes with due regard for economy, efficiency, effectiveness and environmental sustainability. The Bank will ensure LWSC's compliance with measures agreed with the Bank, findings of the ESIA and results of the Bank safeguards policies through periodic monitoring of project activities. Other institutions such as the Environmental Protection Agency (EPA) may carry out inspections on their own to verify contractor's compliance with environmental management standards as required

6.1.5 Public Consultation

Public consultation as required by the Bank's policy and Liberian environmental regulations was held on December 08, 2015 in order to inform stakeholders about the proposed project as well as solicit their input on how to maximize the expected benefits of the project while minimizing the potential negative impacts. The result of the consultation has been attached in this report (Annex 5). The project scheduled and conducted a second public consultation held on August 2, 2018 to update stakeholders on project review (Annex 5). The outcome of this second public consultation has considerably positive results as attendees welcomed this idea of providing portable water to their communities.

Summary of main impacts, mitigation and monitoring arrangements are outlined in Table 4 below. At this stage, the cost of implementation of the ESMP has not been included. However, construction contractor will be required to include this cost in the overall construction cost, and LWSC will be required to verify that the contractor has consider this cost as part their overall cost.

6.2 Responsibilities under the Environmental and Social Management Plan

Table 5 below provides detailed mitigation measures and monitoring arrangements for the main impacts of the project outlined in Section 5 of this report, clearly citing the responsible institutions as per the list above. In addition to the mitigation and control measures themselves, the ESMP also manages the monitoring and verification thereof. The details of this monitoring plan are provided in Annex 2.

The mitigation measures of this ESMP are informed by the World Bank's EHS Guidelines, which contain the Bank's recommended approaches and performance levels, which are generally considered to be achievable in new facilities by existing technology at reasonable costs. LWSC and its contractors are to follow the ESMP as well as more detailed EHS guidance (e.g. on drinking water quality, occupational health and safety, etc.) during project preparation and implementation.

Table 6: Environmental and Social Management Plan

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phase: Excavation	**Disruption of Public Utilities and Service** Due to relocation and damage	The proposed interventions will necessitate some road cuts, excavation of trenches which in some cases produces the following: - Relocation of existing public utilities (sewer lines and electrical and telephone cables) resulting in the interruption of the services for a period of time.) - Accidental damages to existing services might occur during excavation;	Consult with the utility companies to demarcate the locations and alignments of electrical cables, water mains and communication cables. As it is not uncommon for plans of utility alignments to differ from the situation on the ground, contractors may use a scan (or similar method to locate utilities prior to excavation), or only hand dig in suspected areas. - Inform Utilities prior to excavations within the 100 m of their respective alignments - Prepare a detailed works' planning and construction phasing schedule, and coordinate service interruption with public utilities and public administrations. (Works phasing shall be established in a way to reduce the disruption time). - Advise citizens in advance concerning programmed interruptions in water, and other services.	Implementation: Contractor Supervision: LWSC and external supervision team Coordination: public utilities Information and consultation: citizens, hospitals, schools, institutions and local authorities, traffic police	The cost for relocation of underground services is given as a lump sum depending on the location of works (30,000 USD) - Public Consultation and communication (50,000 USD) - Coordination with Stakeholders (10,000 USD)

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phase: Excavation	**Traffic Concerns**	**-Traffic congestion and temporary road closures** **- Increased risk of accidents** - Also the materials supply and disposal will generate circulation of trucks. The construction activities will necessitate partial or total traffic interruption and vehicle and pedestrian traffic deviations resulting in traffic congestion and risk of accidents. Traffic flow may also be impacted by temporary road cuts. There is also the risk of damage to buried archaeology/cultural heritage. The mitigation for this is the implementation of the Chance Finds Procedure set out in Annex 4, which is to be implemented by the contractor and supervised by LWRC/external supervision team.	-Prepare and implement Traffic management Plan - Coordinate all traffic arrangements with Traffic Police and Municipality, and authorities - Delivery and discharge Trucks might be assigned restricted circulation hours (delivery hours must be set a part of planning) -Advise citizens in advance concerning road closures and rerouting of vehicle and pedestrian traffic (Public Communication Plan) -Works will be carried out on lots of limited length, in a way to minimize closure of main streets stretches (Project Planning & Scheduling) -Outside of working hours, especially at night, all barriers and signs will remain at sites, with lighting and / or lighted signs placed as required to warn both vehicular and pedestrian traffic -The Contractor shall restore the project environment to the state to which it was or better, prior to construction.	Implementation: Construction Contractor Supervision: LWSC and external supervision team Coordination: local authorities Information and consultation: citizens, hospitals, schools, institutions and local authorities	Included in contractor's costs

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Excavation of Trenches and Road Cuts for installation of water mains	**Access to Homes and Public Places**	**Limitation and disruption of access to homes, businesses and public places:** - The trench excavations will create temporary difficulties of access to the adjacent buildings also on account of the traffic deviation and road cuts leading to some disturbance of the neighboring residents and users; - Impact on Businesses	-Works will be effectuated on lots of limited length, in a way to minimize disturbance(Project Phasing Plan, planning); - Excavated areas and trench crossings shall be clearly marked and temporary fencing, bridges, access routes, signage, etc. shall be constructed to facilitate access and avoid accidental falls into these areas. -Temporary trench crossings will be supported, and pedestrian access to schools, shops, courts, doctor's surgeries, pharmacists, and other premises frequently by the public will be maintained with the use of walking boards. - Prior consultation and notification to the impacted and interested	Implementation: Contractor Supervision: LWSC and external supervision team Information and consultation: citizens, hospitals, schools, institutions and local authorities	Included in Contractor's costs (Include cost of signs, media costs, printing, etc.)
Construction phases	**Air Emissions and Air Quality** -Dust generated from earthworks. -Dust generated from materials handling. -Wind-generated dust from exposed areas of soil and mounds of stored soil. - Dust generated from vehicle movements emissions from construction traffic and on-site machinery	**Impaired Air quality** due to emissions form vehicles and dust generated - Respiratory impacts on site workers, nearby residents and pedestrian	Dust masks and eye protection against dust, splinters, debris etc. (according to approved procedures) - Dust suppression methods such as wetting materials or slowing work should be employed as needed to avoid visible dust -Gas masks / respirators when working in closed areas such as access manholes, etc. (according to approved procedures) -Document requirements and standards in the Contractors	Implementation: Contractor Supervision: LWSC and external supervision team	Included in Contractor's costs

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phases	**Noise generation** (from the use of excavation machines and construction equipment)	Noise generation from the use of excavation machines and construction equipment with its impact on workers and neighborhood	-Hearing protection for working around machinery where the noise exceeds 60 dB (according to approved procedures) -Limiting working hours according to the EPA requirements -Maintain vehicles and machinery according maintenance requirements -Consider noise suppression capability in the procurement of vehicle and equipment. -The location of noisy machinery (including generators) can also be considered such that they are positioned away from sensitive sites such as schools hospitals, residential areas etc.	Main responsability: Contractor Supervision : LWSC and external supervision team	Included in Contractor's costs

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phases	**Handling and Storage of Construction Materials and Wastes**	**Environmental Degradation** due to dispersion of materials of materials in the nearby canals, streets and adjacent properties -Poor or improper management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties; -The construction activities will necessitate temporary on site storage of construction materials and excavated materials, poor management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties	-The contractor shall handle construction materials and waste in accordance with approved procedures. -Sites for temporary piles should be agreed with LWSC and local authorities - The community should be made aware of constraints imposed on the contractor for waste collection, storage and disposal -Where possible the contract should coordinate with the Municipality, and administrations, to deposit construction waste in areas that are to be filled or reclaimed -The contractor shall contain excavated materials in the vicinity of the worksite within berms to prevent dispersion and sedimentation of drains, creeks, streets and adjacent properties -In case of accidental waste dispersion, EPA shall be informed and restoration measures shall be applied. - Waste materials are to be disposed at official, properly secured landfill sites.	Main responsibility: Contractor Supervision: LWSC and external supervision team Information and consultation : EPA and Ministry of Labour	In the preliminary cost estimate the cost for disposal of excavation material is included in pipe laying unit rate (per meter) or excavation costs (per cubic meter)

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Use of storage of fuel and hazardous materials	**Hazardous material**	**Environmental Degradation (soil, surface water)** -Risk of water and soil contamination in case of spills or leaks -Mobilization of pollutants or sediments from contaminated soils -Cross-contamination of previously non-contaminated soils. -Import of potentially contaminated materials. -Increased fire risk and the resulting mobilization of hazardous smoke or air r-borne materials -Storing of lubricants on site:	-Secondary containment for fuels to avoid spill contamination and inspection during operation -Some training in fuel and waste handling should be part of the orientation for workers -Maintain the MSDS Sheets for hazardous materials on site -Prepare a H&S Plan -Materials Handling Plan -Use of an official landfill for waste generated on the construction site -Emergency Response Plan	Main responsability: Contractor Supervision : LWSC and external supervision team	Included in Contractor's mobilization cost

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phases –open excavations	**Worker and Public Safety**	**Safety risks due to open excavations** The excavation of 2.1 to 3.0 m deep trenches, the open trenches and manholes can create health and safety risks for both workers and pedestrians in case of instable excavation sections, inadequate shoring, fencing and signage	-Safety conditions in the trenches during construction phase shall be ensured through the use of appropriate shoring systems and dewatering -Workers should not enter a trench more than waist deep without appropriate safety precautions such as shoring -Safe access and thoroughfare must be provided on site at all times. Dangerous areas shall be clearly identified with appropriate signs -Excavated areas and trench crossings shall be clearly marked and temporary fencing, bridges, access routes, signage, etc. shall be constructed to facilitate access and avoid accidental falls into these areas -Legible warning signs, barriers and signals shall be placed at strategic locations in sufficient number and spacing for all prominent access ways to the sites. Warning signs and other protective barriers shall be erected to prevent accidents to citizens due to open ditches, heavy machinery and construction vehicles etc.	Main responsibility: Contractor Supervision: LWSC and external supervision team	Shoring and dewatering costs are included in the unit price for the trench excavation / pipe laying

Project Activity, Aspects	Category	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phases	**Water Quality**	**Environmental Degradation (water sources) due** Pumping and discharging of storm water and ground water off-site: **Risks of Flooding**	-Storm water will be pumped from pipe trenches and foundations to the ditches, waterways and creeks existing beside the roads. These are the natural recipients currently used for rainwater drainage (Drainage control) -The Contractor shall temporarily stop dewatering and discharging water into the drainage canals/creeks when there is heavy rainfall or a threat of flooding; -The Contractor shall temporary stop all construction activities -Ensure that the workers, the excavations and all on site materials are well protected	Main responsibility: Contractor Supervision: LWSC and external supervision team	Included in Contractor's cost

ANNEX 1: ESMP MONITORING ARRANGEMENTS

Impact		Monitoring means	Monitoring parameters	Location	Frequency	Monitoring Party	Estimated Cost
Road Safety and Traffic Management	**-Traffic congestion and temporary road closures**	Traffic management plan	• Traffic management plan approved by Monrovia Traffic Police • Adherence of Operations with the trafic management plan	all sites	Weekly	LWSC/Contractor/ Owner's Engineers/LNP	Part of Contract and Operation cost
	Increased risk of accidents	Review of road safety record	• number of road accidents related to construction activities	all sites	Monthly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
Air pollution	Dust and vehicular emission	Visual inspection	• Deposited dust and surface soiling / vegetation • Dust plume(s) from site	along the transport corridors around the construction sites	Daily	LWSC/Contractor/ Owner's Engineers	Part of Contract
		Sampling	• NOx, SO2, and CO;	Around the construction sites and transportation corridors	monthly		
	Storage and transportation of construction materials, excavated soil and silt	Visual inspection	• Visible dust emission during transportation of materials	along transportation corridors	Daily	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
Noise	Noise from construction vehicles, equipment and works	Sampling	• Leq (dBA)	Around the construction sites Along the transport corridors	every 3 months upon complaint	LWSC/Contractor/ Owner's Engineers	4,000.00
Solid Waste	Pollution due to uncontrolled disposal of construction and other wastes	Generated waste check-list	• Quantity and composition • Disposal method and location	all project sites	Daily	LWSC/Contractor/ Owner's Engineers/MCC	Part of Contract and Operation cost
Hazardous waste	Pollution due to uncontrolled hazardous waste disposal	Generated hazardous waste check-list	• Quantity and composition • Disposal method and location	all project sites	Daily	LWSC/Contractor/ Owner's Engineers	

Impact		Monitoring means	Monitoring parameters	Location	Frequency	Monitoring Party	Estimated Cost
Soils	Excavation and back filling		• Monitor adherence to contract specifications	All site where excavation and back filling occur	Daily	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
	Erosion		• management of excavated soil/silt including timely removal of material from construction sites • stockpile height of topsoil does not exceed 2m maximum • slope protections and grading to the natural topography are done	All construction sites	Monthly	LWSC/MoH/EPA/ Owner's Engineers	
	Contamination	Visual inspection	• Presence of equipment, machinery leakages • Presence of oil and chemical spills	All sites and equipment	Daily	LWSC/Contractor/ Owner's Engineers	
Surface and Ground Water Quality	Surface runoff management at construction site(s)		• measures to channelize surface runoff • storage areas and compounds are located away from watercourses • fuel and materials are stored appropriately (are not prone to damage or spill)	Waterways and ground water wells within and surrounding sites	Daily	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
	Contamination from waste and sewage generated from construction activities		• measures taken to prevent contamination of ground and/or surface water from waste and sewage generated from the project activities	All sites	Daily	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
Flooding/water logging	Blockage of drainage due to construction activities		• Flooding or water logging at the project sites.	All sites	Weekly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
Health and safety of construction workforce	Health and safety requirements		• Level of implementation of appropriate occupational health safety measures are	All sites	Weekly	LWSC/Contractor/ Owner's Engineers/MOH-DEOH	Part of Contract and Operation cost

Impact		Monitoring means	Monitoring parameters	Location	Frequency	Monitoring Party	Estimated Cost
			• presence of Health and Safety Management Plan • level of adherence to all occupational health and safety requirements • Number and type of work accidents				
	Provision of health and safety protection kit		• Availability of adequate number of protective kit • Level of use of protective kit by workers	All sites	Monthly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
	Health check-up of workers		• Availability and adequacy of health service to workers	On all construction site and identified health facility for referral where necessary	Monthly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
	Sanitary conditions of construction camp sites		• provision of shelter, • water supply, excreta and solid waste management at campsites • provision of separate toilet services for women and men	All sites	Monthly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
Socio- Economic Activities	Access to public and private properties		• number of access affected • number of alternative access provided • number of access restored • number of business facilities displaced / relocated	All sites affected by construction works	Weekly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost
	Damage to public and private property		• presence of damage to public and private property (other than those included in the compensation plan) • Number of claims pertaining to the damage of property	All sites affected by construction works	Monthly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost

Impact		Monitoring means	Monitoring parameters	Location	Frequency	Monitoring Party	Estimated Cost
			• Number of claims resolved on time and to the satisfaction to the claiming person				
Environmental Monitoring	Ambient air quality, Water quality and Noise level		• Ambiant Air Quality Parameters: NOx, SPM, SO2, and CO; • Water Quality (pH, Conductivity, Hardness, Turbidity, Temperature) • Noise Levels- Hourly, Day and Night Time Values	WWTP and downstream area of construction sites	Once during construction (dry season)	Contractor/ Owner's Engineers/EPA/Independent Consuktant	25,000.00
Biodiversity/Vegetation	Destruction / pollution of natural habitats	Visual inspection	• Presence of construction waste and spills discharged into the wetlands or other natural areas	Mesurado wetlands	Daily	Contractor/ Owner's Engineers/EPA/Independent Consultant	15,000.00
Public Awareness	Notify the public about: the long term benefit of the project, the need for public cooperation, Health and safety risks		• Review and monitor effectiveness of the awareness campaigns conducted	Project affected communities	Fortnightly	LWSC/Contractor/ Owner's Engineers	Part of Contract and Operation cost

ANNEX 2: TERMS OF REFERENCE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) & ABBREVIATED RESETTLEMENT ACTION PLAN (ARAP)

OF THE

NETWORK REHABILITATION & EXTENSION OF MONROVIA WATER DISTRIBUTION SYSTEM

1. INTRODUCTION

The development objective of the Project is to increase access to piped water supply services in the project area in Monrovia and improve the operational efficiency and customer orientation of the Liberia Water and Sewer Corporation (LWSC). The Additional Financing (AF) in the amount of US$30 million aim to scale-up the rehabilitation and extension of interventions based on a feasibility study completed in 2015. The AF will increase the funding and scope for both the infrastructure-focused Component 1 and capacity-building Component 2. The components of the project are:

Additional Financing under Component 1: The AF will complement the parent project by rehabilitating the current transmission and distribution mains to improve the conveyance of water by the main transmission line from the treatment plant to central Monrovia's main reservoirs. The AF will also increase the storage capacity in Paynesville areas to increase access and enhance the quality and quantity of the water supply service to existing customers. These upgrades are expected to lead to at least 10,000 new household connections and 50 standpipes, thus serving an estimated additional 52,000 Monrovians, almost doubling the number of beneficiaries under the parent credit while improving the supply service to the existing 7,000 customers through better regulation of the water demand and supply. By rehabilitating the system and increasing storage capacity, the project will also be supporting critical investments that will help build longer-term resilience to climate change impacts that are expected in the country over the coming decades. Specifically, Component 1 will finance:

a. Rehabilitation and extension of Monrovia piped water distribution system, *inter alia* express line to Newport Booster Station and restructuring of current eastern main transmission line section (US$5.1 million): The persistent restriction of water supply in central Monrovia is largely due to the outdated and damaged state of the main transmission line along Tubman Boulevard, in particular around the Monrovia Central Business District (Capitol Hill to Mamba Point areas). The AF will relieve this critical bottleneck and support the increase of water transmission to central Monrovia by supporting a parallel express line up to 7.2 km of transmission pipes with associated valves and chambers. This will also result in a head loss and leakage reduction and thus water savings enough to cover about 5,000 new connections and 25 public standpipes. In case supply through the primary pipeline is disrupted the parallel line can take over supply temporarily creating redundancy.

b. Carrying out feasibility studies, detailed engineering designs, supervision and associated rehabilitation works for the 36" main waterline transporting water from White Plains water treatment plan to the city of Monrovia (US$19.7 million).

c. Construction of a ground reservoir and connecting it to the existing water distribution network (US$3.5 million): This will support the supply and construction of a 4,500 m^3 ground reservoir and connection to the existing distribution network in the area. The reservoir will serve as a break pressure tank and flow regulator to ensure the constant supply and operational pressure in the service area to increase the supply service quality to 24 hours a day to about 70,625 people and allow connection to about 5,000 new customers and the construction of 25 public standpipes. In fact, a recent study identified the need to complement the current city reservoirs with a service reservoir in Paynesville to increase water supply access and reliability in Paynesville

and Roberts Highway areas with rising water demand. As such, the AF prioritizes the construction of the Paynesville service reservoir with a capacity of 4,500 cubic meters (m^3) including required connections to the nearby existing distribution network.

Additional Financing under Component 2: The AF will fund complementary capacity building interventions at LWSC with US$1.7 million. The AF will strengthen LWSC's capacity to sustain and expand its services including through the following activities:

a. Operationalizing the DMAs and providing staff training in a range of relevant areas including in NRW monitoring, all to reduce NRW and improve cost recovery.
b. Reviewing, retaining and re-equipping LWSC connection teams including the NRW Unit staff through provision of training, equipment, including pipes and fittings and support to the PIU, all for improved customer service in LWSC.
c. Carrying out of public consultations, events and media placement to inform residents of the Project Area about the Project.
d. Procurement of key operational equipment required for the Project, such as vehicles, excavators, IT equipment, digging tools, leak detection and repair equipment, spare parts and spare customer meters.

Installation of the civil works will be governed by a construction contract containing comprehensive specifications for ensuring public safety and routine environmental protection. Most relevant are general requirements on use of land, safety precautions, and environmental control.

These terms of reference are for the preparation of an Environmental and Social Impacts Assessment (ESIA). The ESIA will take the form of an Environmental and Social Management Plan (ESMP) that identifies, and specifies mitigation measures for, potential adverse impacts that would not be adequately avoided, mitigated or compensated through implementation of the contract specifications mentioned above. Given the nature of the planned works, it is expected that few, if any, such additional mitigation measures will be required. In fact, LWSC has developed an Environmental and Social Management Plan (ESMP) including the Resettlement Plan Framework (RPF) for the ongoing AfDB project that need to be adapted to this project and thus has existing documentation and experience.

2. SCOPE OF WORK

The Consultant will:

a) Review the existing ESMP and RPF, get familiar with their objectives, content and procedures and provide comments for their improvements if any.

b) Review the engineering designs and tender documents for the planned investments, and familiarize with the scope, locations and details of the planned works.

c) Identify any potential negative environmental and social impacts, including residual impacts that may not be adequately avoided, mitigated or compensated through implementation of the construction contract requirements referred to in (b) above, and may be significant. These potential impacts include unanticipated permanent land acquisition. The potential environmental and social impacts should be classified for both the construction and operational phases of the project, where applicable. In addition to identifying adverse potential impacts on the natural environment (air, water, and land), the Consultant is expected to identify occupational health and safety concerns associated with the project which are likely to arise during the civil works and ancillary project activities during construction and operation phases of the project.

d) For any significant residual impacts identified in (c) above, develop detailed, practical mitigation measures to avoid these adverse impacts or manage them within acceptable limits according to standards established in the ESMF and RPF, and a plan for managing and monitoring the implementation of these measures.

3. The consultant's work will be viewed in the overall context of LWSC's obligations to the International Development Association (IDA) as reflected in the appropriate section of the Credit Agreement for the LUWP namely;

i. to undertake the acquisition of all necessary land and other property, compensation therefore and resettlement for such works in accordance with the principles and institutional procedures established in the Resettlement Policy;
ii. to ensure that Affected Persons from such works shall be compensated, resettled and rehabilitated in accordance with the Resettlement Policy;
iii. to prepare and furnish to the Association, a detailed resettlement action plan acceptable to the Association documenting the implementation arrangements for resettlement arising from such works, including compensation, relocation and rehabilitation of Affected Persons;
iv. to complete the implementation of such resettlement action plan in a manner satisfactory to the Association; and
v. to prepare and furnish to the Association, an Environmental Management Plan satisfactory to the Association, and thereafter implement such \Plan accordingly

4. SCOPE OF WORK FOR ARAP

The Consultant will:

a) Review the engineering designs and tender documents for the planned investments, and famiarize with the scope, locations and details of the planned works.

c) Describe and evaluate the current environmental and social situation of Monrovia

Identify sub-project sites that would be impacted as a result of the civil works;

Undertake a survey of the various sites for the planned civil works and identify potential areas and persons affected by project [PAP] activities;

Summary of census and socio-economic survey of displaced persons and assets;

Description and quantification of compensation and other resettlement assistance to be provided:

Development of an entitlement matrix

Description of institutional responsibility for implementation and procedures for grievance mechanism.

5. SERVICE, FACILITIES AND MATERIALS TO BE PROVIDED BY THE CLIENT

The Liberia Water and Sewer Corporation will provide the Consultant with:

a) Copies of the existing ESMF, RPF for AfDB project and construction contract documents; and

6. ` EXPECTED DELIVERABLES

Prepare an ESMP and ARAP report on the construction works:

i) The report will document the nature of the planned works, and the field survey work and results.

ii) If no additional mitigation measures will be required, the report will document that conclusion.

iii) If additional social mitigation measures are required according to the terms of the RPF, the report will include an ARAP as called for in the RPF.

iv) If additional environmental, including health and safety, mitigation measures are required, the report will document the specific situations where adverse impacts are anticipated, and detailed, practical measures for avoiding or mitigating those impacts to acceptable levels. Such measures must be specified in enough detail that construction contractors can estimate their cost (if any) for inclusion in their bid documents and the supervising engineer can ensure their implementation.

Monitor the construction works in collaboration with the supervising engineer to ensure that the policy recommendations are efficiently implemented.

7. ` DELIVERABLE FORMATS AND QUANTITIES

Inception Report

Within 2 weeks of commencement, an inception report shall be required which documents the Consultant's appreciation of the proposed assignment and how the consultant proposes to carry out the assignment (3 Copies and 1 electronic Copy)

Draft Final Report

Within 2 weeks to the closure of the assignment, the Consultant shall submit a draft final report documenting how the assignment was carried out, highlighting all environmental mitigations required, communities and areas affected and details of monitoring of civil works in the affected areas. (5 Copies and 1 electronic)

Final Report

After review of the draft report by LWSC, the Consultant shall prepare and submit a final report which incorporates LWSC's comments on the draft into the final report (7 Copies and 1 electronic).

ANNEX 3: 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 require the 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.

Detailed field assessments were performed along the routes where excavation will be carried out, and the findings of these assessment show that there is no reason to expect any significant impacts on cultural resources, especially physical cultural resources. However, the project will require excavation, in areas where no excavation has been carried out before as well as in areas with existing or prior human habitation.

Thus, there remains a possibility of discovering cultural resources, even if this is a remote possibility. Therefore, the Policy on Cultural Heritage has been triggered as a matter of precaution and the following Chance Find Procedure will be followed during the construction period:

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 LWSC's Resident Project Representative/Environmental Officer;
- LWSSC 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 4: PUBLIC CONSULTATION MINUTE OF THE ESIA

LIBERIA WATER & SEWER CORPORATION (LWSC)

Meeting Minutes
Liberia Urban Water Supply Project
Consultative Meeting on Environmental & Social Impacts Assessment
held at the Paynesville City Hall, Liberia
Tuesday, December 8, 2015

On December 8, 2015, The Liberia Water & Sewer Corporation (LWSC), under the leadership of Mr. N. Hun-Bu Tulay, Managing Director convened a consultative and participatory meeting, to discuss the **Environmental & Social Impacts Assessment** of the Liberia Urban Water Supply Project. The interactive meeting, which was held at the famous Paynesville City Hall, near Monrovia included Organizations' such as the UN Agencies, Local and International NGOs, Government Agencies, Donor Institutions, Community Leaders and individual citizens. The program commenced at 1:30 pm, with an initial 30 registered individuals and representatives in attendance.

Welcome Remark was delivered by **Mr. Philip Beah, Director** of Environmental Health and Safety, who also served as proxy for the Paynesville City Mayor. The opening statement was made by **Mr. John K. Kpakolo, Deputy Managing Director/Technical Services**, Liberia Water & Sewer Corporation. These were followed by self-Introduction of those present.

Mr. Francis Adzanu, Technical Assistant/MD, of LWSC made the Power Point Presentation on the Environmental & Social Impact Assessment. The Presentation was then followed by a full session of interactive discussions as stated below:

- **Mr. David G. Foday, Sr.** of the WASH-NETWORK, Comment/ Question,
  He welcomed the project and requested what is put in place to avoid water outage during construction. Further, he asked why do we experience water outage from LWSC these days, instead of the constant supply as doing pre-war? Why does the piped water sometimes appear dirty? What is the LWSC doing at the newly constructed Caldwell Bridge?

- **Mr**. **Leroy N. Pennue,** of the Thinkers village Community,Question,
  When will the LWSC provide pipe water to the Rock Hill, ELWA and Roberts field Highway communities? If no piped water, does the LWSC has any alternative mean of water supply, such as setting-up public water kiosk to be supplied by trucks, cleaning / disinfecting existing community wells for use by our people?

- **Mr. Yeagban, of the Ministry of Health,** Comment/Question
  He welcomed the project and noticed that the project will improve the standards of living of Monrovia population while highlighted the importance of inter-agency coordination and collaboration, particularly between the Ministry of Public Works and the Public Utilities. Most often when the LWSC is transferring pipes to the other side of the road they cut across the asphalt on the motor road. LWSC does not repair the damage asphalt and will leave the opened for a very long time thus affecting the motor road. Does the LWSC have any mechanism in place to repair these roads in general and for this project in particular?

- **Mr. C. Mike Doryen, of the Monrovia City Corporation,**

Commented on the Economic & Social benefits of the proposed Distribution Rehabilitation Project, he highly welcome the move by World Bank through the Government of Liberia, apart from providing water, the project will also provide jobs for the citizens, particularly those in the affected communities and improve their conditions of living of the population of Monrovia. He also welcomed the ESIA conclusions confirming that structures to be affected will be reconstructed by the project in equal or better quality. The report has highlighted that in case of any required physical resettlement caused by the project, the mechanisms for managing these disruptions have been outlined in a separate Resettlement Framework. On the issue of coordination, Mr. Doryan highlighted the MCC preparedness to work with the LWSC to provide more public awareness and encourage population for cooperation and to effect solid waste disposal in the project affected areas**.**

- **Mr. George N.Z Kamara,**Youth Coordinator Chocolate City,
  He welcomed the project and questioned the level of collaboration between the Liberia Water & Sewer Corporation and the Ministry of Public Works. With the expected increase of Water Supply, he stressed that the LWSC create frequent awareness campaign and encouragement for the affected project areas population for cooperation with the project and to protect the Networks/Pipe system in these areas. He further mentioned that LWSC is absent in the whole of the Gardnerville area. There is a need to establish LWSC sub office on the Somalia Drive to enhance it works and for coordination purpose he said. Only water wells are seen popularly around the entire Gardnerville, Somalia Drive, there is certainly a need to extend pipe borne water in the area he mentioned in his closing statement.

- **Madam Lovesta A. Brehun, of the Ministry of Public Works**
  She welcomed the project and emphasized the importance of coordination among the various stakeholders, particularly during the execution of Projects. She wondered what mechanism has the LWSC in place to avoid existing pipe burst and other associated problems. Is the targeted 300,000 beneficiaries related only to the proposed project or other future projects inclusively?

- **Mr. Philip Zeya, of GSA Road**,
  He welcomed the project and also complained that the kiosks system put in place by LWSC in his area is not effective in terms of management. Operators are pocketing the money from the sales. What can LWSC do to help sustain water in this community?

Answering to the comments and questions from the participants, Mr. John K. Kpakolo, LWSC Deputy Managing Director for Technical Services, responded as follows:

As we said earlier, the reason for the water outage being experienced today is generally due to inadequate supply from the source, the White Plains Treatment Plant. Prior to the civil crisis, the plant produced and transmitted 18 million gallons of treated water daily to Monrovia and its environs. Today, the plant can do only about 3 to 4 million gallons. Another reason is the old age of the system (over 50 years, without proper maintenance), which accounts for frequent breakdowns and subsequent water outages. What you saw happening at the newly installed Caldwell Bridge is simply one of the many breakdowns in the water supply and distribution network that we continue to attend to.

- The issue of Coordination among Stakeholders is very crucial and will be aggressively followed in the execution of this Project. We have seen how the absence of such efforts has posed serious difficulties for the maintenance and operation of our water distribution system. Most of the distribution controls in Monrovia, such as valves, are now buried beneath asphalt pavements, following the road rehabilitation works in the city. In such cases, pipe locator and leak detection equipment are most needed. The LWSC is currently engaged with the concerned authorities in order to protect the 16" water pipeline

along the Gardnerville, Somalia Drive Road, where a Japanese Funded road rehabilitation and improvement Project is ongoing.

- Indeed, public Awareness will be taken very seriously, and will continue throughout the project period. Today consultative meeting is just the beginning of such awareness. LWSC will do all it can to make her presence felt in every community by staying close to the customers in the supply zones. We have done so by maintaining sub-offices in some of these areas, and will continue same in other areas as required.

- On the issue of how soon the Distribution Rehabilitation Project will commence and the duration, let me inform you that the review of the design has been concluded. This will be followed by the preparation of Tenders and then the Tendering. The rehabilitation works will commence immediately upon the identification and selection of a suitable contracting firm. We cannot give precise dates for these actions, but we have put mechanisms in place to fast track the whole process. As I said earlier, rehabilitation works at the White Plains Treatment Plant is already in progress. The distribution must be ready in time to receive the quantity of water from the source.

- As explained during the power point presentation, this project will be implemented with no physical displacement of people or structures at all. Of course, there will be minor disturbances to structures or terraces, such as entrances, porches and few other structural extensions. However, these disturbances will be only temporary. For example, if a paved entrance to a shop or residence is broken to allow the pipeline to pass through, this will be immediately replaced as soon as the pipeline is buried. Preferably, such replacement will be even better than it originally was.

- The Liberia Urban Water Supply Project is funded by a World Bank/IDA loan, at a total cost of a little over ten Million United States Dollars (US$10,000,000). An amount of US$8.2 million for infrastructure investments and 1.8 million for institutional strengthening and capacity building.

- The LWSC statutory mandate is to provide pipe-borne water supply. However, there are other agencies involved with providing and sustaining water services through other means. People living in communities where our pipe water supply has not been extended yet, will have to make use of such other alternatives for now. As the Corporation continues to expand and improve its services, overtime, every community will benefit from pipe-borne water supply.

- For those communities having water kiosks that are not in use, damaged or perhaps disconnected because of financial arrears, LWSC is prepared to reestablish and continue business with you. You only need to convince us that you now have a sound and responsible community leadership or organization that is prepared to manage the facility. Come to our Sales and Marketing office, and we can work out a reasonable payment plan for you.

- LWSC is not in the business of road construction but will continue to coordinate with MoPW. But in areas where our water lines are exposed due to erosions or other bad road conditions, the Corporation will relay the pipe section outside of the bad road area or simply rebury it to prevent any damage that will lead to leaks in the network.

- **Mr. N. Hun-Bu Tulay, Managing Director of LWSC,** in further response to the participants informed the gathering that come March 2016, the project will be submitted to the Bank for financing. And by June or July 2016, physical works are expected to commence. Several donor institutions are currently involved with the general rehabilitation of the LWSC facilities. The AfDB is funding the

rehabilitation of the White Plains Water Treatment Plant and three Rural/Outstation cities to pre-war status. The World Bank is involved with the Monrovia distribution. And USAID, through Tetra-Tech is engaged in three other Outstation cities: Sanniquellie, Voinjaman and Robertsport.

{Closing Remarks from the Participants}

- **Mr. Leroy N. Pennue,** who spoke on behalf of the various communities, extended thanks and appreciation to the organizers of the meeting and to the World Bank for wanting to fund the proposed Project. He added that the meeting was good and a vital first step to create awareness for the Project was important. We are ready and will be available to fully cooperate and participate in the execution of the works.

- **Mr. Alioune Fall, Chief of Party of TETRA-TECH, Implementer of the USAID LMWP PROJECT** spoke for the International NGOs present; he commended the broad based participation of stakeholders at the meeting and extended thanks and appreciation to all for participating in the interactive discussions.

- **Mr. Edwin Rogers of UNICEF-LIBRIA** spoke for the UN Organizations. He pointed out that Monrovia's population before the war was estimated at 600,000, now it stands at over a million. He pledged his organization's commitment to support the water sector of Liberia, through kiosks construction and water wells, for communities where direct pipe connections are not extended. He stressed the importance of such a consultative meeting and thanked all for attending.

- **Mr. Sekou A. Kamara, of the WORLD BANK**, extended thanks to the LWSC for organizing the meeting and the manner in which it was conducted. He re-assured of the Bank's support, adding that the Managing Director in his statement was right on the starting of the Project; if all goes well, the Project will commence by June or July, 2016. He said that the Bank will appreciate more Public Consultations and community awareness.

- **The Closing Remarks was delivered by Mr. Tulay, the Managing Director** of the LWSC. He extended the Corporation's thanks and appreciation to all for showing up at this all important program. He told the gathering that the project has a research package of USD$625,000.00 and assure that residents of communities, particularly those in the project areas will have the opportunity to benefit from this assistance package. He mentioned that LWSC is spending so much money on fuel to run generators and other activities to ensure that pipe-borne water supply is sustained.

Meeting Minutes
Prepared and submitted by:
J. Amos Swaray, Adm. Resh. Officer/MD
Cell: 0886-311-477 / 077-622-9370
Email: jasoct8@yahoo.com
Kingjas909@gmail.com
jswaray@lwsclr.com

1

Cross section of participants' from the **WASH SECTOR** and the Communities gathering for the Conference on the **Liberia Urban Water and Supply Project** held at the Paynesville City Corporation , under the auspices of the **Liberia Water & Sewer Corporation ,LWSC**, held 12/8/'15 .

2

This Pictorial represents a collective focus mind carefully follow-up on a Power Point Presentation as the **Mr.N.Hun-Bu Tulay, Managing Director of the LWSC, Mr. Alieu Fall, Chief of Party, LMWP USAID ------ Project and Mr. John K.Kpakolo, Deputy Managing Director/Technical Services at the LWSC** all in a listen and watchful attendance during the **Liberia Urban Water Supply Project Conference**

**3 **

Focus person, **Mr. Francis K.Adzanu, Technical Assistant/MD at LWSC** who delivered an elaborate Power Point Presentation for the **Liberia Urban Water Supply Project** held at the Paynesville City Corporation December 8, 2015

4

A pictorial calling the attention of the participants to full readiness as LWSC prepares to commence this all importance Conference as the Secretariat passes on the Meeting attendance, **Mr.C.Mike Doryan, Project Officer of the Monrovia City Corporation, MCC**. Looks on; the Head of the LWSC Secretariat, Mr.J.Amos Swaray,Adm.Resh.Officer/MD handle the Microphone and Secretariat functions, 12/8/'15.

5

As a **Consultant of WASH Secretariat** deliberates a clear picture of **Madam Lovesta A.Brehun**, **of the Ministry of Public Works** and other organizations' Stalwarts look on, it is a working session at the Paynesville City Corporation Hall, discussion on the **Liberia Urban Water Supply P**roject Officially organized and conducted by the **Liberia Water & Sewer Corporation**, Government of Liberia. 12/8/'15

6

Conference Preparatory Stage show the arrival of delegates championing the quest for the provisions of Safe drinking water through dialogue **Mr.J.Amos Swaray, Head of the Conference Secretariat takes pictures ' for LWSC Report.**

7

Answering to the comments and questions from the participants, Mr. John K. Kpakolo, LWSC Deputy Managing Director for Technical Services

**8*

Mr. N. Hun-Bu Tulay, Managing Director of LWSC, responds to the participants

The Closing Remarks was delivered by Mr. Tulay

9

Republic of Liberia
LIBERIA WATER & SEWER CORPORATION
(LWSC)
P. O Box 1079
Monrovia, Liberia
Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1.	EDWIN ROGERS	UNICEF	erogers@unicef.org	0770267488
2	C. Mike Doryen	MCC	mikedoryen@yahoo.com	0777111434
3.	philip T. Beah	PCC	philipTbeah47@gmail.com	0555123126 0886837151 0770372634
4	Sekou A. Kamara	World Bank	skamara1@worldbank.org	0775574717 0886659505
5	Alexander Zinnah	Sea Wick Community	@Zinnah3@gmail.com	0775166711

Republic of Liberia
LIBERIA WATER & SEWER CORPORATION
(LWSC)
P. O Box 1079
Monrovia, Liberia
Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1	Lovetta A. Brehun	MPW	lovestaab7@gmail.	0776744882/ 0886681952
2	Henri Disselkoen	CSH	HDisselkoen@developinnovations.com	0770908697
3.	Amanda Thomas	C.C.C.		0777580740
4.	Joche m. Larmie.	C.C.C.		0777-53-878
5	Natasha. C. Payne	LWSC		0880884597

Republic of Liberia
LIBERIA WATER & SEWER CORPORATION
(LWSC)
P. O Box 1079
Monrovia, Liberia
Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1	LEROY M. PERRIGUE	Thinkers Village Community	Permutlee@gmail.com	0880753027
2	Ophelia Roberts	LWSC	samclaris@yahoo.com	0880443650
3.	Reuben M. SAUSER	LWSC	lweher99@gmail.com	0886491893
4.	Michael Francis Tarr	Thinkers Village	tarmichaelfrancis@yahoo.com	0886-577-627 0770-664473
5)	Henrique B. Tayray	President's Delivery Unit	henrique.tayray@gmail.com	0886529102

Republic of Liberia

LIBERIA WATER & SEWER CORPORATION (LWSC)

P. O Box 1079
Monrovia, Liberia

Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1	John K. Kpakolo	LWSC	jkpakolo@yahoo.com	0886512956
2	N. Hun-Bu Tulay	LWSC	[illegible]@yahoo	08865173[illegible]
3	Francis K. Adzanu	LWSC	fadzanu@yaho	0775548470
4	Alioune Fall	LMWP	afall@fcharech-lmwp.com	0777332712
5	Jeremiah Jee	LWSC	jee2009.js@gmail.com	0886220545

Republic of Liberia

LIBERIA WATER & SEWER CORPORATION

(LWSC)

P. O Box 1079
Monrovia, Liberia

Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1.	David G. Foday, Sr.	WASH NETWORK	gayfod@yahoo.com	0886336692 0777209313
2	Martina M. Gbarlar	WASH Network	gbarlarmartina@yahoo.com	0880482605
3.	J. Amos Gbakelay	Thinkersville Community	jartugbakelay1@gmail.com	0886417334 0770187259
4.	Raphael Collins	MOA	zephaniel@gmail.com	0886525874
5.	Antoinette Vincent	LWSC	anointed1121@gmail.com	0886403152

Republic of Liberia
LIBERIA WATER & SEWER CORPORATION
(LWSC)
P. O Box 1079
Monrovia, Liberia
Office: (231) 02-7313500
(231) 02-77313501

Reference:

LWSC

In collaboration with the World Bank

Consultative Meeting

Tuesday December 8, 2015

Attendance

No.	Name	Min/Org	Email address	Contact No.
1	Reeves, Richard, K	Chocolate City	richard_rus@yahoo	0777289159
2	Kamara, George, N.Z	Chocolate City	georgek@yahoo	0776099836
3	Sanwon, Mary, S.	Chocolate City		0776097509
4	DAVID P. MANNAH	LWSC	damanlyne@yahoo.com	0886545616
5	J Amos Suanay	LWSC	jasoct8@yahoo	0816-311-477

ANNEX 5: PUBLIC CONSULTATION 2

Republic of Liberia

LIBERIA WATER & SEWER CORPORATION

Project Implementation Unit

Liberia Urban Water Supply Project (LUWSP)

Barclay Avenue, Fiamah

Monrovia

Public Consultation Meeting
Held at Crown Hotel & Suites
August 2, 2018
At 9: am

Agenda of the program

1. Registration of Participants
2. Opening Prayer – Fr. David K. Y. Varla, Woodcamp Community
3. Introduction of key project Staff -MC - Aaron G. Gbelefolo
4. Introduction of other invited guest –MC - Aaron G. Gbelefolo
5. Opening Remark – Aaron G. Gbelefolo
6. Project overview and Presentation –Dickson Chiwolo
7. Comment & Questions from Participants
8. Closing Remark – Trokon Davis, Chairman Virginia
10. Benediction – Fr. David K. Y. Varla, Woodcamp Community
9. Refreshment

Overview of the Meeting

The main objective of this Program is to extend main water lines and rehabilitate the water network system.
The Project is trying to make communities beneficiary of having save drinking water and Sanitation, this meeting is a consultation meeting with community members because they are the affected people. One of the issues to look at on this project is the issue of safety.

Safety is a very important aspect in the community, each community need to be aware that there will be influx of people and machineries on site.

Presentation of Project Proponent by the Facilitator
The Facilitator highlighted the need for Environmental concerns as related to the project; the interrelationship between the EPA and the Project.
He was very explicit on the fact that water is very essential part of our daily living and therefore there is virtually nothing that we do without water and most importantly, portable water.

Concern from Participant

1. **Question:** During excavation and installation of pipes; is there going to be demolition of buildings?

   Answer : The project is not demolishing buildings but would rather use the government right of way to extend pipes through building after that it will be fixed by the Project to status quo or better.

2. **Question**: Will the project build a new Reservoir?

   Answer: No! The Project will not build a new reservoir but rather renovate the existing one at Ducor.

3. **Question**: How would the water be supplied to households?

   Answer: The project is only extending new waterlines to communities without water. It does not connect water to households.

4. **Question:** What is the duration of the project?

   Answer: Two (2) years

5. **Question**: When the pipe gets closer to the community how can one get water connection?

   Answer You can make your way to LWSC customer service office and obtain an application form

6. **Question:** When LWSC worker enters the community will people there be employed and what is the hiring process?

   Answer LWSC will not be doing any employment, the Contractor hired by PIU may be responsible to hire some casual workers.

7. **Question:** How will the project maintain the pipes?

   Answer: The Project has send people from LWSC to be trained overseas as part of its capacity building program. These trained persons shall be responsible for maintenance of these rehabilitated facilities.

8. **Question:** What is the Mechanism put in place when a Community does not benefit from the Project?

   Answer: The Community just need to wait

9. **Question:** What type of pipes will be used?

   Answer: The Project will be using UPVC instead of Galvanized pipes

10. **Question:** Will Riverview Community be included in getting Water lines?

    Answer: Riverview will be included at a later date, they will be around Iron Gate.

Brief Summary of How to Obtain LWSC Water

Answer: In order to obtain LWSC water, you go to the central office or Fiamah for an Application form from Customer Services Department. fill it there or take home to fill and bring back at a convenient time then customer services will give it to Blockmapping, the Mapper goes to your resident and do a sketch of the area then it present it to the Blockmapping Director for approval. The approved letter will be returned to Customer Service where a representative shall contact you of your document status. **Note** LWSC only provide Stand Pipe.

The Registration fee is Seventy United States dollars

Purchasing of Material

LWSC do not purchase material to complete your work. LWSC only provide Water Meter, you purchase your materials from a vendor of your choice and bring the materials receipt to the Customer Services section. Than Customer Service will call Field Services to go and complete your work.

Note: There is no meter presently in town, you can sign a Commitment Form that you be on flat rate the fees for flat rate is thirty three United States dollars.

1. **Question:** While if I register on the 15 will it be the same 33 dollars
   Answer: Yes

2. **Question:** Is the registration fee different from the connection fee?
   Answer: No all is Seventy United States dollars

3. **Question:** What if you a family customer and starts to sell the water
   Answer: If found wanting in such an act LWSC will disconnect you

Major Concern from the Participants

1. The Participants want the sub-contractor to come from the community
2. The Maintenance of the Pipe
3. Reduce the fees for Flat rate from 33 to 15, or 12 United States Dollars
4. Registration fees should be reduced from 70 to 40 USD
5. Each Community should have a Stand Pipe
6. LWSC Should provide materials like LEC
7. LWSC should establish substations all over

Overall comments from the Participants

- We appreciate the Project for such initiative, we hope that they will make water affordable.

- The Project has come to give us life let us all work together in the wood camp community to see how best the project can help us , most especially people who have houses along the road let us work with the team to improve our communities.

The Closing Remark was delivered by Mr. Trokon Davis, the Chairman of Virginia Community. He extended the various community's thanks and appreciation for showing up at this all important program. He implored the cooperation of all communities to do all they could in order to ensure that pipe-borne water supply is sustained.

Prepared and submitted by:
Musu Kamara
Press Union of Liberia

Cell: 0886566810

Email:Kammus@yahoo.com

Appendix 1: Pictorials

PAPs seated and listening attentively to facilitating team

Woodcamp Chairman Fr. Varla, and affected members of his community, Paynesville.

PAPs

Mr. Kamara (in blackT-Shirt) & Mrs. Kamara; Conflict/Grievance Committee heads of Zuba Town Community, Paynesville.

PAPs

PAP Representative of SKD Boulevard listening attentively to the facilitator addresing his concern.

Fr. Varla stressing the need to cooperate with the project in order that the communities have portable water.

Facilitators Henry & Dickson Chiwolo in action addresing questions from the participants.

PAP Morris Urey (left) Aaron Gbelefolo (middle) & Fr Varla (right) Presenting concerns from group work.

Team leader Morris Urey from New Georgia Estate Community, presenting the outcome of his group work

PAPs excited with fun & comments from the podium.

Appendix 2: Attendance

Republic of Liberia
LIBERIA WATER & Sewer Corporation
Project Implementation Unit
Liberia Urban Water Supply Project (LUWSP)
Barclay Avenue, Fiamah, Monrovia

Participants' Attendance Sheet

Name of Training: Public Consultations (Citizen engagement)

Date: August 2, 2018

No.	Name	Community	Signature	Cell No.	Email address	Date
1	Sylvester T. Yangba	Gardnersville	Yangbe	0777207506		2/08/18
2	Lovetee Seh	11	[illegible]	0775596446		11
3	William Kpalasah	Rehab	W Kpalasah	0777249665		11
4	Garmai Kpalasah	11	G. K.	0886263910		11
5	Mine Yampukalie	11	M. Y	0777568657		11
6	Augustin Flomo	Soldier Cline	A. F	0777473939		11
7	Mama Kollie	11	M. K	~~0886187851~~	0881878511	11
8	Thereseq Kollie	11	T. K	~~[illegible]~~	0778522553	11
9	paul Koi	11	P. K.	0776759355		11
10	Alfred Hoffman	Gadner 11	A. H	0778238345		11
11	Martha T. Clarke	SKD BLVD	M T C	0777006522		11
12	Dorothy Saygarn	SK D Blvd.	D. S.	0777800899		11
13	Morris D. Urey	New Georgia estate	[illegible]	0886135093	ureynyanpue@gmail.com	11
14	Cecelia M. Harmon	AB Torbert Road	Cecelia	0777368974		11
15	Decontee Dukuly	AB Torbert Road	Decontee	0886957192		11

ureynyanpue

16	Sinna Tenay	Klakon Com.	S. T	07753363		
17	Annis Inn	S.K.D Boulevard	S	0775333475		
18	Bobby Z Dolo	World Camp	[illegible]	0770204014		
19	Kenneh Varney	Rehab GSA	Kenneh	—	—	08/2/2018
20	Daphie Mington	SKD Boulevard	Daphie	0777029973	—	08/2/18
21	Fernand Camanal	BEC	—	0888576219	—	08/2/18
22	Aaron Diggs	Rock hill Com	[illegible]	0886791868		08/2/018
23	Petrilone Smith	P Smith	[illegible]	—	—	08/2/18
24	David S Menjor	Daily Observer	[illegible]	0775192892		
25	John Zoyzay	Kings Fm	[illegible]	0777746572		"
26	Wilfred [illegible]	Focus News paper	[illegible]	0888416526		"
27	Lee Tams	Lee Tams	[illegible]	0881661260		"
28	Emmanuel Toyah	Insight news	[illegible]	0777792091	—	08/02/18
29	Timothy R Yoko	Radio Fire	[illegible]	0886082224		
30	Marie Clennete	SKD Blvd		0886214672	—	"
31	Myke Martin	Cooper Comm.		0886749191		"
32	[illegible] Bayan	[illegible]	LB			"
33	[illegible]	SKD Blvd	[illegible]	—	—	08/02/18
34	Mateo R. Davis	Batterfactory	M. Davis	0778581546		
35	[illegible] Parker	[illegible]	[illegible]	0888418216		"
36	Larry Miller	Rehab Com.		0884727276		
37	[illegible]	"		0880584421		
38	Christian Howard	"				

Name	Community	Signature	Cell #		Date
39 Marie L Davis	Battery factory	M. Davis	0778581596		
40 PATRICKS S bansba	Kesselly	P. [illegible]			Aug 2, 2018
41 Francis Gamys	SKD. Boulevard	[illegible]	0778679851		Aug 2, 18
42 Eric Weah	Battery factory	E[illegible]	07		-11-
43 John Flomo	ZoZo Community	J. T	0777881910		
44 Matta Moore	SKD	M Moore	0775162413		8.2.18
45 Samuel Gbeh	Rehab	[illegible]	0776991		"
46 Debora Doe	Rehab	[illegible]	0886833221		"
47 Mitta Vennes	Rehab	[illegible]	0886-218241		"
48 Dophie monah	S.K.D Boulevard	Dophie	0777029[illegible]		"
49 [illegible] David K. y. Vany	Wood Camp	[illegible]	0880536[illegible]		Aug 2.18
50 Faty M. B. Kollie	Lower Virginia	"	"	"	8/2/18
51 Rebecca Gbayoh	Lower Virginia	"	"	"	"
52 Gatflor Pehbee	ZoZa Community	"	"	"	"
53 Prince Howard	SKD	P Howard	"	0886521121	"
54 Abel Moore	SKD	"	"	0886511[illegible]	"
55 Bondu K.J. Doe	Lower Virginia	"	"		
56 Trokon Davies	Lower Virginia	[illegible]	0778685216		Aug
57 Beatrice P. Toe	" "	[illegible]	0770649[illegible]		
58 Aaron Y. Vallah	Wood Camp	[illegible]	0776260[illegible]		
59 Yossah Livela	ZoZa Community	"	"	"	Aug 3 2018
60 Kebbeh Kollie	GSA	KK	0775162116	"	"
61 Mattawa Fahnbullah	Red light	Fahn	0887152[illegible]	"	"

	Name	Community	Signature	Cell#		Date
62	Sam F. Kamara	Zubah Town	[illegible]			
63	Lovetta Cactay	Johnsonville	Lovetta		0770614384	1-2-018
64	Joseph	Zordyu	Zubah	Tille	0777674789	1-2-18
65	Pakher Koyou	Suport	Puee		077215621	11
66	Arkun Davis	Dangm	[illegible]		0882235213	11
67	Nanth Anderson	1	[illegible]		0776431216	11
68	Rose I Kamara	Zubah Town	[illegible]	0777222080		8/2/18
69	Maurke Toh	Johnsonville	[illegible]	0776888[illegible]		11 11
70	Benmar Chebo	Johnsonville	B	0778209065		11
71	John S. Gbeager	Zubah Town	[illegible]	0777580396		5/2/18
72	Yougour John	11	[illegible]	0770212[illegible]		11
73	Stephen Perry	11	[illegible]	0886542759		11
74	Rudolph Banks	11	Banks	0880881217		11
75	Gardner Compress	11	KV			11
76	Makey Varmo	11	K.V.	0775527899		8/2018
77	Maris D. Coy	Rehab	[illegible]	0770025386		8/02/18
78	Nyompu Kollie		N.K	0775686587		8/02/18
79	Jacob Kiawu		[illegible]	0777253453		8/2/18
80	Philip Brian	Rehab	Phil. B	0881213114		11
81	Sam Kamara	Johnsonville	S. Kamara	0776411133		11
82	Sackie Kromah	[illegible] Com	R.K	0776529412		11
83	Debbie Moore	11	D.M	—		11
84	Patience Gege	11	P. G	—		11

	Name	Community	Email	Cell#		Date
85	Mustapha Javombo	Zubah Town	Mustapha@g...	0778475339		08/02/18
86	Isaac N. Flomo	Zubah Town	[illegible]	0777873499		08/02/18
87	Hilary K. Sulunkpale	Woodcamp	?	088680192		" "
88	Beatrice Tarvase	Wood camp		0776331867		"
89	Ruth A. Vorgar	Airfield Sinkor	R.V	0770062853	0880883665	"
90	Lopu Mavo	"	[illegible]	0777 2342		"
91	Kelly Perry	"	K. Perry	0776669422		"
92	Comfort Exchange	St. O				"
93	Sal Porio	"	S. Porio	0886151610		"
94	Tometta Dekula	"	T. Dekula	0770384411		"
95	Ama K. Verdier	Old matadi	A. Verd	0770182024	0886952686	"
96	Edith Andrew	S.K.D Boulevard		0886022191		"
97	Hawah S. Kanneh	Red-light		0886592580		Aug 2/18
98	Haeeme Kromah	Drom Gate		0776237667		Aug 2/18
99	Hawa I. Massaley	Old matadi	H. Massaley	0770334939		Aug 2,2018
100	H. Salamatu Kabah	New Georgia gulf	[illegible]	0886128821		08/02/18
101	Grandy Kpadabah	Rehab	G. K.	08862669		8/02/18
102	Wilhelmina Flomo	Rehab	Flomo	0886429924		"
103	Catherine Paye	"	Paye	0880499942		"
104	Vicky Jones	"	Jones	0775358591		"
105	[illegible]	Zu Zu Vonta		0778822811		"
106	Jametta Laval	"	J. Laval	0886222412		
107	Rose Bright	"	Rosbry	0886662241		"

	Name	Community	Email	Cell #		Date
108	William Kpatah	Rehab		0772449665		2/8/2018
109	Prince Zoh	SKD Boulevard		0775850784		2/8/18
110	Rachel Neor	SKD		0881055530		2/8/18
111	Henry Momolu	SKD Blvd		0880402602		2/8/018
112	J. Ballayan C. Gizzie	Wood Camp		0777732371		"
113	Catherin Thomas	Zayzay com		0886002211		"
114	Johnson Massaley	Zayzay		088121441		"
115	JR & Son	Zayzay		088652441		"
116	JB Filling Station	Zayzay Com		088822441		"
117	Matthew Kannel	VOA Com		0886521181		"
118	Isetta Gpaye	SKD Boulevard		0775298029		2/8/018
119	DS-1	SKD Boulevard		0886105869		2/8/18
120	Adeyemi A. Babafunde	SKD Boulevard		0779532384		2/8/18
121	Tarnue Kortee	Wood campany		0772678647		2/8/18
122	Augustus Boayu	P.G.		0888-62-3900		2/8/2018
123	Cecelia M. Harmon	A.B. Tolbert		0778689971		2/8/2018
124	Helena Roberts	wood camp		0775729588		2/8/2018
125	Alfred Saidek	Wood Camp		0777242154		8/2/2018
126	Eric Dennis	VOA Com		07788221A		"
127	Matthew Kollie	VOA		0776-528117		"
128	Susy Holmes	VOA		0776-511817		"
129	Philip Beyan	SKD		0886518775		"
130	Jacob Tarplarlee	Zubah Town		0886818792		"

	Name	Community	Email	Cell#		Date
131	Cecelia Jacob	[illegible]	[illegible]	0880526264		
132	Deborah T. Jabbah	SKD	[illegible]	0772042581		
133	Thomas M. Rawlon	Paynesville Red Light	[illegible]	0770580		
134	[illegible]	SKD	[illegible]	0776357859		
135	Hawa Yuwate	SKD	Yuwate	0778864485		
136	Senray Carter	SKD	[illegible]	088511822		
137	Cynthia Tarh	VOA	.	0888571161		
138	Venus Daniels	S.K.D.	Venus.	0770107761		
139	Haja Kromah	"	Haja	0770291044		Aug 2
140	Miatta Seh	[illegible] Alberta.	MS	0886704641		"
141	Hawa Malia	Du-Port Road	[illegible]	0881-33-1316		"
142	Samuel Kaueah	Du Port Road	SK	0770006266		"
143	David Vorla	Du-port Road	/	077511622151		"
144	Sam Konen	Duport Rd		0886 4118722		"
145	Santra Kollie	Rehab		0886416792		2/2/18
146	Massa Moore	Duport Road	m. moore	088679389		08/02/18
147	Abraham R. Brosius	Wood camp	[illegible]	0777136777		"
148	Crystal H. Massaquoi	A.B. Tolbert Road	[illegible]	0775609590		"
149	Richmond porte Jr.	Du-port Road	[illegible]	0775190281		"
150	Samuel Johnson	Du ports Road	[illegible]	0888261435		"
151	Martin Sampon	Du port Road	Sm	0776 511662		"
152	Ruth Perry	Red light	RP	0776-221435		
153	Eddie Plomo	Red light	[illegible]	0886662211		

	Name	Community	Signature	Email	Cell #	Date
154	Amos [illegible] Carter	Du-Port-Road	A Carter		0779103682	Aug 2, 2018
155	Winston [illegible]	wood camp	[illegible]		0775456[illegible]	02 2018
156	Bendu Kollie	Du-Port Road	B.K		0770459554	Aug. 2, 2018
157	[illegible]	Zayzay	KP		088777887	"
158	Musu	Sumo	M		077839128	"
159	Kaben Akoi	Zayzay	K. A		0775574466	
160	[illegible]	Zayzay	[illegible]		088778571	
161	Hawa Kollie	Zayzay com	Kollie		088652118	
162	Fomate Dada	SKD blvd	Dada		088652118	
163	Comfort [illegible]	SKD blvd			0886-511221	
164	Rudolph Kolako	S.K.D Boulevard	[illegible]		0775132658	8/2/2018
165	Joshua S. TENGBEH	Copperfarm	J.S. TENGBEH		0775-104-768	" "
166	Sumo Kabah	SKD Blvd	[illegible]	—	0775189238	"
167	Sarah Nyumah	S.K.D. blvd	[illegible]	—	0886244486	
168	Marcus Pedee	SKD blvd	[illegible]	—	0880878776	"
169	Emmanuel [illegible]	Duport road	[illegible]	-	0778292577	"
170	Prince B Boegolia	Du-port road	[illegible]	--	0770687514	" "
171	Joshua D. Roberts	Du-Port road	[illegible]		0770181712	"
172	Joseph S. Jallah	Duport road	[illegible]		0775795453	"
173	Andrew Phone	GA	Andrew		0776-311374	"
174	Musa Pillug [illegible]	Zayzay com	Musa		077512287	"
175	John Barkmi	[illegible] Com	Barkmi		0776778115	"
176	Napoleon Gonego	Wood Camp.	Gonego		0770242333	"

177	THE SAME Plac	SKD		0706558614		06/06/18
178	prince Tur	"		0777282235		"
179	Zetta Kpaka	"	Kpaka	0888112233		"
180	Hys Hfrac en jordan	"		0777421125		"
181	Cal Javen Business Center	"		0886544284		"
182	Rachel Neor	"	R/N	0886521164		"
183	Phatty Slayer	"	P. Slayer	0777641454		"
184	Afar Nemo	"	A.F	0882112642		"
185	Venus Domah	"	V. Domah	0777293949		"
186	Mamadee Kamara	"	Nyuma	0888424511		"
187	Nyuma	"		0778118248		"
188	Kamal Varney	"	K.V	0886223344		"
189	[illegible] Sten	"	S. S	0886541415		"
190	Jonso Mahdo	"	J. Mahdo	0778422888		"
191	Zeline	VOA	Zeban	088652211		"
192	MathaT. Clarke	Zubah Town	Matha Clarke	077576690		"
193	Jimco Saygon	Dyport Rd	Saygon	0776522414		"
194	Favor Exchange	Duport Rd	Favor	0886621184		"
195	Peter Varney	SKD	Varney	0886762111		"
196	Hanna Gaye	SKD	Gaye	0886662211		"
197	Teresa Flomo	SKD	Flomo	0886526211		
198	Petrina Kemoth	SKD	Kemoth	0888228447		
199	Lourine Right	VOA	Right	0886668211		

200	Lawoi Kokolo	SKP	Lawoi	0886762057		8/8/14

Prepared By: Stephen Monday

Reviewed by:

Approved by:

LIBERIA URBAN WATER SUPPLY PROJECT * MON-LIB. * FIANAH *

ANNEX 6: SIMPLIFIED SOCIAL MANAGEMENT PLAN

Republic of Liberia
LIBERIA WATER & SEWER CORPORATION

Project Implementation Unit

Liberia Urban Water Supply Project (LUWSP)

Barclay Avenue, Fiamah
Monrovia

The Liberia Urban Water Project

The project development objective (PDO) is to increase access to piped water supply services in the project area in Monrovia and improve the operational efficiency and customer orientation of LWSC.

The main beneficiaries of this project will be the residents of neighbourhoods in Monrovia selected by the project who will be benefiting in the form of new connections, more hours of water supply, and fewer interruptions in water service delivery, closer proximity of the water supply or a combination of these.

To achieve its objectives, the project has received a credit of USD10, 000,000 and an Additional Financing of $ 30,000,000 USD to fund two project components:

(1) Infrastructure improvements in Monrovia;

(2) Capacity Building for LWSC, including the development of improved project management and Monitoring & Evaluation.

Inventory of Land & Assets Acquired from Private Owners

Name of Owners/land user	**Project Component: Area(s) / plots(s) acquired (ha)**	**Owner's/user's % of total land (ha) and %taken**	**Land use: pasture, agriculture, residence, etc. Inventory of any structures or other fixed or productive assets (wells, fences, trees, field crops, etc.) affected. Indicate if land is rented or informally used by another party.**	**Compensation paid. Other actions taken for renters or users. Dates delivered.**	**Impact on income of owner. Impact on lease or informal land users.**

			Indicate if non-owner users have assets, trees, crops, etc. affected Indicate if land-based activity is primary source of income for owner or land user.		
Government Right of Way	Nill	Nill	N/A	N/A	There will be no land acquisitions except for minor disturbances of about 2-3days at the frontage of business premised and residential homes, which there will be reinstatement of the disturbed surfaces to their original form. This will be carefully been explained to the potential affected persons over a series of consultations.

Public Awareness, Consultations, and Communication

Concerns raised at the public consultation	Concerns raised outside public consultation	How these concerns were resolved?
None was identified during initial public consultation. A second public consultation is yet to be done as we are in the process of hiring the services of an EPA independent environmental evaluator to provide coverage for approval of ESIA for environmental permits and public consultations by the first week of May, 2018	None. As Project Implementation is still ongoing, there may be little or no concerns to be raised in the process.	If any concern is raised, the grievance redress mechanism shall be followed by the grievance redress committee to resolve it. In all community, the GRC is established and functioning with support of LWSC. The safeguards team has regular communication with the chairman and members of GRC.

Status of land Acquisition

Completed	Pending Court Decision	Ongoing	
N/A	N/A	N/A	

Special Assistance provided beyond cash compensation payment of acquired land

Alternative land	Relocation assistance	Livelihood restoration measures	Summary of impact which it addressed
N/A	N/A	N/A	There will be no land acquisitions except for minor disturbances of about 2-3 days at the frontage of business premised and residential homes, which there will be reinstatement of the disturbed surfaces to their original form or even better. This would be carefully explained to the potential affected persons over a series of consultations.

Identification of vulnerable groups

For example, elderly, disabled, widows, etc.	Sources of information for vulnerable groups	Methods and channels used to contact them	Assistance provided to them
Women, Children and the Elderly Population.	Through the community chairpersons and consultations with the community	By Phone and personal visits	Ensure that a proper traffic management plan is in place during construction phase. The Project shall ensure that the member of vulnerable groups, excludes children, take advantage of any employment opportunity that may exist. The entire project would ease the hardship of acquiring portable water and sanitation to most of these vulnerable group and the entire population. The project shall give preference to the vulnerable

			people to access potable water and sanitation.

Grievance Redress process

Mechanisms available for project impacted persons to register their grievances and complaints.	PAPs awareness of the grievance protocol	Are the Grievance mechanisms and procedures affordable and accessible	Any third party settlement mechanism, involvement of community leaders, NGOs
A grievance redress register is already opened in at the PIU Office and shall be used at any time grievance(s) occurred during project implementation . In a bid to avoid duplications of entries by having several registers, the register will be taken to the field during visits and any grievance discovered will be accordingly recorded.	The project team with the help of communicati on channels, printed materials educate the PAPs and Stakeholders about the GRM, procedure. It would also be highlighted during public consultations and personal interactions	The Grievance Mechanisms and Procedures are free of cost, GRC is constituted in the local community which is accessible to all stakeholders including PAPs.	The community leader and community members are part of the GRC to provide guidance, solution and counselling to the aggrieved persons. In case, they need extra supports, the project team shall always be available to facilitate.

Use of the PLAN

A Committee of knowledgeable persons, experienced in Grievance Redress Matter, shall be consulted at the PIU/LWSC to handle complaints that have not been addressed or resolved at the field during intervention. All effort shall be made to resolve issues at the PIU/LWSC Level. Where settlement fails and could not reach an amicable solution, the GRC serves as an advisor to the aggrieved persons on legal procedures.

The Chairperson of the GRM Committee shall communicate the Committee's decision to the aggrieved PAPs in writing and keep record of all decisions related to each case. The Committee will have registration log of complaints and the log shall be kept in a place accessible to the public.

The PIU/LWSC Level GRM shall comprise of the following members:

- Director of Liberia Land Authority – Chair Person
- PIU Project Director – Co-Chair Person

- LWSC Legal Council
- Property Valuator, LWSC, - Member
- Internal Audit – Member
- PAPs' Representative (female)
- PAPs' Representative (male)

The PIU/LWSC Level GRM Committee shall do everything possible to resolve issues within fifteen (15) days from the day the case has been transferred to it from the County Level GRM Committee. The Chairperson of the committee shall communicate the Committee's decision to the aggrieved PAPs in writing. The decision reached at the PIU/LWSC GRM Committee level may be the final decision. If PAP is not satisfied with the GRM process set for the project, the PAP will have the right to seek remedy through the court. The committee shall keep record of all decisions related to each case.

Project Activity & Aspects	Category	Potential Environmental & Social Impacts	Proposed Mitigations, Controls, & Measur
Construction phase: Excavation	Disruption of Public Utilities and Service Due to and damage	The proposed interventions will necessitate some road cuts, excavation of trenches which in some cases produces the following: - Disruption of access to existing public utilities resulting in the interruption of the services for a period of time.) - Accidental damages to existing services might occur during excavation;	Consult with the utility companies to demarcate the locations and alignments of electrical cables, water mains and communication cables. As it is not uncommon for plans of utility alignments to differ from the situation on the ground, contractors may u a scan (or similar method to isolate utilities prior to excavation), or only hand dig in suspected areas. - Inform Utilities prior to excavations within the 10 m of their respective alignments - Prepare a detailed work plan and construction phasing schedule, and coordinate service interrupti with public utilities and public administrations. (Works phasing shall be established in a way to reduce the disruption time). - Advise citizens in advance concerning programm interruptions in water, and other services.
Construction phase: Excavation	**-Traffic Concerns**	**-Traffic congestion and temporary road closures** **- Increased risk of accidents** - Also the materials supply and disposal will generate circulation of trucks. The construction activities will necessitate partial or total traffic interruption and vehicle and pedestrian traffic deviations resulting in traffic congestion and risk of accidents. traffic flow may also be impacted by temporary road cuts. There is also the risk of damage to buried archaeology/cultural heritage. The mitigation for this is to be implemented by the contractor and supervised by LWRC/external supervision team.	-Prepare and implement Traffic management Plan - Coordinate all traffic arrangements with Traffic Police and Municipality, and authorities - Delivery and discharge Trucks might be assigned restricted circulation hours (delivery hours must be set a part of planning) -Advise citizens in advance concerning road closur and rerouting of vehicle and pedestrian traffic (Pub Communication Plan) -Works will be carried out on lots of limited length in a way to minimize closure of main streets stretcl (Project Planning & Scheduling) -Outside of working hours, especially at night, all barriers and signs will remain at sites, with lighting and / or lighted signs placed as required to warn bo vehicular and pedestrian traffic -The Contractor shall restore the project environme to the state to which it was or better, prior to construction
Excavation of Trenches and Road Cuts for installation of water mains	**Access to Homes and Public Places**	**Limitation and disruption of access to homes, businesses and public places:** - The trench excavations will create	-Works will be effectuated on lots of limited length in a way to minimize disturbance (Project Phasing Plan, planning); - Excavated areas and trench crossings shall be

		temporary difficulties of access to the adjacent buildings also on account of the traffic deviation and road cuts leading to some disturbance of the neighboring residents and users; - Impact on Businesses	clearly marked and temporary fencing, bridges, access routes, signage, etc. shall be constructed to facilitate access and avoid accidental falls into thes areas. -Temporary trench crossings will be supported, and pedestrian access to schools, shops, courts, doctor's surgeries, pharmacists, and other premises frequen by the public will be maintained with the use of walking boards. - Prior consultation and notification to the impacte and interested persons.
Construction phase	**Air Emissions and Air Quality** -Dust generated from earthworks. -Dust generated from material handling. -Wind-generated dust from exposed areas of soil and mounds of stored soil. - Dust generated from vehicle movements emissions from construction traffic and on-site machinery	**Impaired Air quality** due to emissions form vehicles and dust generated - Respiratory impacts on site workers, nearby residents and pedestrian	Dust masks and eye protection against dust, splinte debris etc. (according to approved procedures) - Dust suppression methods such as wetting materi or slowing work should be employed as needed to avoid visible dust -Masks must be used according to approved procedures
Construction phase	**Noise generation**(from the use of excavation machines and construction equipment)	Noise generation from the use of excavation machines and construction equipment with its impact on workers and neighborhood	-Hearing protection for working around machinery where the noise exceeds 60 dB (according to approved procedures) -Limiting working hours according to the EPA requirements -Maintain vehicles and machinery according maintenance requirements -Consider noise suppression capability in the procurement of vehicle and equipment. -The location of noisy machinery (including generators) can also be considered such that they a positioned away from sensitive sites such as schoo hospitals, residential areas etc.
Construction phase	**Handling and Storage of Construction Materials and Wastes**	**Environmental Degradation** due to dispersion of materials of materials in the nearby canals, streets and adjacent properties -Poor or improper management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties;	-The contractor shall handle construction materials and waste in accordance with approved procedures -Sites for temporary piles should be agreed with LWSC and local authorities - The community should be made aware of constraints imposed on the contractor for waste collection, storage and disposal -Where possible the contract should coordinate wit the Municipality, and administrations, to deposit construction waste in areas that are to be filled or

		-The construction activities will necessitate temporary on site storage of construction materials and excavated materials, poor management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties	reclaimed -The contractor shall contain excavated materials i the vicinity of the worksite within berms to preven dispersion and sedimentation of drains, creeks, stre and adjacent properties -In case of accidental waste dispersion, EPA shall informed and restoration measures shall be applied - Waste materials are to be disposed at official, properly secured landfill sites.
Use of storage of fuel and hazardous materials	**Hazardous material**	**Environmental Degradation (soil, surface water)** -Risk of water and soil contamination in case of spills or leaks -Mobilization of pollutants or sediments from contaminated soils -Cross-contamination of previously non-contaminated soils. -Import of potentially contaminated materials. -Increased fire risk and the resulting mobilization of hazardous smoke or air r-borne materials -Storing of lubricants on site:	-Secondary containment for fuels to avoid spill contamination and inspection during operation -Some training in fuel and waste handling should b part of the orientation for workers -Maintain the MSDS Sheets for hazardous materia on site -Prepare a H&S Plan -Materials Handling Plan -Use of an official landfill for waste generated on t construction site -Emergency Response Plan
Construction phase: **Open excavations**	**Worker and Public Safety**	**Safety risks due to open excavations** The excavation of 2.1 to 3.0 m deep trenches, the open trenches and manholes can create health and safety risks for both workers and pedestrians in case of instable excavation sections, inadequate shoring, fencing and signage	-Safety conditions in the trenches during constructi phase shall be ensured through the use of appropria shoring systems and dewatering -Workers should not enter a trench more than wais deep without appropriate safety precautions such a shoring -Safe access and thoroughfare must be provided or site at all times. Dangerous areas shall be clearly identified with appropriate signs -Excavated areas and trench crossings shall be clea marked and temporary fencing, bridges, access routes, signage, etc. shall be constructed to facilitat access and avoid accidental falls into these areas -Legible warning signs, barriers and signals shall b placed at strategic locations in sufficient number a spacing for all prominent access ways to the sites. Warning signs and other protective barriers shall b erected to prevent accidents to citizens due to open ditches, heavy machinery and construction vehicles etc.
Construction phase:	**Water Quality**	**Environmental Degradation (water sources) due** Pumping and discharging of storm water and ground water off-site: **Risks of Flooding**	-Storm water will be pumped from pipe trenches a foundations to the ditches, waterways and creeks existing beside the roads. These are the natural recipients currently used for rainwater drainage (Drainage control) -The Contractor shall temporarily stop dewatering and discharging water into the drainage canals/cree when there is heavy rainfall or a threat of flooding; -The Contractor shall temporary stop all constructi activities

			-Ensure that the workers, the excavations and all o site materials are well protected

ANNEX 7: ENVIRONMENTAL PERMIT

PERMIT NUMBER: EPA/EP/PB/001/0918
ISSUED DATE: 14/09/18
EXPIRATION DATE: 13/09/20

5.1 COMPLY WITH THE FOLLOWING GENERAL MEASURES:

5.1.1 TRENCHING:

a. All excavation must be done at minimum six feet from any adjacent or parallel facility.
b. Trenches must be done with designed specification
c. Cares must be taking ensure trenching does not leads to other underground installations(electric and telecommunication cables)
d. Trenching is prohibited such that, if it leads to alteration of a water way or surface water source,
e. Ensure adequate performance standards during excavation or trenching phase, with appropriate environmental due diligence relative to the submitted Project Brief and detailed containing Environmental Management Plans

5.1.2 SOLID WASTE GENERATION DURING EXCAVATION:

Ensure to adhere to the following during the construction phase:

a. All solid waste generated, must be safely disposed in an environmental friendly manner in accordance with the submitted Project Brief and Environmental Protection Management Law.
b. Waste should be disposed at an approved waste disposal site, by the Agency.
c. Prohibits the spread of debris and excavated earth materials from.
d. All generate solid waste should be disposed by an EPA License Waste Service Provider or in accordance with relevant Municipality sanitary measures.
e. Dumping of debris and or litter into a wetland, or surface water body is strongly prohibited by the Agency.

5.1.3 NOISE AND AIR EMISSION:

a. Device and implement strict guidelines for movements of machineries to limit noise.
b. Monitor noise levels and propose remedial action if necessary.
c. Prohibit the use of trucks whistles between 10pm and 6am except in emergencies
d. Ensure Noise impacts are reduced to a minimum in acceptable standards as per the Noise Regulation guideline of the Agency.
e. Ensure to adopt measures for dust suppression to minimize the emission of particulates.
f. Design and implement strict guidelines for dry season for handling, to limit dust generation.
g. Monitor dust levels and propose remedial action if necessary.

5.2 ENVIRONMENTAL CONSIDERATION:

5.2.1 FAUNA AND FLORA PROTECTION:

a. Design system to minimize land clearance, including designing distribution systems along existing right of ways.
b. Avoiding any critical habitats that are encountered during installation, and minimizing the amount of the access road that passes through the protected forest.
c. Ensure directional clearing towards forest areas to allow wildlife migration.
d. Re-vegetate areas cleared during construction that are not required for Project operations.
e. Avoidance of any steep slope areas and large trees. To ensure only the design clearance area is cleared, the areas to be cleared should be clearly marked to ensure the plan is followed.

5.3 WATER POLLUTION:

a. Construction sites must be established and operated in a manner such that there is no unauthorized discharge of fluids or materials to the marine environment or to any lake or other water body.
b. Undertake post-operation cleaning of all machines and heavy equipment to prevent groundwater, surface water or marine pollution.
c. Wastewater resulting from concrete batching must be contained, as the cement content of the wastewater can cause contamination of soil, groundwater and storm water.
d. All concrete equipment including small mixers, shovels, wheelbarrows and trowels must be cleaned and washed within the concrete mixing facility, so that drainage is contained.
e. It is not permitted to discharge waste water from concrete washing to unsealed ground, drains or waterways.

5.4 WASTE MANAGEMENT:

5.4.1 WASTE:

a. Appropriate waste control and removal system must be instituted, if possible contracting with License Waste Service Providers
b. Construction sites should be kept in good order and good housekeeping shall be maintained
c. Construction waste which includes general waste arising from construction activities, to be removed on regular basis.
d. There will be no disposal of waste or construction debris by burning, or by burying (with the exception of organic waste which may be buried).
e. Food waste which will be kept in sealed containers and cleared on a daily basis.

f. Hazardous waste which includes waste oil, paints, thinners, chemicals, solvents, etc, to be handled and disposed off as per the EPA guidelines.

5.4.2 MATERIALS AND EQUIPMENT:

a. Construction materials (e.g., cement, sand, steel bar, gravel) shall be stored off the ground on a rigid, impermeable surface.
b. Machinery and equipment are to be maintained in good working condition and regularly inspected for leaks that may runoff.
c. Any maintenance of equipment or machinery onsite will only occur over impermeable areas with adequate containment measures to capture spills

5.5 LAND DISTURBANCE:

The following measures should be taken to minimize erosion:

a. Keep the areas of land cleared to a minimum, and the period of time areas remain cleared to a minimum
b. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.
c. Rehabilitate cleared areas promptly

5.6 SOCIAL CONSIDERATION IN CASE OF EXCAVATION AND PIPELINE INSTALLATION:

The following measures should be taken in case of any deviation from the previous right of way (ROW) during alignment of water distribution line:

a. Environmental and social assessment is made of the realigned segment
b. Affected people are identified and compensated prior to the clearance of the realigned segment of the RoW
c. Relevant Line Ministries including EPA are notified
d. Mechanism for Grievance Redress must be put in place to address complains of Project Affect Persons(PAPs)
e. All PAPs and Stakeholders must be acknowledged about the grievance mechanism and procedure during public consultation
f. The Grievance mechanism must be affordable and accessible.

5.7 OCCUPATIONAL HEALTH AND SAFETY MEASURES:

a. Ensure to institute Occupational Health and Safety Measures

b. All staff should be trained in health and safety measures prior to commencing work.

c. Public access to the construction site should be restricted.

d. Put in place measures to register and deal with complaints and grievances from the community concerning the Project.

e. Ensure any damage to private property is adequately measured and compensated based on prior and informed consent.

6.0 FINES AND PENALTIES:

All non-compliance with this permit shall be considered a fine or an environmental crime punishable by jail term as established by the EPA. All fines shall be served with written notification-terms and conditions stipulated there in, based on the level of non-compliance, the EPA reserves the right to hire a third party certified environmental evaluator to assess and remediate said contamination with the permittee undertaking the full cost of the clean-up; however-the permittee also reserves the right to hire a third-party certified environmental evaluator to perform such task with the approval of the EPA.
Should the EPA provide this service, i.e., assessment and remediation of potential environmental degradation, the permittee shall then be liable to pay the EPA a total of three times the cost market value for services performed.

7.0 NOTIFICATION OF CHANGES:

Notify EPA of any major changes in the planned development contrary to the information provided in the Project Brief or Quarterly Monitoring Environmental Report and Closure Plan.

8.0 TRANSFERABILITY:

This permit is not transferable, *except authorized and approved by the EPAL.*

9.0 VALIDITY PERIOD:

This permit is valid for two (2) years commencing 14th September 2018 to 13th September 2020 during which a biannually environmental audit report is mandatory; renewable under new terms and conditions.

10.0 REGULATORY MONITORING:

The EPAL reserves itself the right to conduct documentary and field monitoring of the operations at any time. The company must facilitate such monitoring by making all documents available, granting access to sites and facilitating access to all working areas.

Providing false information or failure to comply with or observe all the permit conditions above will lead to the suspension, cancellation or revocation of this permit or to prosecution.

..... 14/9/18
Nathaniel T. Blama Sr., *H.LD., MPA* **DATE**
EXECUTIVE DIRECTOR/CEO

ANNEX 8: GRIEVANCE REDRESS COMMITTEE

1. Setting up A Grievance Redress Committee

According to subsection 7.2.2 – 4, Grievances may arise and should be settled locally to the extent possible. Amicable settlement of disputes should be the first line of settlement. This normally should involve the community leaders. Local authorities in affected areas should be able to hear grievances arising from aggrieved persons before such cases can be taken to the next level.

Where a local settlement fails, the GRC serves as a second line of settlement. Both the first and second levels are intended to reach amicable solution at community level. It is important to have grievance committee members drawn from the affected communities, and efforts should be made to ensure they are representative of all segments of the community. This is basically a mediation group between the interested parties, usually the aggrieved persons and the project implementer.

The PIU will serve as a third level of grievance settlement. Aggrieved parties can file grievance to the PIU when settlement fails at the level of the GRC. When settlement cannot be reached at this level, the aggrieved party (ies) have the ability to appeal to a court of law. All aggrieved persons have the right to appeal to the law.

Efforts shall however be made to ensure that grievances are resolved amicably at community level. It is not expected that grievances shall be taken to this level. However, it is important that aggrieved parties are informed about their rights including the right to access a court in case they are not satisfied with the grievance resolution mechanism at the community level and project level

To these, the Project Implementing Unit (PIU) decides to set up a grievance redress committee in all project affected communities to handle any grievances that may occur to comprise of:

1. Community Chairperson, Commissioner, or Chieftaincy
2. Project Affected Persons (Male)
3. Project Affected Persons (Female)
4. Safeguard Expert (PIU Observer)
5. LWSC Legal Council (Legal Advisor)

2. Communities Grievance Redress Committee

A. Wood camp Community

1. Fr. David K.Y. Varla – Chairman - +231880536708
2. Mrs. Esther D Tow +231886537859
3. Mrs. Helena Roberts +231775729586
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

B. Neezoe Community – Paynesville

1. Francis P. Paye – Chairman +231886225106/+2317776629368
2. Hannah Konwea – PAP Female +231886569536
3. Francis Tumbey – PAP Male +231776220503
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

C. S.K.D/72nd / Congo Town Community – Paynesville

1. George M. Tugbe – Chairman +231886445571/+231777192055
2. Jatu Karmatoe - PAP Female +231886317975
3. Tina Chea - Chairperson Female +231880423787
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

D. Cow Field Community – Duport Road

1. Mr. William B. Nyanfor Sr. +231886964464/+231776322679
2. Emmanuel Z. Jones – Youth Leader/PAP Male +231886728607/+231777037646
3. Janet Freeman - +231770442751
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

E. Zuba Town Community Block 1 – Paynesville

1. Wilfred P. Chairman - +231770623952
2. Mr. Sam Kamara – GRM Chairperson/PAP Male +231886589460/+231776110970
3. Rose Kamara – PAP Female - +231886589460
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

F. Barnesville Township Community

1. David G. Robert – Commissioner +231886561841/+231776572878
2. Francis Yasiah – Chairman +231886672093/+23177067093
3. Korpo Blaiye – Chairlady +23188693263
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

G. Kesseli Boulevard

1. William G. Akoi – Chairman +231886813937/+231776633214
2. Victoria Z. Myerkarwon +231776981555
3. Christiana Kpalyen +231770149171
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

H. Chicken Soup Factory Community

1. Henry K. Wokolo +231880707967
2. Finda Baryoh – Market Suprintendent +231778363242
3. Esther W. C. Qaefatomor – Market Secretary +231778795084/+231886115274
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

I. Virginia Community

1. Hon. Tye S. Weah Jr. – Commissioner +231776632661
2. Gustina Dackie - +231778689817
3. Trokon Davis - Chairman Dollo's T +231880652076/+231778685716
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

J. Thinkers Village Community –

1. Rev. Zazay – Block Leader +231886533809
2. Hawa D. Sherif - Blk C. Leader +231775802786
3. Simeon Kollie – Com. Member +231880296810
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

J. Johnsonville Community

1. C. Oliver Varney – Commissioner +231886719286/+231770466829
2. Jackson C. Nyepan – Chairman +231886471629/+231777442215
3. Mathalyn Lonkon +231``
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5. Stephen Monday – PIU Observer +231886410752

K. **Gbengbar Town Community**

1. Eastman J. Yeasay – Youth Chairman +231777534036
2. S. Titus Toe (PAP) +231775520739
3. Tebeh Harris (PAP Female) +231770456554
4. Cllr. Amara M. Sherif +231888551086/+231776832046
5 Stephen Monday – PIU Observer +231886410752

Other communities that have been identified for the creation of grievance redress committees are:

1. **Omega Tower Community (Bernard Farm) – Paynesville**
2. **VOA Community**
3. **Coca-Cola Faith Community**
4. **Whein Town Community – Paynesville**
5. **Cooper Farm Community – Paynesville**
6. **Zazay Community**

3. Justification of the Selection Criteria and Conclusion

In our initial assessment some few months ago (May 22, 2018), the project proposed selecting The Liberia Land Commission Managing Director as the head/chairperson of the committee and a property evaluator from either the Liberia Water and Sewer Corporation or the Liberia Revenue Authority's Commissioner. This attempt was feasibly impossible as it became very difficult to have someone fit in this portfolio from LWSC and political instability/bureaucracy leading to delays in constituting this committee.

Since the Liberia Water and Sewer Corporation (LWSC) is the custodian of this project through the Project Implementation Unit (PIU), it has decided to identify the following key persons as members of a five (5) man committee:

1. Community Leadership
2. Project Affected Person (Male)
3. Project Affected Person (Female)
4. Safeguard Expert (PIU Observer)
5. LWSC Legal Council (Legal Advisor)

The personalities occupying the above portfolio shall meet when necessary to necessitate redress of any grievance arising in communities of the project affected areas. Where grievance resolutions could not be mended through amicable means, aggrieved parties will be advised to seek legal procedures.

Prepared By: Stephen Monday – Safeguard Expert **Sign: _____ Date: _____**

Cleared By: N. Pawon Boayue – Project Director **Sign: _____ Date: _____**

Approved By: Hon.Duannah A.Kamara **–** MD LWSC **Sign: _____ Date: _____**

Particulars of Citizen /Client						Particulars of the Grievance			
Case Number	Date of Receipt	Name	Address	Telephone/ Email	Whether Acknowledgement given at the time of receipt	Subject of the grievance	Office	Brief description	Date of Acknowledgement
					(Yes/NO)				