



**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN  
FOR THE CONSTRUCTION OF THE  
PROPOSED NEW REDEMPTION HOSPITAL  
CALDWELL, MONTSERRADO COUNTY, LIBERIA**

**March 2017**

## **EXECUTIVE SUMMARY**

### **Introduction**

In 2014, Liberia experienced a severe Ebola Virus Disease (EVD) outbreak, and in response to a call for urgent support from the Government of Liberia, the World Bank proposed a package of short and medium term emergency financing- through the Ebola Emergency Response Project (EERP)-that complimented and supported a multi-partner emergency response effort led by the World Health Organization (WHO). Specifically, the EERP aims to support the Strategic Operational Outbreak Response Plan and provide funding to address key challenges in controlling the EVD. The Project objective is to contribute in short term “to the control of the EVD outbreak and the availability of selected essential health services, and mitigate the socio-economic impact of EVD in the three heavily affected countries.

One of such attempts considered by the Government of Liberia to improve the resilience of the health system to future shocks is to empowered the Ministry of Health (MOH) identified the construction of the new Redemption Hospital- and specifically, Phase 1- as one of the priority interventions to be funded under the EERP grant. There is also a Phase 2 that will add further facilities to those considered in Phase 1.

The construction of the new hospital is in line with the MOH Investment Plan for a resilient health system. The new hospital, estimated to cost about US\$26M, is among the three hospitals (Redemption, J.J. Dossen, Phebe) prioritized in the Investment Plan for upgrading to function at the regional level, responsible to provide tertiary and specialized medical services. The estimated cost of Phase 1- which will be funded through the EERP- is US\$14 million. Additional support is also being provided by USAID and the Global Fund to construct a National Pharmaceutical Warehouse, and by the German Government for the construction of an Infectious Disease Unit at the new facilities.

### **Nature of the Project**

The new Redemption Hospital, when constructed, is expected to be a state-of-the-art teaching and tertiary care hospital serving as a regional referral center for pediatric care and women’s and maternal health, addressing the severe shortage in access to dignified healthcare in the region. The construction of the hospital is expected to be undertaken in two (2) phases.

Phase 1 will include the construction of a facility that will hold ninety (90) beds for pediatric care including a pediatric ICU, malnutrition unit, and general pediatric inpatient wards, plus a pediatric emergency department with seventeen (17) observation bays.

Phase 2 of the construction activities will include erection of structures to provide for adult services, emergency and trauma care, general surgery, and additional outpatient capacity, adding another 166 beds.

### **Objective of the ESMP**

The main objective of this ESMP is to provide measures to minimize adverse effects on the biophysical and socio-economic environment; during construction and operation of the new Redemption Hospital to be located in Caldwell, Montserrado County, Liberia.

The ESMP predicts and describes impacts of the project, and outlines the enhancement and mitigation measures to be implemented by the construction contractor, the Ministry of Health and other key stakeholders. These impacts were determined through consultations and field investigations carried out on and around the site earmarked for construction of the new hospital facilities; as well as key stakeholder consultations and input from the surrounding communities.

### **Assessment Methodology for Preparation of the ESMP**

The following assessment methods were employed in the preparation of this ESMP:

- i. field assessment of the construction site for the new Redemption Hospital in Caldwell, to appreciate the magnitude of the project activities and determine their environmental and social footprint. The surveys facilitated the collection of biophysical and social data;
- ii. literature review on the policies, regulations and environmental standards for the ESMP preparation. The purpose of reviewing such documents was to develop a comprehensive and guided policy, legal and institutional framework so that the ESMP is responsive and aligned with government's and financiers' policies;
- iii. interviews with key stakeholders;
- iv. interviews with key informants from the surrounding communities, affected directly by the project; and
- v. assessment of the socio-economic and the health-care systems data and prevailing national regulations, policies and standards.
- vi. review of the ARAP prepared for the new Redemption Hospital.
- vii. review of the ESMF prepared by the Ministry of Health.

### **Policy , Legal & Institutional Framework**

The preparation of this ESMP takes into consideration applicable policies and legislation in the context of Liberian law. The ESMP draws on the Environment Protection and Management Law of Liberia and other Environmental Guidelines, the Liberian Constitution and recent National Health Policies and Guidelines.

Preparation of this ESMP also draws on the requirements of the World Bank environmental and social safeguards.

The World Bank's environmental and social safeguards seek to prevent and mitigate potential environmental and social impacts associated with the Bank's lending operations that may adversely affect people and their environment. The construction of the new Redemption Hospital triggers the World Bank OP 4.01 and 4.12.

The major stakeholders that will be involved in the construction of the new Redemption Hospital are as follows:-

1. The Ministry of Health (MOH)
2. The Environmental Protection Agency (EPA); and
- 2 The Ministry of Public Works
- 3 MASS Design Group

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### **Description of the Project and Components**

The construction of the hospital is expected to be undertaken in two (2) phases. Phase 1 will include the construction of a facility that will hold ninety (90) beds for pediatric care including a pediatric ICU, malnutrition unit, and general pediatric inpatient wards, plus a pediatric emergency department with seventeen (17) observation bays. Accompanying pediatric outpatient services will be provided for follow-up appointments and limited pediatric outpatient care.

Phase 1 will also include the construction of a facility to provide sixty six (66) women's and maternal care beds with a six (6) bay OB triage area - 2 maternal surgical theaters, and 4 delivery bays. Accompanying outpatient services will also be provided. Phase 1 will have 28 beds/cribs for neonatal care including a NICU and kangaroo ward.

Facilities to be constructed for these three (3) departments will work hand-in-hand to provide comprehensive family care for mothers, newborns, and children.

Phase 2 of the construction activities will include erection of structures to provide for adult services, emergency and trauma care, general surgery, and additional outpatient capacity, adding another 166 beds.

It is expected that over 150 workers will be on site during the construction phases. There will likely be a ratio of 1:15 professional to tradesmen workers ratio. And majority of the workers will be sourced locally.

### **Description of the Project Area**

The 35-acre parcel of land intended to host the new Redemption Hospital is located in Upper Caldwell, Montserrado County, near the St. Paul River. The township of Caldwell is a fast-growing region on the outskirts of Monrovia that is easily accessible from New Kru Town and the catchment area of the existing Redemption Hospital via a new bridge and a recently-paved motor road into Caldwell.

Of the 35 acre parcel of land, the MOH has identified a 5-acre area in the southwest corner of the property which will house the new NDS Warehouse, a project that is funded by USAID and is currently under construction. The remaining land is available for the development of the new hospital campus which will include space for future expansion of the planned hospital.

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The project site is located approximately one mile off of Caldwell Road on an unnamed road that is known locally as Sand Beach Road. The Sand Beach Road ends at the St. Paul River, less than half a mile past the hospital site.

An undeveloped dirt track runs along the south side of the site, descending shortly after the site boundary. This road will be widened to accommodate access to the new NDS Warehouse on the southwest corner of the site.

The project site is located in the geological zone of Liberia known as the Pan African Age Province. Here, there are mainly sediment and rock types less than 500 million years.

The project area has three (3) distinct topographic zones. And these zones have affected the decision for the proposed usage of the 35-acre of land allocated for the construction of the new Redemption Hospital and associates infrastructure.

There is firstly a zone with an average elevation of 6 m.a.s.l. This zone comprises approximately 9 acres or 26% of the total project area. The second zone has an average elevation of 10 m.a.s.l. and comprises approximately 3-acre or 9% of the total project site. Finally, there is a third zone of approximately 23-acre or 51% of the entire project area. This zone has an average elevation of 15 m.a.s.l. and is the prime area for development at the project site.

At approximately a quarter mile from the closest point of the project area towards the northwest is the St. Paul River, one of the largest water bodies in Liberia.

Further, approximately 26% of the project area is comprised of wetland in which there is standing water during the wet periods of the year.

The major soil type at the project is sediments of river origin, associated with the St. Paul River. This soil type is light in color, composed mostly of silica.

The original vegetation of the project area is believed to be small trees and shrubs. However, significant portions of the project site have recently been cleared of mature vegetation for future development, leaving mostly grasses.

The air quality for the Caldwell area is generally good as there are no major industries and the number of cars plying roads in the area is small as compared to the City of Monrovia or other major cities nearby.

The prevailing wind in Monrovia originates from the southwest. Due to the proximity of the project area to Monrovia, it is expected that the area is expected to experience the same climatic conditions as Monrovia. The hospital campus will maximize cross ventilation by orienting long facades of buildings to face the predominant winds to the southwest for improved infection control and comfort.

## **Impacts of the Project and Evaluation**

Impacts for the project were identified through the following means:

- i. Literature review;
- ii. Site Investigation; and
- iii. Stakeholders Consultations.

Evaluation of each potential impact will be done by applying descriptors to each of the above criteria, based on qualitative or, to the extent possible, quantitative evaluation, as follows. The magnitude of impact is allocated one of the following categories:

- i. Very Low - A very small proportion of the VR is affected.
- ii. Low - A small proportion of the VR is affected.
- iii. Moderate - A moderate proportion of the VR is affected.
- iv. High - A large proportion of the VR is affected.
- v. Very High - A very large proportion or all of the VR is affected

## **Predicted Impacts of the Project**

Potential environmental and social impacts attributable to the new Redemption Hospital will emanate from the project activities during the construction and operation of the facility.

The following are identified as potential positive impacts of the project:

- i. Successful resettlement of PAPs.
- ii. Training of Staff
- iii. Employment opportunities
- iv. Skill acquisition during construction
- v. Income generation for materials/equipment supplier
- vi. Enhanced and improved medical services

On the other hand, potential negative impacts that are likely to occur include:

- i. Deterioration of air quality, increased dust and particulates and gaseous emission.
- ii. Contamination of soil.
- iii. Pollution to water resources – ground and surface water.
- iv. Noise disturbance.
- v. Traffic disturbance.
- vi. Nuisance to Population.
- vii. Waste generation during construction.
- viii. Accidents to workers, staff and public on construction sites
- ix. Increased air pollution from incineration of wastes during operation
- x. Occupation safety and health risks

## **Construction Environmental and Social Commitments and Monitoring Plan**

The main objectives of the Construction Environmental and Social Management and Monitoring Plan are to:

- i. Address environmental, cultural and social issues identified and considered to be important;
- ii. Minimize the residual environmental impacts of construction activities;
- iii. Prepare an achievable plan of environmental management for implementation;
- iv. Detail management and monitoring tasks to be completed;
- v. State the timing for implementation of each task;
- vi. Provide details of reporting requirements;
- vii. Identify roles and responsibilities for ensuring that relevant tasks are completed;
- viii. Provide contingency plans that can follow in the event of non-compliance or complaint; and
- ix. Detail protocols, registers and standards reporting forms for documenting complaints, non-compliances, unplanned exceedance and discharges, etc.

It is the responsibility of MOH to ensure that the quality of the environment within and near the work sites complies with the applicable national regulations and international guidelines, and that periodic environmental monitoring will be carried out during the construction phase.

### **Institutional Responsibilities for implementation of the ESMP**

The Ministry of Health, through the Environmental Department and the Project Implementation Unit (PIU) will have the responsibility to ensure that the ESMP and the monitoring plan are implemented. The Environmental Protection Agency (EPA), as the statutory agency responsible for the adherence of environmental soundness during project implementation, will be responsible to review the ESMP and approve same. The Contractor will be responsible for ensuring that the construction activities are carried out sustainably through compliance to the project contract with ESMP included.

### **Cost for the Environmental Management and Monitoring**

Costs for managing the impacts on the biophysical and socio-economic environment of the project are, in general, included in the project budget. Costs for monitoring the ESMP have also been estimated.

The main components of the budget comprise the following:

- i. Training;
- ii. Review of the Environmental & Social Management Plan for Permitting;
- iii. Implementation of Environmental and Social Mitigation Measures;
- iv. Implementation of monitoring plans; and
- v. Environmental and Social Audits.

A total budget of US\$93,500.00 is therefore needed for the implementation of the environmental and social mitigation and monitoring plans proposed for the construction of the new Redemption Hospital. The summary is indicated in the below table.

<b>Item</b>	<b>Cost (US\$)</b>
1. Training	5,000.00
2. Environmental Review and Permitting	3,500.00
3. Environmental and Social Mitigation Measures	50,000.00
4.. Implementation of Monitoring	25,000.00
5.. Environmental and Social Audits	10,000.00
<b>Total:</b>	<b>\$93,500.00</b>

### **Public Consultation and Disclosure**

For the preparation of this ESMP, interested stakeholders were invited to Stakeholders Meetings so as to ensure their participation in the process.

A Stakeholder meeting was held on March 21, 2017 at the Elizabeth Tubman Memorial Institute (ETMI), near the project area. At this meeting, the need for project was discussed with the community residents. All of the associated impacts were also discussed. The concerns of the community residents were solicited.

A second Stakeholder Meeting was held with the Environmental Protection Agency (EPA) of Liberia on March 22, 2017. At this meeting, the EPA was informed of the project and guidance on mitigation measures to be implemented during the project solicited. Against this background, the EPA issued to MOH a letter approving of the project and advising MOH of requirements to be met.

The Ministry of Health (MOH) has the responsibility of conducting future stakeholders' consultation and disclosure plans. The goal of the plan will be to improve decision-making through dialogue with individuals, groups and organizations having legitimate interest in the project.

This ESMP for the construction of the new Redemption Hospital will be disclosed in Liberia by the Environmental and Infrastructure Implementation Units of the Ministry of Health (MOH) and the EPA. Summary of the ESMP will be published in the major newspapers and also hosted on the MOH website. Copies will also be disclosed at the Commissioner Offices in Caldwell, Montserrado County, where the project is being undertaken. The MOH will also authorize the World Bank to disclose this ESMP electronically through its infoshop.



## **Grievance Management and Redress**

The grievance procedure that MOH is setting for this project will be simple, administered in the first instance at the junior level to facilitate access, flexibility and open to various proofs taking into account a speedy, just and fair resolution of their grievances.

Grievances that will result from environmental issues of negative impact from the implementation of the project will be dealt with in a timely and transparent way. MOH will set-up a grievance redress committee to address complaints arising from the implementation of this ESMP. All complaints received in writing (or written when received verbally) will be documented. This committee will be directly under the Project Implementation Unit of the Ministry of Health.

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## **LIST OF ACRONYMS**

BOD	-	biochemical oxygen demand
BP	-	Bank Procedures
CMO	-	Chief Medical Officer
COD	-	chemical oxygen demand
DO	-	dissolved oxygen
EA	-	Environmental Assessment
EERP	-	Ebola Emergency Response Project
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EPA	-	Environmental Protection Agency
EPML	-	Environment Protection & Management Law
ESIA	-	Environmental & Social Impact Assessment
ESMP	-	Environmental & Social Management Plan
EVD	-	Ebola Virus Disease
GDP	-	gross domestic product
GIZ	-	Gesellschaft für Internationale Zusammenarbeit (German Development Agency)
ICU	-	Intensive Care Unit
IPD	-	In-patient Department
km	-	kilometer
m.a.s.l.	-	meters above sea level
MOH	-	Ministry of Health
MPW	-	Ministry of Public Works
NDS	-	National Drug Services
NICU	-	neonatal intensive care unit
OB	-	obstetrics
OHS	-	occupational health & safety
OP	-	Operational Policy
OPD	-	Out-patient Department
PCBs	-	polychlorinated biphenyls

PPE	-	personal protective equipment
pm	-	particulate matters
TPH	-	total petroleum hydrocarbon
TSS	-	total suspended solids
VR	-	various receptor
PIU	-	Project Implementation Unit
SITU	-	Severe Inflectional Treatment Unit
USAID	-	United States Agency for International Development
WB	-	World Bank
WHO	-	World Health Organization

## **1.0 INTRODUCTION**

### **1.1 Project Background**

In 2014, Liberia experienced a severe Ebola Virus Disease (EVD) outbreak, and in response to a call for urgent support from the Government of Liberia, the World Bank proposed a package of short and medium term emergency financing- through the Ebola Emergency Response Project (EERP)-that complimented and supported a multi-partner emergency response effort led by the World Health Organization (WHO). Specifically, the EERP aims to support the Strategic Operational Outbreak Response Plan and provide funding to address key challenges in controlling the EVD. The Project objective is to contribute in short term “to the control of the EVD outbreak and the availability of selected essential health services, and mitigate the socio-economic impact of EVD in the three heavily affected countries.

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The current Redemption Hospital in New Kru Town, Bushrod Island, was originally a market building that was transformed by the Government of Liberia in the 1980s to address the medical needs of urban-slum communities of over 200,000 who did not have access to public hospital.

As a mean of addressing both the medical and infrastructural needs, the MOH, in 2009, decided to build a Pediatric Hospital as part of the Redemption Hospital. However, because of the limited land space, the project did not pick up at the current facilities. The MOH subsequently acquired 35 acres of land in Upper Caldwell, Montserrado County, to construct the new Redemption Hospital facilities. The decision for the relocation and construction of the hospital was further necessitated by the EVD outbreak and its impact on the hospital. The hospital was one of the epicenters were more than one hundred EVD patients died, including health care workers

The construction of the new hospital is in line with the MOH Investment Plan for a resilient health system. The new hospital, estimated to cost about US\$26M, is among the three hospitals (Redemption, J.J. Dossen, Phebe) prioritized in the Investment Plan for upgrading to function at the regional level, responsible to provide tertiary and specialized medical services. The estimated cost of Phase 1- which will be funded through the EERP- is US\$14 million. Additional support is also being provided by USAID and the Global Fund to construct a National Pharmaceutical Warehouse, and by the German Government for the construction of an Infectious Disease Unit at the new facilities.



## **1.2 Nature of the Project**

The new Redemption Hospital, when constructed, is expected to be a state-of-the-art teaching and tertiary care hospital serving as a regional referral center for pediatric care and women's and maternal health, addressing the severe shortage in access to dignified healthcare in the region. The construction of the hospital is expected to be undertaken in two (2) phases.

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Phase 1 will also include the construction of a facility to provide sixty six (66) women's and maternal care beds with a six (6) bay OB triage area - 2 maternal surgical theaters, and 4 delivery bays. Accompanying outpatient services will also be provided. Phase 1 will have 28 beds/cribs for neonatal care including a NICU and kangaroo ward.

Facilities to be constructed for these three (3) departments will work hand-in-hand to provide comprehensive family care for mothers, newborns, and children.

Phase 2 of the construction activities will include erection of structures to provide for adult services, emergency and trauma care, general surgery, and additional outpatient capacity, adding another 166 beds.

The MOH has also identified a need for the construction of facility for mental health care as well as a Tuberculosis inpatient facility. GIZ intends to build an integrated Severe Infection Treatment Unit on the campus, which will serve as an isolation unit during normal operation, but is prepared to be used for future outbreaks of Ebola or other public health emergencies.

All phases of construction will include plans for comprehensive support services to ensure the functionality of the hospital and tertiary level care services. Furthermore, training and educational spaces that are essential to enable high-quality postgraduate training will also be provided on site. A medical library of both textbooks and electronic resources, multiple lecture halls for both residency training and in-service trainings, a simulation lab, a cafeteria, offices for each department, and rooms where residents, faculty members, or other clinical staff can sleep, are some of the spaces that are included in the schedule of accommodations. Space for future growth will be identified in the master plan for future needs which are not yet known.

## **1.3 Objectives of the ESMP**

The main objective of this ESMP is to provide measures to minimize adverse effects on the biophysical and socio-economic environment; during construction and operation of the new Redemption Hospital to be located in Caldwell, Montserrado County, Liberia.

The ESMP predicts and describes impacts of the project, and outlines the enhancement and mitigation measures to be implemented by the construction contractor, the Ministry of Health and other key stakeholders. These impacts were determined through consultations and field investigations carried out on and around the site earmarked for construction of the new hospital facilities; as well as key stakeholder consultations and input from the surrounding communities.

#### **1.4 Scope of the ESMP Study**

This ESMP prepared for the construction and operation of the new Redemption Hospital in Caldwell is specifically for the identification of impacts related to construction and operation activities at the hospital; focusing on activities during construction and operation. Preparation of the ESMP included the following activities:

- i. The review of project study reports, relevant literature and government regulations;
- ii. The identification and analysis of potential environmental and social impacts, which the project activities are likely to trigger and generate within and around the project site;
- iii. The determination of appropriate mitigation measures to minimize negative impacts resulting from the proposed development;
- iv. The determination of costs of environmental management activities;
- v. The preparation of this ESMP which details the negative effects of the proposed project activities on the biophysical and socio-economic environment; and
- vi. Recommendations for future environmental protection during operation.

#### **1.5 Assessment Methodology for Preparation of the ESMP**

The following assessment methods were employed in the preparation of this ESMP:

- i. field assessment of the construction site for the new Redemption Hospital in Caldwell, to appreciate the magnitude of the project activities and determine their environmental and social footprint. The surveys facilitated the collection of biophysical and social data;
- ii. literature review on the policies, regulations and environmental standards for the ESMP preparation. The purpose of reviewing such documents was to develop a comprehensive and guided policy, legal and institutional framework so that the ESMP is responsive and aligned with government's and financiers' policies;
- iii. interviews with key stakeholders;
- iv. interviews with key informants from the surrounding communities, affected directly by the project; and
- v. assessment of the socio-economic and the health-care systems data and prevailing national regulations, policies and standards.
- vi. review of the ARAP prepared for the new Redemption Hospital.
- vii. review of the ESMF prepared by the Ministry of Health.

## **2.0 POLICY, LEGAL & INSTITUTIONAL FRAMEWORK**

The preparation of this ESMP takes into consideration applicable policies and legislation in the context of Liberian law. The ESMP draws on the Environment Protection and Management Law of Liberia and other Environmental Guidelines, the Liberian Constitution and recent National Health Policies and Guidelines.

Preparation of this ESMP also draws on the requirements of the World Bank environmental and social safeguards.

### **2.1 Policy Framework**

#### **2.1.1 Liberian Policies**

##### **2.1.1.1 National Environmental Policy (2003)**

This Policy aims at improving the physical environment, quality of life and coordination between economic development, growth, and sustainable management of natural resources. Key objectives of the policy include:

- The systematic and logical framework with which to address environmental issues;
- Benchmarks for addressing environmental problems in the medium- to long-term;
- Context for financial/donor support to particular sectors and non-sector;
- The means for generating information and awareness on environmental problems; and
- To demonstrate Liberia's commitment to sustainable management of the environment.

##### **2.1.1.2 National Health and Social Welfare Policy of 2007**

The goal of this policy is to improve the health and social welfare status of the population of Liberia on an equitable basis by: (1) Increasing access to and utilization of a comprehensive package of quality health and social welfare services of proven effectiveness, delivered close to the community, endowed with the necessary resources and supported by effective systems; (2) making health and social welfare services more responsive to people's needs, demands and expectations by transferring management and decision-making to lower administration levels; and (3) making health care and social protection available to all people in Liberia, regardless of their position in society, and at a cost that is affordable to the Country.

The underlying principle to this policy is that health is a state of complete physical, mental and social well-being, and access to quality health and social welfare services is a precondition for individual and societal development.

### **2.1.1.3 National Health Policy and Plan – 2011 to 2021**

This policy builds on the 2007 version of the National Health Policy, the 2008 Governance Commission Report, the 2009 National Decentralization Policy, the 2009 National Social Welfare Policy as well as the 2011 Country Situational Analysis Report.

It draws upon the knowledge gained by implementing the previously mentioned policies/reports as well as from numerous sources of new data about the status of the Liberian population. Thus, the Ministry of Health is confident that this policy's orientation is evidence-based and reflects the best information and guidance available at the time it was developed.

The policy establishes that the health sector can become more effective by:

- a. Improving the timely access to high-impact, evidence-based interventions and strengthening referral between all levels of the system;
- b. Increasing the utilization of services by improving the population's care-seeking behavior, the quality of care and the availability of essential drugs and equipment; and
- c. Improving the coherence between strengthening the existing workforce, producing additional workers with the right skills mix, deploying according to service delivery needs and retaining skilled providers where they are most needed.

The policy also deduced that the health sector can become more efficient by:

- a. Allocating resources among counties according to equitable criteria and optimally distributing resources to health facilities according to population size, utilization and workload;
- b. Improving the coordination of all efforts to support health and social welfare services, eliminating duplication and minimizing gaps; and
- c. Creating a culture at all levels of the system that values and strives to do more for the population within existing levels of resources

### **2.1.1.4 Environmental & Social Management Framework (MOH) 2016**

This Environmental and Social Management Framework was formulated by the Ministry of Health in February 2016. It aimed at contributing to maternal and neonatal health services through strengthening (a) the learning environment at the medical school; and (b) health facilities and community services in target health facilities.

The key objectives of the framework are:

- a. To assess the main potential environmental and social impacts of planned and future project activities.
- b. To recommend environmental and social screening process for project sites and sub-project activities.
- c. To review environmental policies of Government for project implementation and relevant the World Bank Operational Policies to be triggered by the project.
- d. To develop an environmental management plan for addressing negative impacts during sub-project implementation.
- e. To recommend appropriate further environmental work, including preparation of the site-specific ESIA/ESMPs for sub-projects.
- f. To recommend appropriate capacity building for environmental planning and monitoring in the project activities.

The ESMF includes an ESMP-checklist which can be used as the Environmental and Social Management Plan (ESMP) for individual sub-activities.

According to the ESMF, The PIU of MOH will prepare the EMPs in consultation with affected peoples and with relevant NGOs, as necessary. The EMP will be submitted to the Implementing Agency, for review, prior to the submission to the World Bank for approval. This ESMP draws on the ESMF of 2016 to ensure that environmental and social screening is undertaken before the construction and operation of the new Redemption Hospital so as to ascertain the specific environmental and social impacts associated with the project.

### **2.1.2 World Bank Group Safeguards Policies**

The World Bank's environmental and social safeguards seek to prevent and mitigate potential environmental and social impacts associated with the Bank's lending operations that may adversely affect people and their environment. The construction of the new Redemption Hospital triggers the World Bank OP 4.01 and 4.12.

The World Bank's environmental and social safeguard policies are a cornerstone of its support to sustainable poverty reduction. The main objective of these policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for Bank and borrower staffs in the identification, preparation, and implementation of programs and projects.

The Bank believes that the effectiveness and development impact of projects and programs it supports has substantially increased as a result of attention to these policies. Safeguard policies also provide a platform for the participation of stakeholders in project design and have been an important instrument for building a sense of ownership among local populations.

In essence, the safeguards ensure that environmental and social issues are evaluated in decision making, help reduce and manage the risks associated with a project or program, and provide a mechanism for consultation and disclosure of information. 6

#### **2.1.2.1 WB OP 4.01 - Environmental Assessment**

The World Bank OP 4.01 helps ensure the environmental and social soundness and sustainability of projects. It supports integration of environmental and social aspects of projects in the decision-making process.

This policy is triggered if a project is likely to have potential adverse environmental and social risks and impacts in its area of influence. This policy also outlines the procedure for environmental assessment of the Bank's lending operations. Construction of the new Redemption Hospital is classified as Category B as it may have negative environmental impacts, which require mitigation. Hence this ESMP has been prepared for management of the anticipated impacts.

#### **2.1.2.2 WB OP 4.12 – Involuntary Resettlement**

The policy deals with direct economic and social impacts that may result from internationally-sponsored projects, and are likely to cause the involuntary taking of land resulting in relocation or loss of shelter; loss of assets or access to assets or loss of income sources or means of livelihood, whether or not the affected persons must move to another location. This policy is triggered by the construction of the new Redemption Hospital. An Abbreviated Resettlement Action Plan has been prepared to address involuntary resettlement concerns associated with the project.

### **2.2 LEGAL FRAMEWORK**

The Environment Protection Agency Act, Environment Protection and Management Law (EMPL) and sector-specific sections in other legislations are the key instruments that cover environmental management in all sectors of development. They are briefly summarized below, as far as they are relevant now, or in the future, to the construction of the new Redemption Hospital.

#### **2.2.1 The Environmental Protection Agency Act (2002)**

The Environmental Protection Agency of the Republic of Liberia (EPA, or Agency) was created in November 2002 under the terms of the Environment Protection Agency Act.

Part II, Section 5 of the Act designated the EPA as the principal Liberian authority for environmental management which shall co-ordinate, monitor, supervise, and consult with relevant stakeholders on all activities for environmental protection and the sustainable use of natural resources.

Part V, Section 37 of the Act defines the requirements of an Environmental Impact Assessment for projects, activities etc. as specified by the Agency. In particular, it states that -a licensing or permitting agency or authority under any law in force in Liberia shall not issue a license for any project for which an environmental impact assessment is required under the Act, unless the applicant produces to the licensing agency or authority an environmental impact assessment license or permit issued under this Act.

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### **2.2.2 Environment Protection and Management Law (2002)**

The Environment Protection and Management Law of Liberia is the principal piece of environmental protection legislation in Liberia. It builds on the framework of the Environment Protection Agency Act. In its administration, the law is guided by the principles of sustainable development, the polluter pays principle and the pre- cautionary principle.

Section 6 of The Environment Protection and Management Law requires an Environmental Impact Assessment license or permit for the commencement of projects listed in Annex I to that law. And Section 13 requires the conduct of an environmental impact study for such a project.

Section 12 of the same law requires environmental review for projects that may have significant impact on the environment. The project proponent shall submit to the EPA their plans for improving environmental performance including:

- \* Identification of the major environmental effects; and
- \* A comprehensive mitigation plan in accordance with Section 15 of this law.

### **2.2.3 The Environmental Impact Assessment Procedural Guidelines (2006)**

The Environmental Impact Assessment Procedural Guidelines were prepared with joint effort of EPA and other national stakeholders, including line ministries/agencies and the private sectors. The intension of the guidelines is to provide the EPA, sectors agencies, private sector, NGOs, members of the public and consultants a set of approved guidelines for the conduct and review Environmental Impact Assessments in Liberia.

Even though the Environment Protection and Management Law (EPML) provides for a wide ranging responsibility for environmental management by the EPA, one of the most prominent issues is the need for development of administrative procedures for the preparation of EIA to ensure effective environmental governance. The required administrative procedures and how they are arranged to reflect the intent of the law is the subject of the guidelines. These Guidelines will be reviewed periodically and

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updated when necessary. Hence at present, the EPA is in the process of revising the guidelines. Figure 1 displays the EIA Guidelines as presently implemented by the EPA.

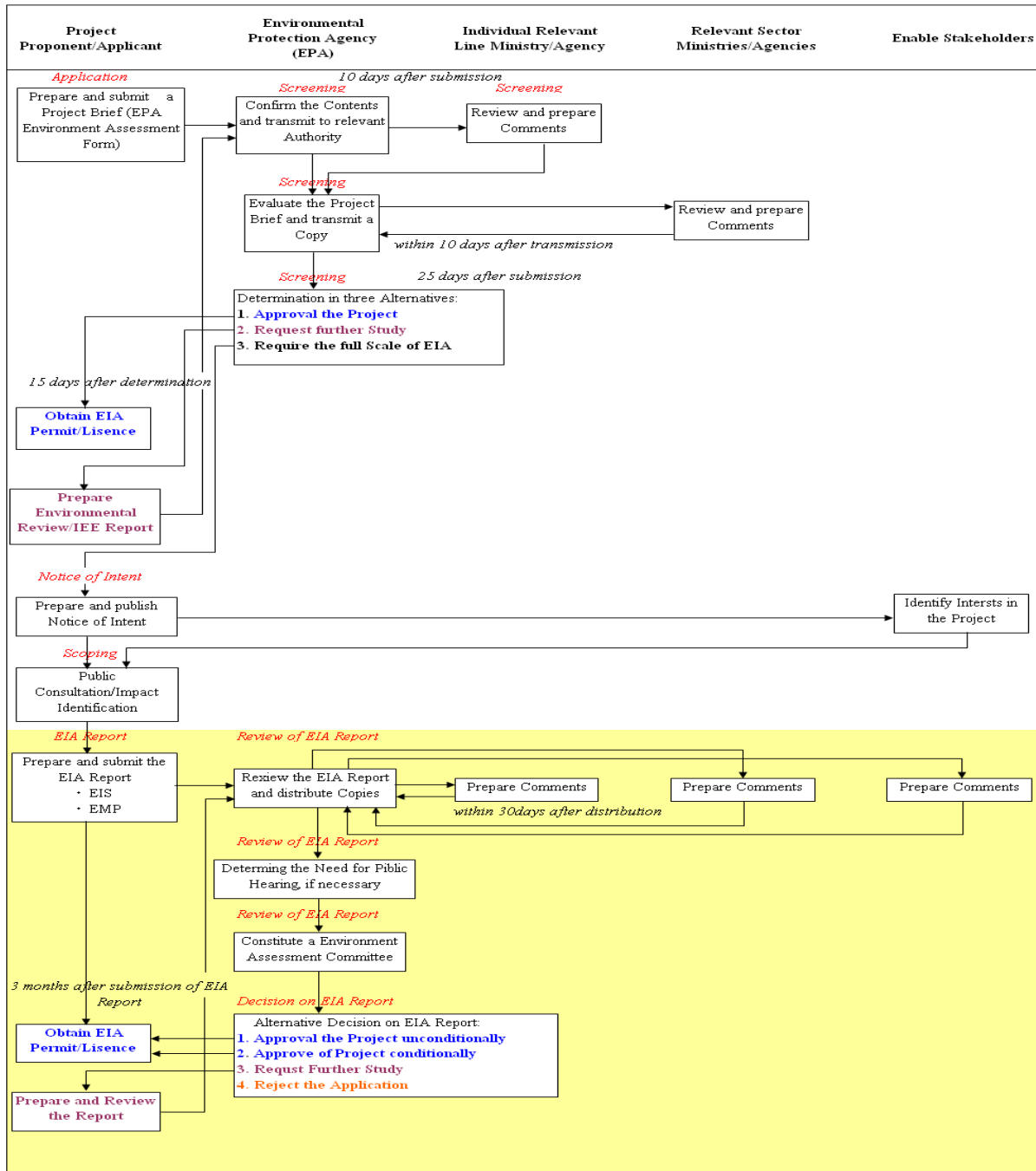


Figure 1: Environmental Impact Assessment Guideline in Liberia

## 2.2.4 The Public Health Law – Title 33 of the Liberian Code of Law Revised of 1976

This Act provides comprehensive legislation on matters relating to public health, including control of diseases, environmental sanitation and regulation of drug. Part IV regulates health standards and requires, inter alia, persons hired for specified public



sector positions to undergo a medical exam. Part VII contains provisions governing the registration and licensing of health professionals and pharmacies.

### **2.3 INSTITUTIONAL FRAMEWORK**

The major stakeholders that will be involved in the construction of the new Redemption Hospital are as follows:-

1. The Ministry of Health (MOH)
2. The Environmental Protection Agency (EPA); and
4. The Ministry of Public Works
5. MASS Design Group

The following is a description and main characteristics of major entities responsible for the implementation of the ESMP.

#### **2.3.1 Ministry of Health (MOH)**

MOH has the statutory responsibility to manage the health sector of the country. The construction of the new Redemption Hospital will be under the supervision of the ministry. The Ministry has a Project Implementation Unit (PIU), charged with the implementation of civil projects on behalf of the Ministry. The ministry also has an Environmental Department that ensures its adherence to environmental principles. The ministry is the primary governmental entity responsible to coordinate with the World Bank and other major international and local players in the health sector during the implementation of the Project.

#### **2.3.2 Environmental Protection Agency (EPA)**

The EPA is responsible for monitoring, coordinating, and supervising the sustainable management of Liberia's environment. It is mandated to ensure the conduct of EIA for projects and programs that are likely to have significant adverse effects on the environment and people. The EPA is required to issue permit for all major projects, like the construction of the new Redemption Hospital, that are likely to have adverse environmental impact or impact to other land users.

#### **2.3.3 Ministry of Public Works (MPW)**

The ministry has the statutory responsibility to approve the design and construction of all civil works, including motor road construction. Additionally, it is also responsible to carry out urban and town planning, as well as provide architectural and engineering supervision of infrastructure owned by the Government of Liberia. It is expected that the ministry will review and approve the project design of the new Redemption Hospital and associated infrastructure.

#### **2.3.4 MASS Design Group**

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Since 2010, MASS Design Group has been working with the Ministry of Health on series of projects and initiatives.

MASS Design Group in collaboration with Rebuilding Basic Health Services (RBHS), an initiative of the John Snow Institute, funded by the US Agency for International Development, has developed Architectural and Engineering Standards and guidelines for all scales of facilities, including clinics, health centers, and hospitals throughout Liberia. The Standards, along with MASS's other efforts in Liberia, has built the capacity, expertise, and effective policy that will tie better built infrastructure to health outcome objectives.

MASS has extensive experience creating innovative, locally appropriate designs, while using locally available materials and construction capacity to inform our work. MASS's strategic partnership with AEP, a highly-regarded Liberian construction consultancy firm, will ensure that the new Redemption Hospital is designed in accordance with all relevant local standards, and is a Liberian solution for a Liberian challenge.

### 3.0 DESCRIPTION OF THE PROJECT AND COMPONENTS

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The construction of the hospital is expected to be undertaken in two (2) phases. Phase 1 will include the construction of a facility that will hold ninety (90) beds for pediatric care including a pediatric ICU, malnutrition unit, and general pediatric inpatient wards, plus a pediatric emergency department with seventeen (17) observation bays. Accompanying pediatric outpatient services will be provided for follow-up appointments and limited pediatric outpatient care.

Phase 1 will also include the construction of a facility to provide sixty six (66) women's and maternal care beds with a six (6) bay OB triage area - 2 maternal surgical theaters, and 4 delivery bays. Accompanying outpatient services will also be provided. Phase 1 will have 28 beds/cribs for neonatal care including a NICU and kangaroo ward.

Facilities to be constructed for these three (3) departments will work hand-in-hand to provide comprehensive family care for mothers, newborns, and children.

Phase 2 of the construction activities will include erection of structures to provide for adult services, emergency and trauma care, general surgery, and additional outpatient capacity, adding another 166 beds.

#### 3.1 Phase 1 Project Components

The following components will be constructed at the lower level of the facilities at the new Redemption Hospital during Phase 1, as shown in Figure 2.

##### **Emergency Access:**

Critical adjacencies between the Emergency Department, Operating Theaters, and Labor and Delivery units will be constructed on the ground level to minimize travel distances.

Ambulance access will also be constructed on the northwest corner of the site, and will be separated from the main entry to reduce congestion.

##### **Inpatient (IPD) Facilities:**

Critical care Facilities for inpatients will be constructed on the ground level, while most wards will be constructed on the second level. Pediatric, Maternity, and Adult inpatient will be constructed around a department courtyard where covered outdoor waiting areas will be provided.

##### **Outpatient Department (OPD) Facilities:**

Outpatient services will be constructed adjacent to triage and reception to avoid disrupting inpatient care. Covered outdoor waiting areas will be provided in the entry

plaza to accommodate patients waiting to be triaged, and additional waiting areas will be provided once patients pass through triage.

**Support Facilities:**

Support facilities will be constructed off of the service road on the northwest edge of the campus.

**Severe Infection Treatment Unit (SITU):**

The SITU will be constructed to provide high quality care to patients with infectious disease while maintaining the safety of all patients.

In the event of an outbreak, patients arriving by car or foot will be triaged before entering the campus and then brought directly to the SITU, bypassing other patient areas. Similarly, patients arriving by ambulance will be brought directly to the SITU via the northwest service road.

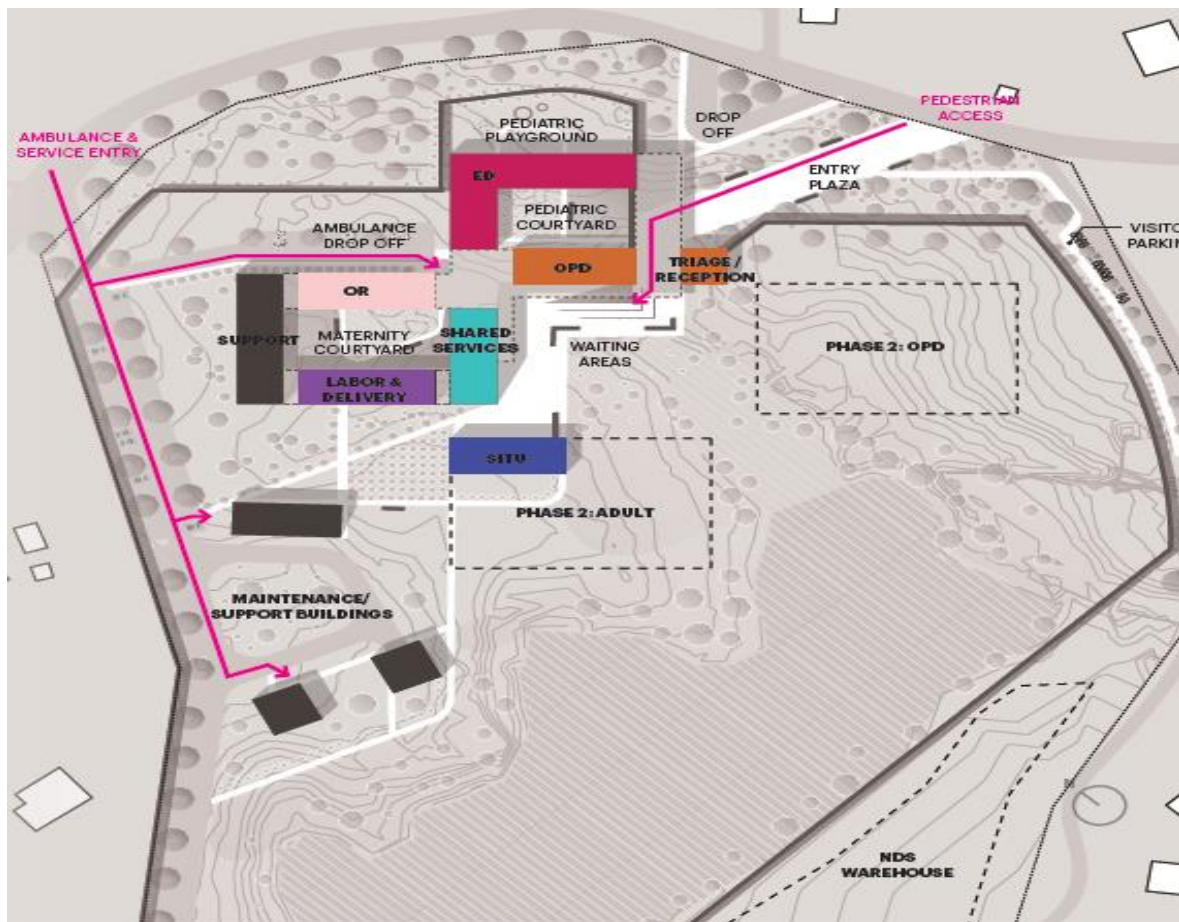


Figure 2: Diagram of proposed structures to be constructed on the lower level of facilities at the new Redemption Hospital.

The following components will be constructed at the upper level of the facilities at the new Redemption Hospital during Phase 1, as shown in Figure 3.

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**Maternity & Pediatric Wards:**

Most wards will be constructed on the upper level, providing privacy for patients and views to courtyards or wetlands on site. Passively ventilated wards will be constructed and orientated perpendicular to the prevailing wind on site to maximize air changes for infection control and comfort.

**ICUs:**

Neonatal and pediatric intensive care units will be constructed near the center of the building to provide direct access to the critical care provided below.

**Administration + Outreach Facilities:**

Administrative offices and outreach zones will be constructed on the upper floor to provide separation from patient care and views to the surrounding landscape.

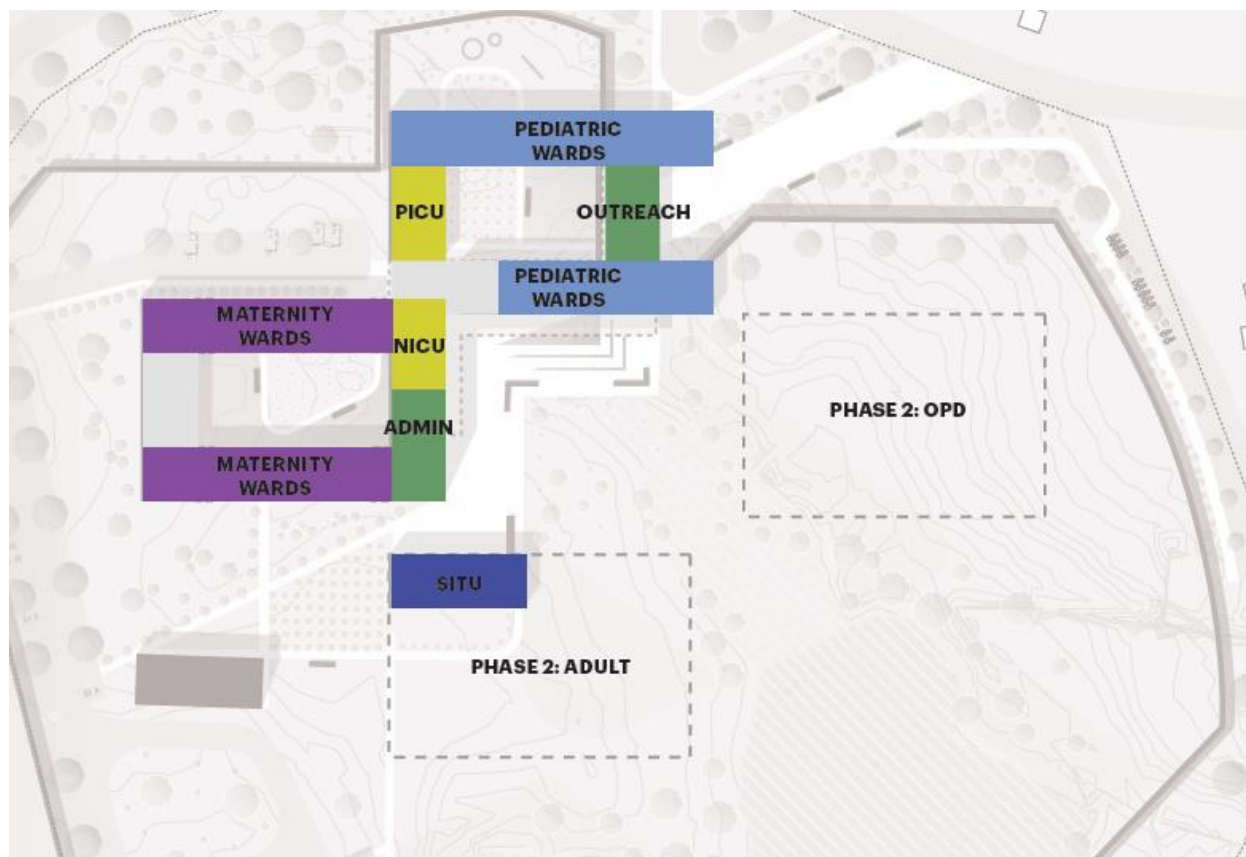


Figure 3: Diagram of proposed structures to be constructed on the upper level of facilities at the new Redemption Hospital during Phase 1 and proposed structures for Phase 2.

### **3.2 Phase 2 Project Components**

Project components to be constructed during Phase 2 will include a large outpatient facility to the southwest of the main entrance. The Phase 1 OPD will be repurposed in Phase 2 to accommodate expansion of the pharmacy and lab. Location of Phase 2 structures can be seen in Figure 3 above.

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### **3.3 Construction Works**

Construction of the new Redemption Hospital is expected to be undertaken in a period of two (2) years. Phase 1 construction activities are expected to commence in June 2017 and end by mid-2018. Phase 2 construction activities are expected to commence in mid-2018 and end in mid-2019.

### **3.4 Labour for Construction**

The number of workers to be used will be provided by the principal contractor, depending on its work schedule, technical capacity and experience.

It is expected that over 150 workers will be on site during the construction phases. There will likely be a ratio of 1:15 professional to tradesmen workers ratio. And majority of the workers will be sourced locally.

## 4.0 ENVIRONMENTAL AND SOCIAL SETTING OF THE PROJECT AREA

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### 4.1 Location of the Project

The 35-acre parcel of land intended to host the new Redemption Hospital is located in Upper Caldwell, Montserrado County, near the St. Paul River. The township of Caldwell is a fast-growing region on the outskirts of Monrovia that is easily accessible from New Kru Town and the catchment area of the existing Redemption Hospital via a new bridge and a recently-paved motor road into Caldwell.

The area surrounding the project area has only recently been developed with single-family residences. Many of the adjacent properties are used for residential or commercial purposes.

Parts of the parcel have significant tree coverage, and there is a low lying area which fills with water during the rainy season. The site has substantial street-frontage on a large two-lane dirt road which is used to access the river for sand dredging. A single-lane dirt path provides access along the south side of the site. Figure 4 shows an aerial view of the project location relative to the present Redemption Hospital.



Figure 4: An aerial view of the location of the new Redemption Hospital relative to the present Redemption Hospital.

Of the 35 acre parcel of land, the MOH has identified a 5-acre area in the southwest corner of the property which will house the new NDS Warehouse, a project that is funded by USAID and is currently under construction. The remaining land is available for the development of the new hospital campus which will include space for future expansion of the planned hospital.



The eastern side of the site, along the main access road, includes a substantial portion of high ground which is not susceptible to flooding during the rainy season and has good drainage.

Portions of the site also have significant tree coverage, and views to the natural beauty of the adjacent marshland. Figure 5 shows a more detailed aerial view of the project site.



Figure 5: Detailed aerial view of the project site.

## 4.2 Project Site Development Zones

Nine (9) acres of the 35 acres of land comprising the project site (26% of total site area) are low-lying wetland with standing water during the wetter parts of the year. It is recommended that these areas be left undeveloped, where possible, to minimize ecological impact and cost associated with remedial site work. Figure 6 shows the development zones on the project site.

Another 3 acres (9% of total site area) are adjacent to the wetland and are subject to flooding during storms or in the event of a dam breach at Mt. Coffee. This area can be developed but requires significant fill and grading to ensure positive site drainage, which is costly. It is recommended that development in this area be minimized. However, remedial landscaping can be done in this zone to improve the ecology and appearance.

A total of 23 acres of the site is at a high elevation, has good natural drainage and is considered the prime area for development on site. Of this, 5 acres (14% of total site area) of the site have been set aside by the MOH for the NDS warehouse. The remaining 18 acres (51% of total site area) is the prime development zone and the focus area for planning the new hospital on this site.



A portion of the site was cleared in 2015 which resulted in the loss of existing mature vegetation on the site. Future development should consider retaining existing vegetation and look for strategies to minimize the ecological impact by maximizing the integration of green space into the hospital.



Figure 6: Development zones on the project site:

#### **4.3 Site Accessibility**

The project site is located approximately one mile off of Caldwell Road on an unnamed road that is known locally as Sand Beach Road. The Sand Beach Road ends at the St. Paul River, less than half a mile past the hospital site.

An undeveloped dirt track runs along the south side of the site, descending shortly after the site boundary. This road will be widened to accommodate access to the new NDS Warehouse on the southwest corner of the site.

#### **4.4 Geology**

The project site is located in the geological zone of Liberia known as the Pan African Age Province. Here, there are mainly sediment and rock types less than 500 million years.

Almost the entire project site is composed of river sediments and transported lateritic materials mainly along the roads.

## 4.5 Topography

The project area has three (3) distinct topographic zones. And these zones have affected the decision for the proposed usage of the 35-acre of land allocated for the construction of the new Redemption Hospital and associates infrastructure.

There is firstly a zone with an average elevation of 6 m.a.s.l. This zone comprises approximately 9 acres or 26% of the total project area. This zone is comprised of low-lying wetland that has standing water during most part of the year.

The second zone has an average elevation of 10 m.a.s.l. and comprises approximately 3-acre or 9% of the total project site. This zone is adjacent to the wetland and subject to flooding during storms.

Finally, there is a third zone of approximately 23-acre or 51% of the entire project area. This zone has an average elevation of 15 m.a.s.l. and is the prime area for development at the project site. A topographic map of the project area is presented in Figure 7 below.

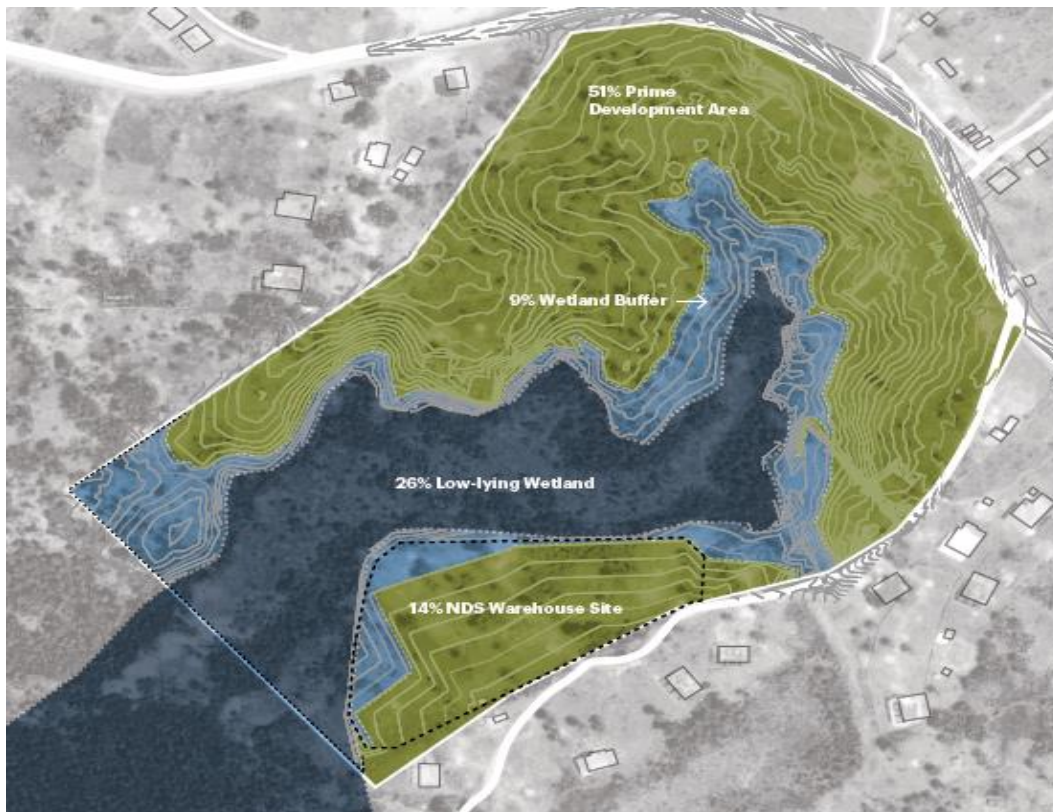


Figure 7: Topographic map of the project area.

#### **4.6 Water Resources and Site Drainage**

At approximately a quarter mile from the closest point of the project area towards the northwest is the St. Paul River, one of the largest water bodies in Liberia.

Further, approximately 26% of the project area is comprised of wetland in which there is standing water during the wet periods of the year.

Overall, the site drains from high points located along the eastern border of the site from elevated areas to low-lying land in the South-West.

There is standing water in low-lying areas throughout the year, a condition that is exacerbated and filled further during the rainy season.

#### **4.7 Soil**

The major soil type at the project is sediments of river origin, associated with the St. Paul River. This soil type is light in color, composed mostly of silica.

Then, there is a segment of hydromorphic soils (soils associated with wetland and swamps). This soil type is located within the wetland located at the project site. It has a high concentration of humus with layers consisting of biodegradable materials.

#### **4.8 Vegetation**

The original vegetation of the project area is believed to be small trees and shrubs. However, significant portions of the project site have recently been cleared of mature vegetation for future development, leaving mostly grasses.

The portion of the site with significant vegetation is mainly around the existing wetland. The vegetation here is mostly palm trees and marshes.

#### **4.9 Air Quality**

The air quality for the Caldwell area is generally good as there are no major industries and the number of cars plying roads in the area is small as compared to the City of Monrovia or other major cities nearby.

However, it must be noted that developmental activities are fast expanding into the township. Along with these activities are much more vehicles transporting construction materials and residents moving in with vehicles. These activities could contribute to increased air pollution.

There is also localized air pollution resulting from smoke from the burning of wastes in the open in some communities in the township.

## 4.10 Climate

The prevailing wind in Monrovia originates from the southwest. Due to the proximity of the project area to Monrovia, it is expected that the area is expected to experience the same climatic conditions as Monrovia. The hospital campus will maximize cross ventilation by orienting long facades of buildings to face the predominant winds to the southwest for improved infection control and comfort.

Liberia has a tropical climate. The warmest months are February through May but the temperature range is fairly consistent throughout the year.

Monrovia is located at a Latitude of +6.31 (6°18'36"N) and a Longitude of -10.8 (10°48'00"W). Orienting the building with long facades facing due south and north would minimize solar gain, however a rotation of 45 degrees to optimize infection control results in only minimal compromise to thermal comfort. Orientation for infection control, therefore, should be considered the priority.

Monrovia is one of the world's wettest capital cities. Very high rainfall accumulation occurs during the summer months of June and July and will require effective stormwater management. Figure 8 show the rainfall and temperature graphs of Monrovia, which is similar for the project area.

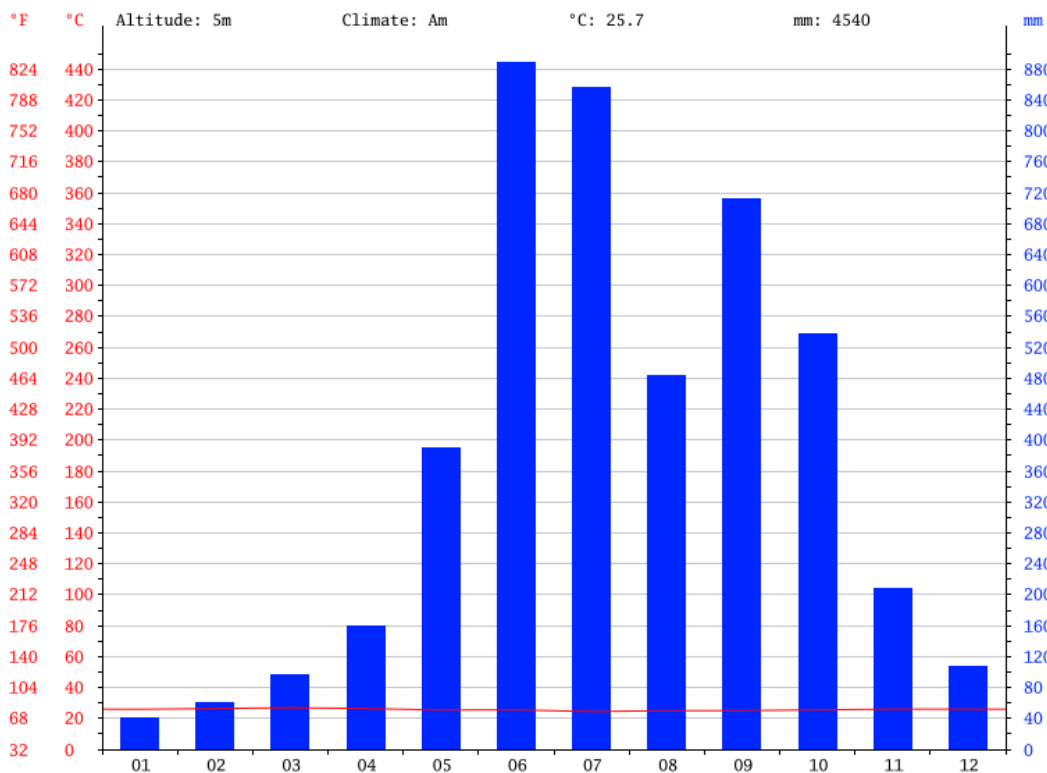


Figure 8: Rainfall graph for Monrovia, which is similar for the project area. (c) en.climate-data.org.

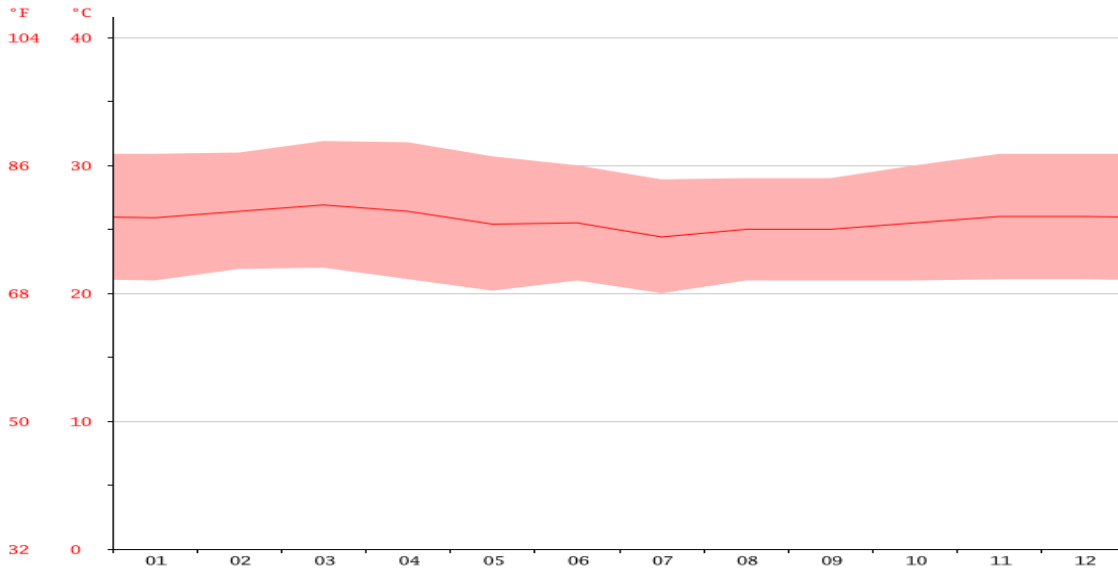


Figure 9: Temperature graph of Monrovia, which is similar for the project area. © en.climate-data.org.

Intense rains throughout much of the year provide opportunity for water catchment and storage.

#### **4.11 Socio-economic Characteristics of the Project area**

##### **4.11.1 Population**

The new Redemption Hospital will be constructed in the Township of Caldwell, which is a part of the St. Paul River District of Montserrado County. According to the 2008 Census of Liberia, the St. Paul River District has a total population of 71,831. Of this number, 34,981 are males and 36,850 are females. Adjacent the St. Paul District is Greater Monrovia, which has a total population of 970,824 – 476,473 males and 494,351 females. The new Redemption Hospital is expected to serve residents of both the St. Paul River and Greater Monrovia Districts.

##### **4.11.2 Administration**

Liberia is divided into 15 counties or provinces. The country has a republican form of government composed of three (3) branches. The Executive Branch is responsible for the general administration of the country and executive all laws. The Legislative Branch made of a lower House of Representatives and upper Senate is responsible for the enactment of laws. The Judiciary Branch, overseen by the Supreme Court, headed by a Chief Justice, is responsible for the interpretation of the laws.

The President, as head of the Executive Branch, appoints Superintendents, who administer the affairs of the counties. The counties are divided into districts, headed by commissioners, who are also appointed by the President. The President also appoints a Minister of Internal Affairs who coordinates the activities of the superintendents.

The Township of Caldwell has a commissioner as its most senior government administrator. The commissioner reports to the superintendent of Montserrado County, who also reports to the Minister of Internal Affairs and the President.

#### **4.11.3 Economy**

The Township of Caldwell is rapidly developing into an urban community. Majority of the residents have employment in the City of Monrovia and commute there daily.

The economy of Caldwell is based on river sand mining, commerce and industry, and labour and employment. The township also has lodging houses, markets, government offices and non-governmental organizations offices.

The construction and operation activities of the project will have a significant impact on the economic activities in the township because the project is likely to require many unskilled labours who can be hired from the township. The construction activities are also expected to require many cubic meters of sand. Sand mining along the St. Paul River is a major activity in the area.

Cost of living is reported to be very high in the area, as indicated by many of the residents covered during the socio-economic survey. This is in spite of the fact that rehabilitation of the Caldwell road into a paved road over the last few years has served to lower the cost of living somewhat with easy access to commodities and the opening of many business ventures.

#### **4.11.4 Utilities**

The site does not have access to public water, sewer, or electrical utilities. The new Liberia Electric Corporation hydroelectric plant at Mt. Coffee is located 15 kilometers up river from the site and the main line from the power plant runs along Caldwell Road. The Liberia Water and Sewer Corporation has a main water supply line running from White Plains Treatment Plant along Caldwell Road. The Ministry of Health intends to work with other Government of Liberia agencies to pave the main access road, and run public water and electricity lines to the site before the first phase of construction is completed.

However, the campus will have independent supplies of electricity and water on the campus to provide back-ups to the municipal systems.

The Ministry of Public Works is expected to pave Sand Beach Road through the *Roads to Health* program to provide access to the hospital.

#### **4.11.5 Communication**

There are over thirty (30) radio stations in and around Monrovia. Majority, if not all, of these stations operate on the FM modular and coverage is limited and vary. Despite, the project area has access to many radio stations. However, most of the stations conduct coverage for limited periods during the day and are closed mostly at midnight.

The area also has access to the major telecommunication companies, namely CellCom and MTN LoneStar. The phone companies also provide internet services.

#### **4.11.6 Education**

There is access to public and private schools at the primary and secondary levels near the project area. However, most of the schools, as in many part of the country, lack many basic facilities including library and laboratory.

There is no tertiary education institution in the area. Residents seeking tertiary education come to Monrovia or other near areas with such institutions.

#### **4.12 Cultural and Archaeological Resources**

In accordance with the Environment Protection and Management Law of Liberia, an effort was made to identify elements, objects and sites in the natural environment which are of national importance to the people of Liberia economically, culturally, and environmentally. No such environment was observed.

## **5.0 IMPACTS OF THE PROJECT AND EVALUATION**

Most development activities effect some changes in the natural environment. The extent and nature of the impact can vary widely depending on the method/technology, the characteristics of the project site and its surroundings and the control and management of the project operation.

This section of the ESMP presents an assessment of the potential environmental impacts associated with the location, construction and operations of the new Redemption Hospital. The procedures used to identify impacts in this report are identified below and includes a standard set of identification tools as well as discussions with specialists and staff of MOH. Potential impacts were assessed against a set of assessment criteria and a significance value was assigned. All of the potential impacts and their significance are presented in a table.

Mitigation measures proposed by MOH to minimize the environmental impacts associated with the construction and operation of the project are presented in Chapter 6. Also, a specific session outlining the intent and proposed form for the construction environmental management plan has been prepared

The ESMP includes all the plans that has been and will be developed to monitor environmental impacts that are predicted to occur as well as proposed mitigation measures.

Finally, it must be pointed out that the construction of the new Redemption Hospital and its operations will be in accordance with Liberia legislations, regulations, guidelines and standards and other appropriate international environmental standards.

### **5.1 Identification of Impacts**

#### **5.1.1 Literature Review**

The consultant reviewed a number of documents including the Redemption Hospital Master Plan prepared by MASS. The list of documents reviewed is indicated in the references. The documents were reviewed to assess the conditions of the socioeconomic environment in which the project will be implemented and to describe the activities during the construction phase.

The World Bank's Environmental Safeguards and other relevant guidelines were also reviewed and have been considered in the mitigation measures for the project impacts.



### **5.1.2 Site Investigation**

Site investigations were carried out to complement the literature review. The consultant specifically conducted the assessments at the proposed project site and access areas, the nearby stream and the utility systems. The investigations focused on identification of critical environmental and socio-economic elements likely to be affected during construction and operation of the project.

### **5.1.3 Stakeholder Consultations**

Stakeholder consultations were conducted with key staff of the Environmental Department and Project Implementation Unit of the Ministry of Health. Consultation was also conducted with the EPA and community residents near the project area.

## **5.2 Impact Evaluation**

### **5.2.1 Criteria for Evaluating Impacts**

The significance of each potential impact will depend on the VR category and the project activities. The impact evaluation will be conducted using the basic set of criteria as follows:

- i. Magnitude: describes the quantity of the resource (VR) potentially affected by the activity.
- ii. Spatial extent: the geographical area over which the impact is experienced
- iii. Duration: the length of time over which the impact will be experienced. An impact may be present only while an activity is active, or it could persist long after the activity has ceased, in which case the duration may be regarded as the time the VR needs to recover from the effect.

Evaluation of each potential impact will be done by applying descriptors to each of the above criteria, based on qualitative or, to the extent possible, quantitative evaluation, as follows. The magnitude of impact is allocated one of the following categories:

- vi. Very Low - A very small proportion of the VR is affected.
- vii. Low - A small proportion of the VR is affected.
- viii. Moderate - A moderate proportion of the VR is affected.
- ix. High - A large proportion of the VR is affected.
- x. Very High - A very large proportion or all of the VR is affected

### **5.2.2 Assessment of Impact Significance**

For this report, the final impact significance is the result of the combination of the Basic Impact Index and the VR categorization, as shown in Table 1, where impact significance may result in one of the following classes: Insignificant (IN), Minor (MI), Moderate (MO) or Major (MA).

Table 1: Basic Impact Index and VR Categorization.

Categorization	Basic Impact Index					
	N	VL	L	M	H	VH
L	IN	IN	IN	MI	MO	MA
M	IN	IN	MI	MO	MA	MA
H	IN	MI	MO	MA	MA	MA

Impacts rated as Minor, Moderate or Major are considered to require mitigation measures in order to eliminate the impact or, where this is not possible, to reduce their significance ranking to minor or insignificant. These mitigation measures are set out in Chapter 6.1. Further, additional management commitments are presented in Chapter 6.2.

Environmental and social impacts are caused by aspects and can have a direct impact on the environment and social conditions, contribute indirectly to a larger environmental and/or social change, or cumulative. In the present report, the cumulative impact is defined and assessed as the aggregate of individual impacts of the activities of the project or the individual impacts of the project to those of other surrounding projects or activities.

### 5.3 Predicted Impacts of the Project

#### 5.3.1 Description of Positive Impacts

##### 5.3.1.1 Description of Positive Impacts during the Planning Phase

The main activities intended to be undertaken during the Planning Phase of the project are as follows:

- i. Identification of the project site;
- ii. Resettlement of PAPs;
- iii. Clearing of the project site;
- iv. Designing of the project structures;
- v. Identification of principal contractor; and
- vi. Training of staff on the ESMP and other environmental issues relative to the project.

Most of the activities have already started or have been completed. Resettlement of project affected persons (PAPs) and training of staff are positive impacts.

##### 5.3.1.1.1 Resettlement of PAPs

Resettlement of PAPs would have been seen as negative. However, the fact that these PAPs were fully compensated and provided other allowances to enable them

successfully relocate to difference locations and restore their livelihood to what it was before resettlement or better is considered as positive. A total of 113 PAPs were resettled, receiving a total payment of US\$998,092.59 for assets and other benefits.

#### **5.3.1.1.2 Training of Staff**

Training of staff of MOH and the principal contractor relative to the ESMP and other environmental issues pertaining to the project is also positive. This will enlighten their understanding and provide them knowledge about this ESMP and all of the impacts pertaining to the project. It will also provide them understanding of mitigation measures against adverse issues pertaining to the project.

#### **5.3.1.2 Description of Positive Impacts during the Construction Phase**

Main activities during the construction phase of the project will include:

- i. Digging of the foundations for structures;
- ii. Construction of a structure components;
- iii. Roofing of structures; and
- iv. Construction/installation of incinerators.

The following are the anticipated as positive impacts during the construction phase of the project: Employment opportunities; acquisition of skill during construction, and income generation for locally produced/sold materials and equipment.

#### **5.3.1.2.1 Employment Opportunities**

The construction works will provide employment opportunities for many Liberian nationals. Some of these will be short term employment and other long term as construction of Phase 2 of the project is expected to proceed after Phase 1, which is envisaged for two (2) years. During their employment periods, Liberians are expected to receive incomes that will enhance their standard of living.

#### **5.3.1.2.2 Acquisition of Skill**

It is expected that all staff working on the project will receive some skills. This will range from technical to environmental. Even for Liberians who will be employed for the short term, knowledge and skills acquired during the implementation of Phase 1 construction will enhance their capability and make them highly employable for other construction projects. For those who will likely proceed to Phase 2, they will be highly qualified such that they will be highly employable for similar projects envisaged in the development of the country during the next administration.

#### **5.3.1.2.3 Income Generation**

For the construction of the new Redemption Hospital, the following materials presented in Table 1 will be used:

Table **Error! No text of specified style in document.**: Construction Materials for the new Redemption Hospital.

Listing of construction materials	Listing of construction materials	Listing of construction materials
Portland Cement	Ceiling Boards	Crushed Rocks (coarse aggregate)
White Cement	Plywood	River Sand (fine aggregate)
Plaster of Paris	Bamboo	Stabilized Earth Bricks
Grout	Terrazzo Tiles	Steel for Reinforcement
Hydrated Lime	Ceramic Tiles	Harvey Firestone Rubber Wood
Masonry Blocks	Roofing Sheets	Electrical Systems Installations
Round Poles	Paints	Plumbing Systems Installations
Timber Woods		Mechanical System Installations

Preference will be given to sourcing construction materials locally. Hence, this will provide business opportunities for local materials suppliers and increased income opportunities. The impact can be enhanced by ensuring that suppliers are adequately paid for the materials to be supplied and in a timely manner.

### **5.3.1.3 Description of Positive Impacts during the Operational Phase**

It is anticipated that construction of the new Redemption Hospital will provide an enhanced medical facility to provide critically needed medical services for a large population of Liberia. This will be a positive impact on the general health services of the country.

### **5.3.2 Description of Negative Impact**

#### **5.3.2.1 Description of Negative Impacts during the Planning Phase**

There will be insignificant impacts on the biophysical and socio-economic environment during Phase 1 of the construction of the new Redemption Hospital as the activities are limited to predominantly desk work.

#### **5.3.2.2 Description of Negative Impacts during the Construction Phase**

Construction components and activities for the proposed project are more fully described in Chapter 3. The construction of Phase 1 is expected to extend for a period of two (2) years. General site grading, construction of access roads, excavations, and foundations of the structures is expected to be less than one year and thus classified as very low. Whereas, the other construction activities duration is expected to be more than fifteen (15) months, yet less than twenty four (24) months and consequently classified as low.. The following discuss the main negative impacts to the biophysical and socio-economic environments which may occur during the construction phase(s) of the proposed project.

### **5.3.2.2.1 Air Quality**

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Dust emissions and gaseous emissions can adversely affect air quality and cause environmental nuisance to the project and surrounding areas. The construction activities that will take place onsite are expected to result in considerable quantities of gaseous emissions.

The contaminants of potential concern during the construction phase(s) may include: NOx , SOx , CO and Particulate Matter. Impacts on air quality in the project area could result from all of the activities associated with construction activities, except for staffing, subcontracting, and services.

### **5.3.2.2.2 Dust and Particulates**

Fugitive dust and particulate matters will be generated during the construction phase(s) of the proposed hospital. This will lead to a localized temporary reduction of air quality, which is considered to potentially affect workers onsite and some offsite receptors such as adjacent road users and residents of surrounding communities. The following are the main impacts expected to result from the generation of dust:

- i. nuisance and disturbance;
- ii. loss of visual amenity through deposition;
- iii. impacts on the health of onsite workers (i.e. increase in allergies, respiratory stress);
- iv. visual and health disturbances to neighboring communities;

According to the researches, large particles responsible for nuisance dust are most likely deposited within 100 m of the source, while smaller particles can travel up to 1 km. Therefore, the majority of the dust generated is likely to be deposited within the project area. However, there may also be additional dust deposited offsite during material and equipment transport in case of off-road vehicle movement.

Emissions of fugitive dust and particulates will potentially depend on the wind speed and direction and will persist as long as the construction is ongoing. It is expected that dust and particulates are expected to increase temporarily during the construction phase(s).

### **5.3.2.2.3 Gaseous Emissions**

Another contributor to air quality reduction will be the emissions from vehicle-exhaust during site clearing and grading, transport of material and equipment and due to equipment use. These emissions include:

- i. Sulphur dioxide (SO<sub>2</sub>): the amount of SO<sub>2</sub> in exhaust gases is directly dependent on the sulphur content of the used fuel.
- ii. Nitrogen oxides (NO<sub>x</sub>): NO<sub>x</sub> emissions from equipment or activities contribute to pollution in the form of acid rain, disturbances of the ozone layer and local health problems.
- iii. Carbon oxide (CO): The release of carbon monoxide (CO) occurs as a result of incomplete combustion of fuel in engines.

Emissions of exhaust gases are expected to be generated from vehicles, site machinery, and heavy equipment used for the construction activities. Heavy equipment such as bulldozers will produce exhaust emissions from diesel engines leading to temporary increase in SO<sub>x</sub> and NO<sub>x</sub> concentrations. Due to the lack of information on the site equipment to be used, it was not possible to provide estimates for exhaust gas emissions for conducting quantitative assessment.

Exhaust gases will lead to a localized temporary reduction of air quality which will persist as long as the construction activities are being undertaken. The reduction of air quality is considered to potentially affect workers onsite and offsite receptors such as adjacent road users and surrounding communities. Emissions of vehicle exhaust gases during the transport of equipment and material are expected to occur throughout the construction phase(s) and their impact is expected to affect some receptors outside the project area.

*It is also worth mentioning that the levels of SO<sub>2</sub>, NO<sub>x</sub>, and CO are expected to temporarily increase during the construction phases. However, the significance of impacts from the different construction activities is expected to be **Moderate** and for a **short term**.*

#### **5.3.2.2.4     Soil**

Construction activities may affect soil characteristics; it may also affect the current or future land-use in the vicinity of the project area. Impacts on soil and land-use may result mainly from the general site clearance and grading, construction of access roads, excavations, and foundations of structures.

Excavation and movement of heavy machinery on unpaved surface soils during site preparation and foundation-laying could cause a physical breakdown of soil particles potentially causing destabilization of the soil structure. The resulting breakage of soil particles may render the soil more susceptible to erosion by exposing the finer grained materials to wind. However, temporary ditches, sediment fences, and silt traps will be installed as necessary to control soil erosion or displacement due to site preparation activities.

*The impacts from the specified construction activities are expected to be restricted to localized areas throughout the construction phase(s), and considering the low sensitivity of the soil, the impact on soil from these activities is considered to be **Minor**.*

#### **5.3.2.2.5 Water Quality**

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There is a body of surface water on the project site, as well as ground water. Hence, this section discusses the impacts on groundwater and surface water resources at the project site.

#### **5.3.2.2.6 Groundwater**

Impacts to groundwater quality during the construction phase(s) may result from incidental spills at onsite maintenance locations/workshops for construction. Such impact could result in introducing organic matter, hydrocarbons (oils), coliforms or heavy metals to the shallow groundwater aquifer. Organic or hydrocarbon contamination could increase the biochemical oxygen demand (BOD) load on the groundwater. The shallow groundwater in the project area will not generally be used for drinking. However, due to proximity of the site to surrounding residential communities where ground water is used for drinking and other domestic activities, contamination of the ground water could lead to brackish water for these communities.

*Despite the medium sensitivity of the shallow groundwater, the impact is expected to be of localized nature (limited to the project area). Consequently, the significance of impact on groundwater is expected to be **Minor**.*

#### **5.3.2.2.7 Surface Water**

Of the 35 acre site, 9 acres (26% of total site area) are low-lying wetland with standing surface water during the wetter parts of the year. It is recommended that this area will be left undeveloped, where possible, to minimize ecological impact and cost associated with remedial site work.

Impacts to surface water quality during the construction phase(s) may result from incidental spills at onsite maintenance locations/workshops for construction. Such impact could result in introducing organic matter, hydrocarbons (oils), coliforms or heavy metals to the surface water.

*The impact on the surface water due to the construction activities is classified as **Moderate**. However, mitigation measures to be applied are presented in Chapter 6.*

#### **5.3.2.2.8 Terrestrial Ecology and Biodiversity**

The proposed project site is mostly sparse vegetation – grasses and shrubs. A portion of the site was cleared in 2015 which resulted in the loss of existing mature vegetation on the site.

No protected species have been observed onsite and their presence is not expected within the project site.

Terrestrial ecology and biodiversity may be affected during construction activities. Impacts could result from the general site clearance and grading, construction of access roads, excavations, and foundations of structures. 32

*However, the construction activities will result in flora and habitat potential loss which is not considered significant. This is expected to occur at the early start of the construction phase. The low sensitivity of biodiversity together with the small magnitude and localized nature of the impact, which occurs in the immediate area of the activities, will result in an impact that is considered **Insignificant**.*

#### **5.3.2.2.9 Human and Socio-economic Environment**

Valued receptors evaluated in the context of this impact assessment include economic activities, traffic, and population living in surrounding communities. Impacts could result from the following project activities: staffing, subcontracting; and services.

#### **5.3.2.2.10 Population**

During the construction phase(s), there will be a number of machinery and heavy equipment operating at the site which will increase the noise level in the project area and impact the surrounding population. The ambient noise levels are expected to increase during the construction activities. Also, machinery and equipment transport on the main roads in the area will typically increase noise levels periodically at communities located close to the road, which may lead to their disturbance.

*The construction period though limited, is expected to have impacts on population, this impact is expected to be of **Moderate significance** through all project aspects during construction phase(s).*

#### **5.3.2.2.11 Economic Activities**

Economic activities near the project area may be affected during the construction phase(s) of the project. There will be benefits for the local community resulting from operation of food centers and merchandise commercial stores, as well as services and subcontracting local contractors.

*Moreover, during the construction phase(s), the project will create employment opportunities by offering approximately 150 job opportunities directly in industry, and will indirectly offer many employment opportunities. Therefore, it is expected that there will be **Positive** benefits for the local community in terms of employment and income for the local economy. Employment prospects will exist for skilled and unskilled labour, and*



*caterers. Every attempt will be made to recruit qualified local construction personnel wherever practical. Training may also be provided that is necessary for many of the new staff, and new skills and techniques will be transferred to the local market. These activities are expected to result in **Positive** impacts and are not subject to further assessment*

#### **5.3.2.2.12 Traffic**

Delivery of construction materials and equipment to the construction sites will be by road transport. The transportation of material and equipment to the construction sites will cause temporary increase in traffic along the roads.

*Given that these activities will occur through the construction phase even though the impact extends outside the project area, thus the impact expected on the traffic conditions is **Moderate**.*

An evaluation of the potential impacts during the construction phase(s) discussed in this section is presented in Table 2. Mitigation measures to reduce minor, moderate, and major impacts are identified and presented in Chapter 6.1. Moreover, environmental and social commitments can be found in Chapter 6.2.

Table 3: Evaluation of potential negative impacts during the construction phases.

Project Aspect	VR	Impact	VR Category	Magnitude	Extent	Duration	Significance
Staffing	Economic Activities	Employment and income	High	-	-	-	Positive
Subcontracting and Services	Economic Activities	Income to local community	High	-	-	-	Positive
General site grading, construction of access roads, excavations, and foundations of structures.	Air Quality	Reduction of air quality due to emissions, dust and particulate generation	Medium	Moderate	Low	Very Low	Moderate
	Soil	Degradation of soil quality	Low	Moderate	Low	Very Low	Minor
	Water Resources	Contamination from sanitation facilities or construction works	High	Moderate		Minor	Major
	Terrestrial Ecology and Biodiversity	Loss of terrestrial habitat and flora	Low	Low		Very Low	Insignificance
	Population	Nuisance to population	High	Low		Very Low	Moderate
	Traffic	Increase of traffic due to construction material and equipment delivery	Low	Low		Very Low	Moderate

### **5.3.2.3 Description of Negative Impacts during the Operation Phase**

The significant negative impacts associated with the operation of the hospital will be management of medical and other wastes, air pollution and water pollution.

#### **5.3.2.3.1 Waste Generation**

Solid waste will be generated during the operation of the new hospital. Some of the wastes may be hazardous to the environment e.g. plastic are not biodegradable. Medical and other infectious wastes are also expected to be generated. It is however expected that appropriate garbage bins will be placed at several locations on site to collect and store solid wastes generated. They will be regularly collected and disposed by a certified waste handling company. For medical infectious wastes, an incinerator will be constructed on site to dispose of said wastes.

*Solid and medical infectious wastes to be generated during the operational phase of the hospital will be properly managed and disposed such that this negative impact would have **Low Significance**.*

#### **5.3.2.3.2 Air Pollution**

During operation of the new Redemption Hospital, an incinerator will be constructed to dispose of medical infectious wastes. This activity will likely contribute to increased air pollution. The emission to be generated from operation of the incinerator, together with those from other sources, will accumulate in the air over a long period of time. The smoke will also be a nuisance.

It is however expected that any incinerator to be constructed at the site will be state-of-the art. It will also be properly managed and regularly maintained by trained staff. Trees will also be planted near the incinerator area to absorb carbon dioxide that will be generated by the incinerator.

*Operation of an incinerator at the new hospital may contribute to increased air pollution. The incinerator will be managed and maintained such that this negative impact would have **Low Significance**.*

#### **5.3.2.3.3 Water Pollution**

It can be assumed that spillages of wastewater and other chemicals to be generated by the new Redemption Hospital may eventually seep into the groundwater or flow into the surface water body at the site. Moreover, the area has a high water table increasing chances of ground water pollution.

The medical facility will use septic tanks and soak-pits, which can also be sources of surface and ground water pollution. Overflows and/or outflows through either the manholes or broken/leaked pipes could lead to water pollution.

Measures will be taken to properly site and construct septic tanks/ soak-pits and facilities will be regularly preventively maintained to ensure there is no spill.

*Construction of septic tanks and soak pits and preventive maintenance will ensure that this negative impact would have **Low Significance**.*

## **6.0 ENVIRONMENTAL & SOCIAL MANAGEMENT PLANS**

### **6.1 Management Plan/Mitigation Measures**

This section considers mitigation of the significant potential impacts resulting from the construction of the new Redemption Hospital that were identified and evaluated in Chapter 5. These measures and/or procedures are meant to be considered and adopted as appropriate by MOH and the principal contractor during the construction phases of the proposed project. Many of these have already been included as part of the project plan, but are reiterated in this section with reference to specific potential impacts. The main objective of the mitigation measures is to reduce the significance of the potential impacts to an acceptable level for all aspects of the project in relation with the receiving environment.

Mitigating measures and procedures are grouped according to the VRs (air, soil, water, ecology, and human environment).

#### **6.1.1 Air Quality**

As previously shown in Section 5.3.1, dust generation as well as exhaust emissions are the potential sources of impact on the air quality in the project and surrounding areas. It is not expected that these emissions will have a long-term impact on the atmosphere due to the short duration of the construction activities (approximately twenty four (24) months).

##### **6.1.1.1 Dust and Particulates**

Although no baseline data was collected, the air quality in the project area can be considered good as the site is very far from industrial activities. Therefore, mitigation measures will be adopted during the progress of the construction phase(s) to reduce air pollution and to maintain the current air quality within the acceptable limits.

It is recommended that the following management and control measures are adopted during the construction phase(s):

- i. Monitoring of wind speed and direction to manage dust-generating activities during undesirable conditions.
- ii. Dust suppression should be undertaken where necessary by covering and/or spraying affected land surfaces with water.
- iii. Prevent offsite migration of dust using appropriate screens.
- iv. Use or establish hard-covered roadways for vehicle movement.
- v. Vehicle speed restrictions should be applied across the project site to avoid excessive dust generation.
- vi. Trucks transporting excavated soil and other construction raw material to and from the site to be covered to minimize fugitive dust emission.
- vii. Minimize unnecessary journeys.

- viii. Cover all onsite construction material and construction waste storage/stockpiling locations.

#### **6.1.1.2 Gaseous Emissions**

The expected emissions originating from the machines and equipment are CO, CO<sub>2</sub>, NOX, and SOX. It is recommended that the following mitigation measures are adopted during the progress of the construction phase(s) to reduce air pollution and to maintain the current air quality condition:

- i. Use low sulphur content fuel, when possible, for machinery and equipment to reduce SO<sub>2</sub> emissions from engines whenever possible.
- ii. Modify machinery to reduce NOx emissions.
- iii. All energy consuming and CO<sub>2</sub>-generating activities should be done as efficiently as possible to minimize CO<sub>2</sub> emissions.
- iv. Adopt a policy of switching off machinery and equipment when not in use (idle mode).
- v. Appropriate maintenance, engine tuning and servicing of construction equipment to minimize exhaust emissions
- vi. Minimize unnecessary journeys or equipment use.

#### **6.1.2 Soil**

Construction of access roads, site clearing and grading, excavations and foundations of structures are the main activities that can potentially be responsible for soil degradation. The general impact of the aspects on soil is classified as Minor. However, some mitigation measures can be implemented for reducing impacts on soil such as:

- i. Minimizing areas of excavation and work as possible.
- ii. Where possible, excavated material shall be reused during the construction works onsite as appropriate.
- iii. Stockpiling of soils onsite to be kept to a minimum.
- iv. Best practices for soil management should be followed.
- v. Good housekeeping to minimize spills or leaks.
- vi. Minimize onsite storage of potentially contaminating materials.
- vii. Proper handling and management of wastes.
- viii. Proper handling and storage of potentially contaminating materials (e.g. diesel fuel) and wastes in appropriate secondary containment to avoid accidental release.
- ix. Avoid the use of construction materials containing PCBs or asbestos.
- x. Regular maintenance of vehicles and machinery in equipped and specialized facilities.

### **6.1.3 Water Resources**

#### **6.1.3.1 Ground Water**

It is expected that the proposed construction activities will have a Minor impact on the quality of the as previously detailed in Chapter 5. The following measures are recommended to be implemented during construction to prevent any pollution of groundwater:

- i. Control all onsite wastewater streams and ensure appropriate collection, treatment and discharge. Prevent discharge of contaminants and wastewater streams to ground.
- ii. Good housekeeping to prevent leaks and incidental spills.
- iii. Minimize onsite storage of potentially contaminating materials.
- iv. Adequate management and proper handling and storage of construction materials, oils and fuel to avoid spillages.
- v. Wastes properly managed and disposed.
- vi. The implementation of a continuous and regular site inspection system.

#### **6.1.3.2 Surface Water**

The proposed construction activities are expected to have a Major impact on the surface water quality. However, applying the proposed mitigation measures will reduce the impact from Major to Moderate. The mitigation measures include but are not limited to:

- i. Avoiding seepage of wastewater, fuel, oil and oily water into the surface water body.
- ii. Waste disposal to the surface water environment are prohibited.
- iii. Treat accidental spills with spill containment and clean up (dispersant) materials.
- iv. Weather conditions will be assessed before work commences each day. Work activities will be suspended during thunderstorms.

#### **6.1.4 Terrestrial Ecology and Biodiversity**

It is assumed that the impact of the different construction activities on the terrestrial ecology and biodiversity is expected to be Insignificant. Although it is not mandatory to implement mitigation measures; nonetheless, the below listed general measures shall be followed as necessary during the construction phase(s):

- i. Prevent unnecessary clearing or disturbance of native vegetation.
- ii. Vehicle tracks and roads should be used to decrease habitat destruction.
- iii. Minimize areas of excavation and active work sites as far as possible.
- iv. All work will be undertaken during the day, as much as practical, to ensure lighting does not impact birds and noise will be reduced as much as reasonably practical to avoid fauna disturbance.

- v. If protected or sensitive species are discovered or suspected, then work will be ceased and the EPA will be informed. The principal contractor will seek expert advice and/or consult MOH in order to develop and agree on an appropriate management strategy.
- vi. No litter or plastic bags/containers will fly off the site boundaries.

## **6.1.5 Human Environment**

### **6.1.5.1 Population**

The construction of the new Redemption Hospital will have both positive and negative (Moderate and Minor) impacts on the human environment as detailed in Chapter 5. The present section presents the recommended mitigation measures for the negative impacts.

The negative impacts on the human environment are related to nuisance to population near the proposed project site (e.g. increased noise and gaseous emissions). Applying the below mitigation measures will reduce the Moderate impacts to Minor and most of the Minor impacts to Insignificant. The mitigation measures to reduce the noise level to lowest permitted levels during construction phase include the following:

- i. Machinery and generators with ‘quiet’, ‘muffled’ or ‘silenced’ running should be used where available.
- ii. Noise producing equipment (e.g. generators) shall be operated away from receptors where possible.
- iii. Use baffles and acoustic insulation where appropriate.
- iv. Fitting vehicles with effective exhaust silencers, where available.
- v. Restrict working hours for particularly loud or intrusive activities.
- vi. Minimize machinery operation and vehicle movements
- vii. Minimize night time vehicle movement.
- viii. Vehicle speed restrictions should be applied.

Further recommended management and control measures that need to be applied in general include:

- i. Notify residential communities of the expected time for the start of project activities.
- ii. Provide a permanent focal point of contact for the local population and other concerned persons or entities to direct their concerns.
- iii. Encourage good housekeeping to mitigate impacts associated with litter or waste accumulation and/or deposition, etc. both on and offsite.
- iv. Where communities are present, vehicles speed should be reduced. Operators of construction equipment and vehicles should adhere to local speed limits and rules to ensure the safety of people. This may also require some work for implementing road improvements



### 6.1.5.2 Traffic

It is assumed that applying the appropriate mitigation measures will assist in reducing Moderate impact of traffic during the construction phases of the new Redemption Hospital to Minor. Recommended mitigation measures for the increased traffic load and to avoid traffic congestions include:

- i. Avoid vehicle movements during rush hours.
- ii. Adopt a traffic plan to cover all transport arrangements during the construction phase(s)
- iii. Drivers will undergo medical surveillance to ensure that they are fit for driving.
- iv. Adequate planning of activities to ensure and avoid unnecessary transportation trips. This may include ensuring full loading of trucks for the transport of required construction materials to the site where possible.
- v. Provide driver safety training.

Table 3 presents the impacts on each VR and the detailed recommended mitigation measures to be followed during the activities of the construction phase(s) as well as an assessment of the significance of the residual impact of that phase after implementing the mitigation measures.

Table 4: Residual impacts during construction.

Construction Aspect	VR	Impact	Significance – Pre Mitigation	Significance – Post Mitigation
General site grading, construction of access roads , excavations, foundations of structures	Air	Reduction of air quality due to emissions, dust and particulate generation	Moderate	Moderate
	Soil	Degradation of soil quality	Minor	Minor
	Water	Contamination of surface and/or ground water	Major	Moderate
	Terrestrial Ecology and Biodiversity	Loss of terrestrial habitat and flora	Insignificant	Insignificant
	Population	Nuisance to population	Moderate	Moderate
	Traffic	Increase in traffic due to constructions material and equipment delivery	Moderate	Moderate

## 6.2 OCCUPATIONAL HEALTH AND SAFETY

The Ministry of Health (MOH) shall encourage the contractor to ensure positive impact of introducing occupational health and safety (OHS) management system during the

implementation of the project. This will ensure the reduction of hazards to the environment associated with the hospital construction, as well as risks to workers. This will be in adherence with the National Occupational Health and Safety Guidelines of MOH.

The OHS Guideline has been developed to reflect Government of Liberia values and instruments relevant to the protection of workers' health and safety. The Guidelines also recommends measures for minimizing the risk of work-related diseases and or injuries for workers and the working environment.

Hence, for the construction of the new Redemption Hospital, MOH will ensure that the contractor implements the following OHS measures:

- i. Ensure a healthy and safe workplace through the use of standard operating procedures and orientation of all workers and review those procedures at least quarterly.
- ii. Instruct, inform and supervise workers to protect their health and safety.
- iii. Put in place a workplace health and safety policy and management systems.
- iv. Appoint or employ competent person(s) as occupational health safety supervisor(s) with the consent of the Ministries of Health and Labor.
- v. Assist in a medical emergency by providing any information— including confidential business information—to a qualified medical practitioner who requests the information in order to diagnose or treat any person.
- vi. Help committees and health and safety representatives to carry out their duties.
- vii. Post in the workplace a copy of the Occupational Health and Safety guidelines where workers will be most likely to see it, as well as explanatory material prepared by the Ministry that outlines the rights, responsibilities and duties of workers. This material must be in English.
- viii. Prepare a written occupational health and safety policy, review that policy at least quarterly and set up a program to implement it.
- ix. Post a copy of the occupational health and safety policy in the workplace, where workers will be most likely to see it.
- x. If a person, whether a worker or not, has been critically injured or killed at the workplace, the contractor should immediately notify an inspector, be it health or labor inspectors. This notice should be by direct means, such as by telephone, email, etc. Within 48 hours, the contractor must also notify, in writing, the Ministry

of Health, giving the circumstances of the occurrence and any information that may be prescribed.

- xi. If an accident, explosion or fire occurs and a worker is disabled or requires medical attention, the contractor must notify MOH, if any, within four days of the incident. This notice must be in writing and must contain any prescribed information. If required by an inspector, this notice should also be given to the Chief Medical Officer (CMO) of the Ministry of Health.
- xii. Even if no one is hurt, written notice of an accident or unexpected event that could have caused an injury in the workplace is required from the contractor. This notice must be given to the CMO of the Ministry of Health and copy to the Labor Ministry, within two days and must contain any prescribed information.
- xiii. Develop and put in place appropriate frameworks to identify, evaluate and manage risks.
- xiv. Develop appropriate framework for dialoging/consulting with worker representatives.
- xv. Orientate workers on hazards and their mitigation.
- xvi. Require, collect and keep medical records on all workers. This should be established from time of employment and based on results of medical tests carried out by any recognized medical facility, and workers shall not be discriminated against based on their results and disability.
- xvii. Report all job related accidents and incidents to the Division of Environmental and Occupational Health of the Ministry of Health.

The principal contractor for the new Redemption Hospital construction is to ensure that all workers and sub-contractors on the project adhere to the following:

- i. Observe the universal and workplace safety procedures at all times.
- ii. Receive OHS training and information.
- iii. Work in compliance with the Act, policies, guidelines, plans and regulations of the workplace.
- iv. Adhere to all work related safety requirements.
- v. Use or wear any equipment, protective devices or clothing required by the contractor.

- vi. Report to the principal contractor or supervisor any known missing or defective equipment or protective device that may be dangerous.
- vii. Report any known workplace hazard to the health and safety supervisor or principal contractor supervisor.
- viii. Report any known contravention of the guideline or regulations to the health and safety supervisor or contractor supervisor.
- ix. Not remove or make ineffective any protective device required by the contractor or by the regulations.
- x. Not use or operate any equipment or work in a way that may endanger any worker.
- xi. Not engage in any prank, contest, feat of strength, unnecessary running or rough and boisterous conduct.
- xii. Submit to medical examinations, as required by the contractor. This is based on the nature of the job; and
- xiii. Ensure workplace participation.

### **6.3 COMMUNITY HEALTH AND SAFETY**

The Community Health and Safety Plan complements the guidance provided in the preceding Environmental and Occupational Health and Safety sections, specifically addressing some aspects of the project activities taking place outside of the traditional project boundaries, but nonetheless related to the project operations, as may be applicable on a project basis.

The scope of the Community Health and Safety Plan addresses MOH's commitment to:

- i. Mitigate potential impacts of Project related activities that may affect the health and safety of communities within the project area and along the transportation route;
- ii. Maintain a healthy workforce and labour pool in the community; and
- iii. Contribute to the improved health and wellbeing of the local community in the project area.

This Plan will be implemented at the beginning of the construction phase. In accordance with the current state of project development, this Plan provides a framework which is conceptual in nature and will be updated as and when necessary.

Some of the significant risks to the community to be considered during the construction of the new Redemption Hospital include:

- i. Possible pressure and/or additional demand on community health services associated with the influx of workers from outside the project area;
- ii. Possible change in community wellness as a result of alcohol and substance abuse associated with the influx of workers from outside the project area;
- iii. Possible Change in Community Health as a result of sudden spread of communicable and non-communicable diseases including sexually transmitted diseases (STDs) associated with the influx of workers from outside the project area;
- iv. Possible pressure on traffic and transportation network associated with construction and operations activities; and
- v. Possible change in water and air quality associated with construction and operations activities.

In addition to the potential negative impacts associated with the project, which would require mitigation, the operation of the new redemption Hospital has the potential to improve community health and safety through the following measures:

- i. Improved access to medical facilities for communities due to new healthcare facilities;
- ii. Improved workforce health awareness; and
- iii. Improved standards of living of direct and indirect employees due to better income in the employees' households.

To counter the risks associated to the community by the project implementation, the following measures will be implemented:

- i. Relative to the spread of communicable diseases due to the influx of new workers to the area, MOH will Awareness campaigns on hygiene and sanitation and how these diseases spread to communities around the project area;
- ii. Relative to non-communicable disease or exposure to materials which may cause non-communicable diseases, MOH and the principal contractor will obtain information on all hazardous materials and means of their control on site and in the vehicles which will transport them and communicate same to the communities around the project area. MOH and the principal contractor will also make effort to avoid possible community exposure, and if it does occur, staff will be trained to control and mitigate the situation.
- iii. Relative to illness and harm of employees/community members exposed to hazardous wastes through the incorrect disposal of hazardous wastes or badly controlled transportation of wastes to disposal sites, MOH and the principal contractor will institute measures to control the transport and disposal of all waste of and off site. MOH and the principal contractor will also ensure that only registered disposal sites are used and records are maintained of all waste leaving site. MOH and the principal contractor will also ensure the training of staff on matters pertaining to hazardous materials that could be encountered on site and measures to be taken in case of a spill or road accident during waste transportation.
- iv. Relative to the emissions from equipment and vehicles to the communities, MOH and the principal contractor will ensure that haul trucks will be limited to few hours during the day. The principal contractor will also avoid using downward pointing exhausts and will ensure regular maintenance checks of all vehicles and equipment.
- v. Relative to dust from transport, MOH and the principal contractor will ensure speed control limits during the project implementation. MOH and the principal contractor will also ensure haul trucks are not overloaded and are covered where necessary.

- vi. Relative to accident in the community, MOH and the principal contractor will ensure speed control limits. MOH and the principal contractor will also ensure that haul trucks are not overloaded and are covered where necessary. MOH and the principal contractor will also investigate reasons and implement more strict or new measures if need it; and will conduct community awareness and erect signage as designated locations.
- vii. Relative to surface water during flood, impacting the project site or surrounding communities, MOH and the principal contractor will conduct a flood risk assessment and institute measures to curtail the impact.
- viii. Relative to noise level during the construction and its impact on surrounding communities, MOH and the principal contractor will conduct regular monitoring and will limit working hours only during the day. There will also be speed restriction and workers will be issued with the necessary PPE, including ear muffs, where noise level is high.
- ix. Relative to potential economic impact on household livelihood in surrounding communities near the project area, MOH and the principal will ensure that locals are hired for unskilled and skilled work, where possible.

### **6.3.1 Review and Revision of the Community Health and Safety Plan**

This Plan will be reviewed on a quarter basis during the construction of the new redemption Hospital. All necessary revisions will be made to reflect the changing circumstances or operational needs of the project.

Revision of the Community Health and Safety Plan will be the responsibility of Environmental Officer of MOH and the principal contractor. If material changes to operating procedures are required, this Plan may be updated on an “as required” basis and all project staff shall have access to the latest version of this Plan.

## **6.4 Construction Environmental and Social Commitments and Monitoring Plan**

This section presents an overall statement of intent with regard to environmental and social management plans (ESMP) for the proposed project. According to Annex C of the World Bank Operational Policy 4.01, a project's ESMP should consist of the set of

mitigation, monitoring, and institutional measures to be taken by the project to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan should also include the actions needed to implement these measures. In general, ESMP is a delivery mechanism for environmental and social mitigation measures. The overall purpose of the ESMP is to ensure that recommendations provided are translated into practical management actions which can be adequately resourced and integrated into the project phases.

The main objectives of the Construction Environmental and Social Management and Monitoring Plan are to:

- x. Address environmental, cultural and social issues identified and considered to be important;
- xi. Minimize the residual environmental impacts of construction activities;
- xii. Prepare an achievable plan of environmental management for implementation;
- xiii. Detail management and monitoring tasks to be completed;
- xiv. State the timing for implementation of each task;
- xv. Provide details of reporting requirements;
- xvi. Identify roles and responsibilities for ensuring that relevant tasks are completed;
- xvii. Provide contingency plans that can follow in the event of non-compliance or complaint; and
- xviii. Detail protocols, registers and standards reporting forms for documenting complaints, non-compliances, unplanned exceedance and discharges, etc.

The Construction Environmental and Social Management commitments are presented in Table 5. These commitments are meant to manage the residual impacts during the construction phase (Table 4. In addition, Table 6 shows some general management commitments to be followed during the construction phase(s).



Table 5: Construction Environmental and Social Management Commitments

VR	Residual Impact Significance	Construction Management Commitment	Timing/Frequency
1. Soil, Surface- & Groundwater	<i>High and Moderate</i>	<ul style="list-style-type: none"> <li>➤ Temporary bunds may be considered surrounding the stock piles when storing fine material, wherever practicable, to minimize the loss of fine component and impacts on adjacent soils.</li> <li>➤ Stage construction such that all earthworks immediately follow clearing and grubbing.</li> <li>➤ Design a drainage channel along the perimeter of the disturbance boundary to divert runoff around the site.</li> <li>➤ Sufficient spill response kits will be made available and accessible onsite. Train field staff on the contents and use of spill kits.</li> <li>➤ Record of soil condition/quality prior to the commencement of the construction activities will be used as a reference for future monitoring activities.</li> </ul>	Pre-construction commencement
		<ul style="list-style-type: none"> <li>➤ Onsite repair, maintenance, oil change, cleaning, and washing for the plants, equipment, vehicles, concrete truck mixers, etc. is prohibited.</li> <li>➤ Stock piles will be covered to ensure protection from wind sources.</li> <li>➤ Minimize the period of time that soil is left exposed without erosion controls (e.g. water spraying)</li> <li>➤ Movement of vehicles, machinery and equipment will be through designated corridors.</li> <li>➤ Site specific waste management will be implemented to handle the various types of waste (hazardous and non-hazardous). These waste management plans will focus on material accountability to minimize waste and subsequent deterioration of adjacent soil/surface-and groundwater quality.</li> <li>➤ Backfill and re-contour all temporary excavations and pits.</li> </ul>	During Construction

		<ul style="list-style-type: none"> <li>➤ <input type="checkbox"/> Limit as far as practicable the total area disturbed at all times.</li> <li>➤ All earthworks will be maintained within a predetermined envelope of disturbance to avoid unnecessary disturbance to vegetation and exposure of soil.</li> </ul>	
		<ul style="list-style-type: none"> <li>➤ All storage areas should be lined and be inspected for cracks and holes and they will be maintained whenever needed.</li> <li>➤ Ensure all earthworks and disturbances to landforms are supervised by a qualified person to guarantee compliance to management objectives and procedures of the ESMP.</li> </ul>	Regularly
		<ul style="list-style-type: none"> <li>➤ In case of spills, immediate clean-up is required. If soils were contaminated then remediation or disposal of the soil will be considered.</li> <li>➤ All erosion and soil control features will be inspected after each rainfall event.</li> <li>➤ After any significant spill, soil and groundwater sampling will be conducted in the vicinity of the spill.</li> <li>➤ <input type="checkbox"/> For unavoidable onsite repair and maintenance activities and prior to commissioning such activities, adequate mitigation measures will be developed in order to prevent soil and surface- and groundwater contamination. These include for example hard standing, adequate containment, plastic lining, etc.</li> </ul>	As Required
Air Quality	Minor and Moderate	<ul style="list-style-type: none"> <li>➤ Design vehicle and equipment wash down equipment for installation at the entrance/exit to the construction site.</li> <li>➤ Locate stockpiles as far away from populated areas as practical.</li> <li>➤ An induction program in dust management will be provided for all site personnel.</li> </ul>	Pre-construction commencement
		<ul style="list-style-type: none"> <li>➤ Access to vehicles would be limited to sealed and stabilized areas, as far as practicable, to reduce dust generation.</li> </ul>	

		<ul style="list-style-type: none"> <li>➤ Regular watering of unsealed/unpaved roads and exposed surfaces and stockpiles will be undertaken by water tankers/carts.</li> <li>➤ Vehicle loads involving loose materials are to be covered when travelling offsite.</li> <li>➤ Open burning of wastes will be strictly prohibited.</li> <li>➤ Areas requiring dust control should be minimized as much as possible.</li> <li>➤ Dust generation will be monitored and controlled at dust prone areas on an “as needs” basis through the use of water sprays.</li> <li>➤ Standard construction equipment and vehicles with exhaust pipes for adequate dispersion of pollutants will be deployed.</li> <li>➤ Chemicals shall be stored in a shaded, cool and well-ventilated area (as per chemical storage requirements). This will help ensure that no fumes or gases are seeping into the surrounding air.</li> <li>➤ Ensure that all vehicles entering and leaving the site and carrying a load that may generate dust are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from the vehicle at all times.</li> <li>➤ Machinery and vehicles will not be running or idle when not in use.</li> <li>➤ Review weather forecasts and reprogram works during periods of high winds to ensure that dust nuisance is not caused outside the site.</li> <li>➤ For the operation of the different equipment and machinery, different air pollutants control measures shall be implemented such as, the use of low-sulphur fuels, soot filters, and catalytic emission controls.</li> <li>➤ Stabilize temporarily disturbed land as soon as practicable.</li> </ul>	<p>Throughout construction</p>
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		<ul style="list-style-type: none"> <li>➤ Long-term storage of wastes will not be permitted onsite. In addition, for short-term storage, no wastes are to be stored outside designated areas.</li> </ul>	
		<ul style="list-style-type: none"> <li>➤ Maintenance schedules including engine tuning, filter cleaning, etc. for construction equipment and vehicle will be implemented according to manufacturers' specifications.</li> <li>➤ The performance of the dust control strategies will be monitored and maintained through visual inspections and continuous monitoring equipment.</li> </ul>	Regularly
		<ul style="list-style-type: none"> <li>➤ Earthworks will be ceased during high winds in area of visible dust generation.</li> <li>➤ Where visible dust is being generated, a water cart or hand held water sprays will be used to wet active earthwork areas, stockpiles, gravel roads and loads of soil being transported to reduce windblown dust emissions.</li> <li>➤ Any complaints relating to air emissions from construction activities will be promptly investigated and, where required, additional controls implemented.</li> <li>➤ Implement Dust Contingency Plan if unacceptable dust levels arise.</li> </ul>	As required
Population	Minor and Moderate	<ul style="list-style-type: none"> <li>➤ Maximizing local employment, whenever possible, especially for unskilled labours.</li> <li>➤ A grievance mechanism will be developed and implemented, if needed.</li> <li>➤ Awareness training will be undertaken for the workforce on the local values and sensitivities to identify and manage relevant social risks and opportunities.</li> </ul>	Pre-construction commencement
		<ul style="list-style-type: none"> <li>➤ Security measures will be implemented to prevent unauthorized access.</li> </ul>	Throughout construction

		<ul style="list-style-type: none"> <li>➤ Warning signs will be placed.</li> </ul>	
		<ul style="list-style-type: none"> <li>➤ Communicating with surrounding community in case of unplanned events such as accidents and prior to conducting any construction activity that might cause disturbance to the local community.</li> </ul>	As required
Traffic	Minor and Moderate	<ul style="list-style-type: none"> <li>➤ Equip all heavy goods vehicles with audible reversing alarms.</li> <li>➤ Minimize fuel use during transportation by undertaking a fuel use assessment in conjunction with safety assessments.</li> <li>➤ Time traffic flows to avoid periods of heavy traffic along main roads.</li> <li>➤ Provide a dedicated parking area for private vehicles of construction personnel.</li> <li>➤ Design a road system within the new hospital site.</li> <li>➤ An induction program in traffic management will be provided for all site personnel.</li> </ul>	Pre-construction commencement
		<ul style="list-style-type: none"> <li>➤ Comply with all statutory vehicle limits such as width, height, axle loading, and gross weight.</li> <li>➤ Set up and maintain clear signs, flagmen and signals where necessary during heavy machinery movement.</li> <li>➤ Adhere to speed restrictions within the construction site.</li> <li>➤ Restrict site traffic to designated internal roadway and suitably graveled areas with the approved construction disturbance boundary.</li> <li>➤ Ensure heavy vehicles and plant equipment do not leave the site until their use is no longer required to minimize unnecessary transport.</li> <li>➤ Park all vehicles and equipment not leaving site in designated areas after use.</li> </ul>	Throughout construction

		<ul style="list-style-type: none"> <li>➤ Traffic to site will be restricted to designated public roads.</li> <li>➤ Monitor movement of oversize vehicles to and from site and alert community of any planned night time transport of site.</li> </ul>	
		<ul style="list-style-type: none"> <li>➤ Vehicles will be well maintained. Basic maintenance will be carried out by the driver/operator. Defects found will be repaired before the vehicle is back to service. Periodic servicing of vehicles will be carried out in accordance with the manufacturer's instructions.</li> </ul>	As Required

Table 6: General commitments for the construction of the new Redemption Hospital.

Natural Resources	<ul style="list-style-type: none"> <li>➤ Required potable water for construction and domestic use at site will be sourced from the approved/licensed water distributors preferably from the local areas.</li> <li>➤ Water consumption will be optimized by identifying and implementing water conservation and re-use measures, wherever feasible.</li> <li>➤ Aggregates required for the civil work will be sourced through the authorized subcontractors and quarries with necessary regulatory permits.</li> <li>➤ Wood, if needed, will be supplemented in a recycled or reused form.</li> <li>➤ Optimize and reduce the use of electrical sources.</li> <li>➤ Wherever/whenever possible switch-off electrical appliances.</li> <li>➤ Optimize and reduce the use and consumption of fossil fuels and diesel.</li> </ul>	Throughout the construction phase(s).
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Noise	<ul style="list-style-type: none"> <li>➤ Construction schedule and activities will be optimized as practical to minimize the duration of impacts from noise sources.</li> <li>➤ Noisy works will be scheduled will be carried out during the day hours, as much as practical.</li> <li>➤ High noise generating equipment will be positioned as far as possible from the working environment.</li> <li>➤ All project staff to be made aware of noise issues through appropriate training.</li> <li>➤ Arrange work sites to avoid or minimize truck reversing movements and ensure vehicles enter and exit work sites in a forward direction.</li> </ul>	Pre-construction commencement
	<ul style="list-style-type: none"> <li>➤ Switch off equipment when not in use.</li> <li>➤ Idling machinery and equipment to be minimized.</li> <li>➤ Source noise reduction measures e.g. acoustic enclosures, regular maintenance, etc., will be implemented. Vehicles and equipment used will be fitted with exhaust silencers, as applicable.</li> <li>➤ Speed limit within the site will be imposed to control the noise from vehicles.</li> </ul>	During construction
	<ul style="list-style-type: none"> <li>➤ Periodic monitoring will be carried out to ensure noise control and compliance with the standards.</li> <li>➤ Maintain equipment and machinery as per the manufacturers' instructions.</li> </ul>	Regularly
	<ul style="list-style-type: none"> <li>➤ Residents in any nearby communities will be notified of any construction activities likely to affect their community.</li> <li>➤ If elevated noise levels are encountered, the source of noise is to be identified and alternative methods or additional control measures are to be implemented.</li> </ul>	As required

Solid Wastes	<ul style="list-style-type: none"> <li>➤ Waste management plan to be prepared.</li> <li>➤ Quantities of construction materials to be accurately estimated to minimize the potential for excess generation of waste.</li> <li>➤ Construction activities to be appropriately scheduled to minimize the potential for rework.</li> <li>➤ Sizing of storage areas/skips will be in accordance with the expected waste quantities and the frequency of disposal. Waste skips/containers are to be suitably labeled for easy identification of material. Waste skips will be covered to avoid waste scattering onsite.</li> <li>➤ Waste bins will be installed clearly marked wherever required. Such places include eating/rest areas, next to operational areas and next to any worker assembly areas.</li> <li>➤ Adequate waste management, awareness and communication through training, tool box talks and posters placed across the site.</li> <li>➤ Engage licensed approved subcontractors to undertake all waste and recycling activities.</li> </ul>	Pre-construction commencement
	<ul style="list-style-type: none"> <li>➤ Separate waste into different categories of recyclable materials as far as practicable.</li> <li>➤ Potential opportunities for recycle/reuse to be considered for wastes as feasible.</li> <li>➤ Potential for returning to the suppliers will be explored for wastes such as unused chemicals, empty containers, etc. Reuse options for metal scrap, wood scrap, empty containers of non-hazardous materials, packing materials, etc. will also be considered as practical. Non-recyclable waste to be disposed to approved landfills.</li> </ul>	



	<ul style="list-style-type: none"> <li>➤ Order construction materials in bulk rather than small quantities to minimize packaging materials.</li> <li>➤ Implement purchasing procedures and controls to prevent the accumulation of excess materials.</li> <li>➤ Non-hazardous wastes suspected to be contaminated with hazardous wastes should be treated as hazardous wastes.</li> <li>➤ Batteries will be recycled by Third Party or treated at an approved hazardous waste treatment facility or disposed to landfill.</li> <li>➤ Hazardous wastes, if any, will be stored separately from non-hazardous wastes in accordance with applicable regulations, project-specific requirements, and best waste management practices.</li> <li>➤ Excavated soil will be stockpiled at appropriate locations. Adequate enclosures and curbs to be provided for such storage, as practicable, to avoid blowing away by wind and run offs. Soil will be reused for backfilling and grading as practical. Any excess soil to be disposed to approved dumpsites. Uncontaminated soil will be re-used as filler or disposed to authorized landfill site.</li> <li>➤ Proper segregation, storage, transport and waste disposal to a licensed landfill will be conducted by an authorized waste handling contractor.</li> <li>➤ Compilation of waste data for recording waste movement including: solid and inert waste materials, description of waste types, physical nature of wastes, proposed treatment, dates of movement, transporters, and waste destination details.</li> <li>➤ Minimize the use of materials that potentially generate hazardous wastes.</li> </ul>	Throughout construction
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	<ul style="list-style-type: none"> <li>➤ Wastes collected at onsite waste bins will be disposed approved locations.</li> </ul>	Regularly
	<ul style="list-style-type: none"> <li>➤ In case of contamination caused by uncontrolled release of chemicals/oil spills, the contaminated soil will be treated at an approved waste treatment facility or disposed to landfill</li> </ul>	As required
Wastewater	<ul style="list-style-type: none"> <li>➤ Septic tanks will be adequately sized and designed based on the expected inflow volume.</li> <li>➤ Septic tanks will be placed in an adequately contained area (bundled and lined).</li> <li>➤ Design appropriate containment for oil and soil separation of contaminated wash down water, if any.</li> <li>➤ Stage construction so liquid waste storage, handling, treatment and disposal facilities are constructed in an early phase to ensure their operation for the majority of works.</li> <li>➤ Arrange for a licensed contractor to periodically remove wastewater.</li> <li>➤ An induction program in liquid waste management will be provided for all site personnel.</li> </ul>	Pre-construction commencement
	<ul style="list-style-type: none"> <li>➤ Domestic sewage will be disposed to septic tank and collected via contractor's vacuum tankers.</li> <li>➤ Onsite vehicle washing will be avoided or a designated vehicle wash area shall be provided onsite with adequate collection, drainage, and disposal of resultant wastewater.</li> <li>➤ No wastewater discharge to surface water environment will be permitted.</li> <li>➤ All personnel will be trained on the appropriate wastewater management procedures.</li> <li>➤ Remove temporary septic system in accordance with relevant guidelines at the end of the construction phase</li> </ul>	Throughout construction

	<ul style="list-style-type: none"> <li>➤ All septic tanks and wastewater storage tanks will be maintained and inspected for any cracks or holes.</li> </ul>	Regularly
<b>Unplanned Events (e.g. accidents, incidents, spillages, leaks, fire, explosions)</b>	<ul style="list-style-type: none"> <li>➤ Preparation of Emergency Response Plans.</li> <li>➤ Coordination with emergency responders will be established to deal with the major accidental events.</li> <li>➤ Train employees to promptly respond in case of emergency events and contain, report and/or clean up any oil or hazardous material spills.</li> </ul>	Pre-construction commencement
	<ul style="list-style-type: none"> <li>➤ Cause of the incident will be investigated and precautionary measures will be adopted to prevent future occurrence.</li> </ul>	As required
Unidentified Archaeological Sites	<ul style="list-style-type: none"> <li>➤ Upon discovery of any items of Heritage, fossils, coins, objects of value, antiques or objects of geological or archaeological value discovered at the Work Premises the contractor shall immediately notify MOH as soon as possible of such discovery; and</li> <li>➤ Appropriate precautionary measures will be taken to prevent employees from misappropriating or damaging any such objects</li> </ul>	As required

## 6.5 Monitoring Requirements

It is the responsibility of MOH to ensure that the quality of the environment within and near the work sites complies with the applicable national regulations and international guidelines, and that periodic environmental monitoring will be carried out during the construction phase. Although a baseline data collection of environmental parameters was not previously conducted, MOH will ensure that the environment of the project area is maintained such that environmental parameters to be monitored will adhere to national and international standards. The principal contractor shall demonstrate compliance to document all monitoring data.

Environmental auditing will also be undertaken by the principal contractor or by a consultant, as prescribed by the EPA, to check and review the effectiveness of the principal contractor's management system.

The proposed monitoring and auditing plan for the construction phase is presented below in Table 7.

The exact number of samples and their locations will be determined at the early stage of the construction phase commencement, as applicable. It is highly recommended to utilize the same monitoring locations determined.

Table 7: Monitoring and auditing plans for the construction phase.

Aspect	Parameters to be monitored	Recommended Frequency of Monitoring
Ambient Air Quality	SO <sub>x</sub> , CO, NO <sub>x</sub> , Ozone, Total Suspended Particles, PM <sub>10</sub> , PM <sub>2.5</sub> , Lead, Ammonia,	Quarterly
Surface Water	pH, temperature, DO, colour, TDS, Salinity, TSS, BOD <sub>5</sub> , COD, Oil & Grease, TPH, Total Coliform and Heavy metals	Quarterly
Noise	Noise levels at appropriate locations	Quarterly, and during high noise activities as appropriate
Waste	Waste generation, storage, recycling, transport and disposal	Monthly waste inventory report to be prepared
Environmental Auditing	Management system, monitoring data, permit condition, and compliance status	Bi-annually and/or as prescribed by the EPA

## 6.6 Institutional Responsibilities for implementation of the ESMP

To ensure the effective implementation of this Environmental and Social Management Plan, there is need for clear roles, responsibility and reporting procedure by various institutions:

The Ministry of Health, through the Environmental Department and the Project Implementation Unit (PIU) will have the responsibility to ensure that the ESMP and the

monitoring plan are implemented. They must ensure that all stakeholders, especially the building contractor(s), are familiar with the contents of the ESMP and their roles; resources are available and key staff for implementing the activities are adequately trained.

As part of the environmental management, MOH must also ensure that this ESMP is part and parcel of the contract documents for the hospital construction. Specific guidelines which the contractor(s) must observe to minimize or mitigate impacts on the biophysical and social economic environment are provided in the appendix.

Since the impacts are mainly localized and moderate, the implementation of the ESMP and monitoring will be done by the following institutions, as follows:

1. The Environmental Protection Agency (EPA), as the statutory agency responsible for the adherence of environmental soundness during project implementation, will be responsible to review the ESMP and approve same. The EPA will also issue the necessary Environmental Permit for the construction of the new redemption Hospital. The EPA will also ensure that the project monitoring and audit reports are submitted periodically. The EPA has inspectors who will inspect the project for compliance to environmental standards set by the EPA and the Environment Protection and Management Law (EPML) of Liberia.
2. The Ministry of Health (MOH), through the Environmental Department or its Environmental Officer, will lead the implementation of the ESMP. The Environmental Officer will familiarize himself with the contents of the ESMP; ensure the mobilization of resources to ensure that the mitigation measures are implemented. He will be reporting on the implementation of the document.

The Project Implementation Unit (PIU) of MOH will work with the project contractor(s) during the construction phase, to ensure that all measures required for the implementation of the ESMP by the contractors are adhered to. The head or a representative of this unit will also maintain a daily record of the progress being made by the contractor in adhering to the requirements of the ESMP. He will report the progress to the Environmental Officer of MOH.

3. The Contractor will be responsible for ensuring that the construction activities are carried out sustainably through compliance to the project contract with ESMP included. The contractor will also adhere to all regulations and environmental standards for Liberia, as well as the safeguards of the World Bank. The principal contractor will ensure that all sub-contractors adhere to the implementation of the ESMP. The contractor will submit daily/weekly/monthly reports on the implementation of the ESMP to MOH.

## **6.7 Cost for the Environmental Management and Monitoring**

Costs for managing the impacts on the biophysical and socio-economic environment of the project are, in general, included in the project budget. Costs for monitoring the ESMP have also been estimated.

The main components of the budget comprise the following:

- vi. Training;
- vii. Review of the Environmental & Social Management Plan for Permitting;
- viii. Implementation of Environmental and Social Mitigation Measures;

- ix. Implementation of monitoring plans; and
- x. Environmental and Social Audits.

### **Training**

Training is key to successful implementation of any environmental management program. A budget of about US\$5,000.00 may be required annually to implement the training programs for institutions and persons required to implement the ESMP. The training will cover Water Management, Dust Management, Erosion and Drainage Control, Soil and Site Rehabilitation, Waste Management, Noise Management and Management of Hazardous Substances. This cost proposed will cover transport, preparation of materials and allowance for a certified environmental evaluator to conduct the training exercises. The training will concentrate on senior and middle project staff, who are expected to train low level staff under their supervision. The training will be conducted within the first two weeks before construction activities commence.

### **Review and Permitting**

For the nature of project as the construction of the new Redemption Hospital, it is required that a permit from the Environmental Protection Agency (EPA) is mandatory. The process requires that the environmental document for the project is prepared and submitted to the EPA. The document is reviewed by a technical panel, and when deemed adequate for the mitigation of environmental and social impacts associated to the project, an Environmental Permit is issued for the implementation of the project, after the payment of the permit processing fees. A budget of US\$3,500.00 is allocated for the per diem of the environmental evaluator to represent MOH during the review and for the payment of the permit processing fees.

### **Environmental and Social Mitigation Measures**

A lump sum of US\$50,000.00 is provided for implementing mitigation measures for the project during the construction period. This amount will be used for measures such as prevention of soil erosion and contamination to the soil, prevention of pollution to the air quality, personal protective equipment to prevent occupational hazards, and protection of the local water body at the project site.

### **Implementation of Monitoring Plans**

In accordance with conditions set in the ESMP and usually indicated in environmental permits issued by the EPA, there is a need to implement a monitoring program to ensure that measures set to mitigate environmental degradation are adhered to. Monitoring will also include specialist studies in respect of soil, water, air quality, traffic and other impacts to communities near the project area. A budget of \$25,000.00 is suggested for the monitoring program. This amount will also cover transportation cost for the monitoring.

### **Environmental and Social Audits**

There is another requirement proposed in an environmental permit that an annual audit is undertaken and reported to the EPA on the environmental conditions of the project implementation.

It is therefore anticipated that for the two (2) years the project will be undertaken, there will be an annual audit of the project environment and measures to mitigate impacts. A cost of US\$ 10,000.00 is proposed for the audits.

A total budget of US\$93,500.00 is therefore needed for the implementation of the environmental and social mitigation and monitoring plans proposed for the construction of the new Redemption Hospital. The summary is indicated in Table 8.

Table 8: Summary of budget for the implementation of the ESMP.

<b>Item</b>	<b>Cost (US\$)</b>
1. Training	5,000.00
2. Environmental Review and Permitting	3,500.00
3. Environmental and Social Mitigation Measures	50,000.00
4.. Implementation of Monitoring	25,000.00
5.. Environmental and Social Audits	10,000.00
<b>Total:</b>	<b>\$93,500.00</b>

## **7.0 PUBLIC CONSULTATION AND DISCLOSURE**

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### **7.1 Stakeholders Meetings**

For the preparation of this ESMP, interested stakeholders were invited to Stakeholders Meetings so as to ensure their participation in the process.

A Stakeholder meeting was held on March 21, 2017 at the Elizabeth Tubman Memorial Institute (ETMI), near the project area. At this meeting, the need for project was discussed with the community residents. All of the associated impacts were also discussed. The concerns of the community residents were solicited. Community residents did not raise specific concerns about environmental and social issues relating to the project. Most of the comments were in appreciation of the project and government's effort to have such a facility constructed in their community.

A second Stakeholder Meeting was held with the Environmental Protection Agency (EPA) of Liberia on March 22, 2017. At this meeting, the EPA was informed of the project and guidance on mitigation measures to be implemented during the project solicited. Against this background, the EPA issued to MOH a letter approving of the project and advising MOH of requirements to be met. Copy of the letter is attached as Appendix 4

The Minutes, attendances and photos of participants at these meetings are presented in Appendix 3.

### **7.2 Perception of Impacts of the Project**

Community residents and the EPA are generally receptive of the new hospital construction. However, concerns were expressed over loss of land and negative impacts that may resort from the project implementation.

Especially for the community residents, most were concerned about inadequate measures to mitigate negative impacts associated with the project. Most people were doubtful about awareness and disclosure to be made by MOH or the implementing construction firm. The most important issues over which community residents raised concerns were compensation if they are adversely impacted by the project that may lead to loss of property or incurring expensive for medical treatment when affected by the project implementation.

### **7.3 Stakeholders' Involvement in the ESMP Preparation**

Amongst other issues discussed with the EPA and community residents, stakeholders were informed of the details of the project. Stakeholders were informed that their involvement was required for the preparation of the environmental social and management plan. The participation of the stakeholders, especially the EPA, was welcome.

All of the stakeholders recognized that the implementation of the project would be for the benefit of the nation and people. As such, they promised to make the needed sacrifice to ensure that the project is fulfilled.

The opinions of the stakeholders were considered in the preparation of this ESMP. Also,<sup>65</sup> the concerns of the stakeholders were also considered in formulating some of the mitigating measures to be implemented do as to avoid adverse environmental impacts associated to the project.

### **7.4 Future Consultations Plan**

The Ministry of Health (MOH) has the responsibility of conducting future stakeholders' consultation and disclosure plans. The goal of the plan will be to improve decision-making through dialogue with individuals, groups and organizations having legitimate interest in the project.

Stakeholders will be notified of the commencement date of the project implementation. Mitigation measures to be implemented for the project will also be discussed with stakeholders. Grievance mechanism for the project will be further discussed. And means by which stakeholders can contribute to the successful implementation of the project will be solicited.

### **7.5 Disclosure of the ESMP**

This ESMP for the construction of the new Redemption Hospital will be disclosed in Liberia by the Environmental and Infrastructure Implementation Units of the Ministry of Health (MOH) and the EPA. Summary of the ESMP will be published in the major newspapers and also hosted on the MOH website. Copies will also be disclosed at the Commissioner Offices in Caldwell, Montserrado County, where the project is being undertaken. The MOH will also authorize the World Bank to disclose this ESMP electronically through its infoshop.



## **8.0 GRIEVANCE MANAGEMENT AND REDRESS**

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It is highly likely that grievances, such as issues, concerns, problems, or claims, may arise and will claim the attention of the project proponent to address or resolve.

The grievance procedure that MOH is setting for this project will be simple, administered in the first instance at the junior level to facilitate access, flexibility and open to various proofs taking into account a speedy, just and fair resolution of their grievances.

Grievances that will result from environmental issues of negative impact from the implementation of the project will be dealt with in a timely and transparent way. MOH will set-up a grievance redress committee to address complaints arising from the implementation of this ESMP. All complaints received in writing (or written when received verbally) will be documented. This committee will be directly under the Project Implementation Unit of the Ministry of Health. Functions of the grievance redress committee will include:

- Provision of support to affected persons or communities on problems arising from negative impacts associated with the implementation of the project;
- Recording grievance of affected persons or communities, categorizing and prioritizing the grievance that need to be resolved by the committee; and
- Reporting to the aggrieved parties about the developments regarding their grievances and the decision of the project authorities.

### **8.1 Objectives of the Grievance Procedures**

The MOH will establish a grievance redress procedure that will mediate conflict and minimize lengthy litigation, which often causes delay in the implementation of projects. It will also provide opportunities for people who might have objections or concerns about mitigation measures been implemented to lodge their complaints for resolution informally and peacefully.

### **8.2 Venues to Lodge Grievances**

For this project, community residents of affected person wishing to lodge grievance will be able to use one or several of the following ways:

- Directly at main project site office or at the Ministry of Health headquarters. However, where specific security arrangements prevent easy access of community members to project site office, MOH will open a dedicated community office near the main project site or use alternative office near the project area.
- At local authorities' offices such as the Caldwell office, where a grievance box will be placed.

- Telephone hotlines that community members can use. The number(s) will be displayed on a board at the main project site.

In situations where women or men might feel uncomfortable discussing a grievance with a person of the opposite sex, MOH will offer the option to hold discussions with someone of the same sex, both at the time of registering the complaint as well as during the review process. 67

### **8.3 Grievance Procedure**

Firstly, any grievance filed will be handled through negotiation, which will aim at achieving an amicable and consensus settlement. Affected communities or residents will follow the procedures outlined below:

#### **1<sup>st</sup> Stage**

Aggrieved communities or person may file in compliant to the Grievance Committee, which should be acted upon within 7 working days on receipt;

#### **2nd Stage**

If there is no resolution to the problem or the affected community or residents does not receive a response from the Grievance Committee within a timely manner, the affected community or residents may appeal to the Minister of Health, which should act on the complaint/grievance within 5 working days as of the day of filing the complaint;

#### **3rd Stage**

If the appeal to the Minister of MOH does not resolve the case to the satisfaction of the complainant, such community or residents may resort to legal actions in the Court of Law.

Community or residents wishing to submit a grievance will fill a specifically pre-designed complaint form and formally submit it to MOH. Sample copy of the Grievance Complaint Form is presented in Appendix 4.

### **8.4 Costs in the Grievance Mechanism and Capacity Building**

To ensure equity, aggrieved community or residents will be assisted to pursue justice contingent to which the MOH will identify and commit resources to support activities of all stage above. MOH shall cover the cost for the resolution of all grievances during the processes of Stages 1 and 2. The processes shall be free of charge to the community or residents. However, community or residents opting for the Courts of Law will do so at their own cost, unless the Court of Law rules otherwise.

Before the commencement of activities of the Grievance Committee, capacity building workshops will be held to discuss the impact of environmental impacts associated to the project and improve their capacity relative to the Environment Protection and Management Law of Liberia and other national and international environmental requirements, grievance redress, alternative dispute resolution mechanism and the judicial process of Liberia. This will ensure the effective operation of the committee relative to creating awareness, receiving grievances, conducting assessments/hearings and reporting on grievances. MOH will provide the cost for the capacity building.

## **9.0 CONCLUSION AND RECOMMENDATIONS**

### **9.1 Conclusion**

The construction and operation of the new Redemption Hospital in Caldwell will have both positive and negative impacts. The negative impacts, on overall, are assessed as insignificance to moderate and can be mitigated to low. Hence, this Environmental and Social Management Plan (ESMP) has been prepared to manage the impacts and to reduce those impacts with moderate severity to low. Integration of environmental considerations presented in the ESMP will safeguard the environment of the project during the construction exercises. The ESMP has also proposed a monitoring plan for effective implementation of the mitigation measures herein.

## **9.2 Requirements and Recommendations**

To ensure the effectiveness of this ESMP, the following recommendation and requirements are applicable for the project implementation:

- During construction, the MoH should ensure the implementation of all relevant good international industry practices by the principal, as provided in the World Bank Group's environmental, health, and safety technical (EHS) guidelines. This should be included in the principal contractor TORs to ensure its implementation.
- In the design of the facility, special facilities for segregated healthcare waste (including soiled instruments, human tissue or fluids) and appropriate storage for medical waste should be part of the hospital infrastructure to insure proper disposal of medical waste and minimize associated risks of infections to the nearby communities.
- The ESMP is adopted and effectively applied;
- The MOH will ensure that funds are available for implementation of the ESMP, especially monitoring to ensure that the principal contractor is abiding by the ESMP;
- The EPA and other responsible institutions will ensure that technical expertise is available for monitoring implementation of the ESMP;
- MOH will include the ESMP in the construction contract;
- The MOH will provide adequate sensitization to the residents of the project area about the project;
- The principal contractor will comply with all relevant legal provisions outlined in this ESMP and the associated contract ; and
- The Environmental Officer of MOH will provide regular updates to the EPA through monitoring and audit reports.

## **APPENDICES**

APPENDIX 1: TOR for the ESMP

APPENDIX 2: Minutes of Stakeholders Meetings & Attendance

APPENDIX 3: Letter from the EPA approving the project.

APPENDIX 4: Sample Grievance Form

## APPENDIX 1



# **Terms of Reference**

**Environmental & Social Impact Assessment and  
Environmental & Social Management Plan  
for the construction of  
the new Redemption Hospital**

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# **Environmental and Social Impact Assessment & Environmental and Social Management Plan Terms of Reference**

## **1.0 Introduction and Purpose of the Terms of Reference**

During the Ebola Virus Disease (EVD) outbreak, and in response to a call for urgent support from the Government of Liberia, the World Bank proposed a package of short and medium term emergency financing- through the Ebola Emergency Response Project (EERP)-that complimented and supported a multi-partner emergency response effort led by the World Health Organization (WHO). Specifically, the EERP aims to support the Strategic Operational Outbreak Response Plan and provide funding to address key challenges in controlling the EVD. The Project objective is to contribute in short term “to the control of the EVD outbreak and the availability of selected essential health services, and mitigate the socio-economic impact of EVD in the three heavily affected countries.

In support of attainment of project development objective- and in particular, to improve the resilience of the health system to future shocks- the Government of Liberia (GOL) through the Ministry of Health (MOH) identified the construction of the new Redemption Hospital- and specifically, Phase 1- as one of the priority interventions to be funded under the EERP grant.

The current Redemption Hospital was originally a market building that was transformed by the Government of Liberia in the 1980s to address the medical needs of urban-slum communities of over 200,000 who did not have access to public hospital.

In order to address both the medical and infrastructural needs, the MOH, in 2009, decided to build a Pediatric Hospital as part of the Redemption Hospital. However, because of the limited land space, the project did not pick up at the current facilities. The MOH subsequently acquired 35 acres of land in Upper Cadwell, Montserrado County, to construct the new Redemption Hospital facilities. The decision for the relocation and construction of the hospital was further necessitated by the EVD outbreak and its impact on the hospital. The hospital was one of the epicenters where more than one hundred EVD patients died, including health care workers

The construction of the new hospital is in line with the MOH Investment Plan for a resilient health system. The new hospital, estimated to cost about US\$26M, is among the three

hospitals (Redemption, J.J. Dossen, Phebe) prioritized in the Investment Plan for upgrading to function at the regional level, responsible to provide tertiary and specialized medical services. The estimated cost of Phase 1- which will be funded through the EERP- is US\$14 million. . Additional support is also being provided by USAID and the Global Fund to construct a National Pharmaceutical Warehouse, and by the German Government for the construction of an Infectious Disease Unit at the new facilities.

Under Section 6 of the Environment Protection and Management Law, in conjunction with Annex I, an environment impact assessment license or permit shall be required prior to the commencement of the hospital construction. Moreover, under the policies, guidelines and environmental and social assessment procedures of the World Bank, the entity providing the funding for the project, the Government of Liberia through the Ministry of Health is required to ensure that all environmental permits are obtained and that the project is implemented in an environmental and social friendly manner.

These Terms of Reference (ToR) are based on the guidelines established by the EPA of Liberia and international best practice.

## **2.0 Objectives of the ESIA and ESMP**

The objectives of the ESIA and the ESMP are to:

Thoroughly document ecological baseline conditions (pre-project conditions) of the project area;

Inform, obtain and address contributions from stakeholders including relevant public officials and the general public;

Assess the environmental and social impact that would result from the implementation of the project, and compare the impacts with national and/or international environmental and social standards;

Identify mitigation measures that would reduce the significance of predicted negative impacts or enhanced predicted benefits of the proposed road construction, through a suite of Environmental/Social Management Plans (ESMP);

Develop appropriate environmental and social monitoring plans for the proposed project;

Assess the impacts of the project on health and safety of the workers, and on public health<sup>2</sup> the affected communities, and propose measures to mitigate these impacts;

Meet the requirements of the environmental regulatory agencies (EPA) in Liberia, the World Bank (WB), as well as international best practice for projects of this nature; and



Inform all stakeholders about the main features of the proposed project, the expected impacts and the mitigation measures.

### **3.0 Deliverables**

#### **3.1 ESIA Report**

The structure of the ESIA Report is shown below. Further guidance on the content required for each section is provided in the following documents:

Environment Management and Protection Law of Liberia (EMPL), Section 12, Environmental Impact Assessment Procedural Guidelines of Liberia, Section 3.2, the WB Environmental & Social Assessment Procedures and international documents such as the IFC Standards.

Tentative Table of Content of the ESIA

#### EXECUTIVE SUMMARY

- 1.0 INTRODUCTION
- 2.0 POLICY, LEGAL & INSTITUTIONAL FRAMEWORK
- 3.0 ESIA PROCESS
- 4.0 PROJECT DESCRIPTION AND JUSTIFICATION
- 5.0 ALTERNATIVES
- 6.0 DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT
- 7.0 DESCRIPTION OF THE SOCIAL ENVIRONMENT
- 8.0 ASSESSMENT OF BIOPHYSICAL IMPACTS
- 9.0 ASSESSMENT OF PHYSICAL IMPACTS
- 10.0 OCCUPATIONAL HEALTH AND SAFETY
- 11.0 COMMUNITY HEALTH AND SAFETY
- 12.0 EMERGENCY RESPONSES

#### **3.2 Environmental/Social Management and Mitigation Plans (ESMP)**

ESMPs shall be prepared taking into consideration Section 15 of the EMPL, <sup>3</sup> EIA Procedure Guidelines of Liberia, and the Procedures of the World Bank. These plans will form appendices to the ESIA Report or stated in a separate documentation.

#### **3.3 Monitoring Plans**

The Monitoring Plans shall be prepared in accordance with Section 3.2.11 of the “Environmental Impact Assessment Procedural Guidelines” (2006) issued by the EPA of Liberia and the World Bank Procedures.

#### **3.4 Grievance Management**

The Ministry of Health will develop a grievance mechanism for recording, negotiating, and resolving disputes with stakeholders and local communities. The mechanism will assist with

conflict by providing communities with the opportunity to raise their grievances. During the ESIA, MOH, assisted by other relevant governmental agencies, will address grievances through a fair and transparent process that ensures communities that their grievances are being adequately investigated and resolved.

#### **4.0 Submission of the ESIA and ESMP Reports**

According to Section 2.5 of the Environmental Impact Assessment Procedural Guidelines of Liberia, 10 (ten) hard copies and an electronic version (pdf) of the reports are required for submission to the EPA.

According to Section 14 of the EMPL, the ESIA and ESMP Reports shall be a public document and may be inspected by any person at the Registry of the EPA and at MOH.

## Appendix 2A

### Minutes of Meetings with affected and interested people of Caldwell, Montserardo County, for the new Redemption Hospital, 21/03/17

Present at the meeting were Mr. Michael V. Suah, the Consultant, Mr. Menitoyan Dolo of the Ministry of Health; and the stakeholders, to include: Marcus D. Blayee, John Siafah, Amos B. Peabody, Philip Willie, M. Abbas Sheriff and others, as per the attached listing.

The meeting was held at the Elizabeth Tubman Memorial School (ETMI) in Caldwell, Montserardo County, Liberia.

AGENDA;

- Welcome Remarks and introduction
- Purpose of the meeting
- Construction of the new Redemption Hospital
- Preparation of the ESMP
- Comments/Concerns/Issues raised by Stakeholders
- Other Matters
- Close of meeting

4

1. The meeting commenced at 3:45 p.m. with the consultant, Michael V. Suah, making the Welcome Remarks
2. Introduction of the participants were noted with each person giving his/her name.
3. The consultant thereafter gave the purpose of the meeting by giving an update on the construction of the new redemption Hospital and the legal requirements, including the preparation of the Environmental and Social Management Plan (ESMP).
4. The contents of the ESMP were discussed with the stakeholders, including the findings of assessment and measures to prevent or mitigate against adverse impacts. The following comments/questions/concerns were recorded from the stakeholders:
  - (a) Philip Willie- \* That he is happy for the construction of the new Redemption Hospital
  - (b) Sam Fahnbulleh - \* That mechanism should be put in place to ensure that qualified locals have chance of employment during the construction.
  - (c) Hawa F. Siakeh-\* That MOH should ensure that residents of the area should not be impacted by the construction activities.
  - (d) Matu Freeman - \* That the construction of the new hospital in the area will be beneficiary to women who have to go outside of the community to seek medical treatment.
5. After these discussions, the meeting ended at 5:43 p.m.



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Faith Environmental Consultancy  
 Caldwell Meetings with Affected project persons (PAPs)

	Names	Communities	contacts
1	MAROUS D. Blagoe	Logan Town	0775717227
2	John Siopah		0277372512
3	Amos B. Peabody	Caldwell	0776638255
4	Philip Lillie	"	0776602326
5	M. Abba Sheriff		0886542023
6	Sam Fahnbulleh	"	0886515301
7	Mohammed N. Kamara		0777021498
8	EVANS M. Dukuly		0886987697
9	Thomas B. Siopah		0277754269
10	Boima Fahnbulleh-Caldwell		0777033085
11	ANNIE K. KOFFA		-0886855596
12	URIAH J. POTTER		0886428771
13	JOHN K CHARLIE		0775108649
14	Sackie M. Gbolokai	- - -	088021067
15	HAWA F. SIKEH	- - -	0886 74 0711
16	Advertu Capehart	- - -	0777736038
17	Nathan W. Birch Jr.	Gardnesville	0886529200
18	Hannah B. George	<del>Barkhamville</del>	0770-39-57-45
19	MATU FREEMAN		0776174316
20	Bolay F Momoh		0775788802
21	Henry C Bolco		0775003872
22	James Dukannel		0776-040398
23			
24			

# Appendix 2B

## Minutes of Meeting with the Environmental Protection Agency (EPA) for the new Redemption Hospital, 22/03/17

Present at the meeting were Mr. Michael V. Suah, the Consultant, Mr. Menitoyan Dolo of the Ministry of Health; and Mr. Aloysius Kotee of the EPA.

The meeting was held at the offices of the EPA in Sinkor, Monrovia, Liberia. AGENDA;

- Welcome Remarks and introduction
- Purpose of the meeting
- Construction of the new Redemption Hospital
- Preparation of the ESMP
- Comments/Concerns/Issues of the EPA
- Other Matters
- Close of meeting

1. The meeting commenced at 11:45 a.m. with the consultant, Michael V. Suah, making the Welcome Remarks
2. Introduction of the participants were noted.
3. The consultant thereafter gave the purpose of the meeting by giving an update on the construction of the new redemption Hospital and the legal requirements, including the preparation of the Environmental and Social Management Plan (ESMP).
4. The contents of the ESMP were discussed with the stakeholders, including the findings of assessment and measures to prevent or mitigate against adverse impacts. The following comments/questions/concerns were recorded from the EPA:
  - (a) That MOH must adhere to all requirements of the EPA.
  - (b) That MOH must ensure that persons affected by the project are compensated timely before permit will be issued for the project.
  - (c) That MOH must submit the ESMP for the review and approval of the EPA.
  - (d) That no work on the site should commence until the EPA has issued an Environmental Permit.
5. After these discussions, the meeting ended at 12:32 p.m.
  
6. After these discussions, the meeting ended at 12:32 p.m.



REPUBLIC OF LIBERIA  
ENVIRONMENTAL PROTECTION AGENCY

P. O. BOX 4024  
4<sup>th</sup> Street Sinkor, Tubman Boulevard,  
1000 Monrovia, 10 Liberia



Office of the Deputy Executive Director

**DED/EPA-02/01479/17/RL**

July 4, 2017

Menitoyan J. Dolo  
Environmental and Social Safeguard Officer  
Ministry of Health/ Project Implementation Unit (PIU)  
World Bank Health Portfolio

Dear Mr. Dolo:

I present my compliments and wish to acknowledge receipt of your communication in which a follow-up was made on Ministry of Health's application for an Environmental Permit for the construction of the New Redemption Hospital in Caldwell.

Please be informed that, the Abbreviated Resettlement Action Plan has been reviewed internally by the Agency, pending an Environmental and Social Management Plan, upon which a site verification will be made to the project site to determine validity of the parameters mentioned in the report for complete acceptance by the Agency.

The permit processing fee for such undertaking is Five Thousand and Twenty Five United States Dollars (**US\$5,025.00**), payable at the **Liberian Bank for Development and Investment (LBDD)**. Account Number: **02USD2151535-8301**, Account Title: **Environmental Protection Agency**. Please come along with this letter and the deposit slip to the EPA Account section for receipt.

Please accept the assurances of my highest esteem and consideration as we strive for sustainable environmental Management

Urias S. Goll  
**DEPUTY EXECUTIVE DIRECTOR**



# Appendix 4

## (1) Sample Grievance Form

Note: You can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent

1. Full Name:

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

2. Contact Information:

Please mark how you wish to be contacted (mail, telephone, e-mail).

I wish to raise my grievance anonymously

I request not to disclose my identity without my consent

By Telephone: \_\_\_\_\_

By E-mail \_\_\_\_\_

3. Description of Incident or Grievance:

What happened?

Where did it happen? Who

did it happen to?

What is the result of the problem?

4. Date of Incident/Grievance:

One time incident/grievance (date \_\_\_\_\_)

Happened more than once (how many times? \_\_\_\_\_)

On-going (currently experiencing problem)

5. What would you like to see happen to resolve the problem?

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Signature: \_\_\_\_\_

Date: \_\_\_\_\_