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ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK
For
West Africa Regional Disease Surveillance Systems Enhancement (REDISSE) Project

Draft Report

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EXECUTIVE SUMMARY

BACKGROUND

The recent EVD epidemic in West Africa has been attributed, not only to environmental factors and human behavior, but also to weaknesses in the health systems of Guinea, Liberia, and Sierra Leone and their inability to detect and respond swiftly to public health threats, and moreover, to the lack of a regional surveillance and response network in West Africa. Containment of West Africa's EVD epidemic that initially began in Guinea and spread to neighboring countries was hampered by the absence of the systematic collection and reporting and exchange of surveillance and laboratory data across country-borders in real time. The EVD epidemic dramatically illustrates the need for a more harmonized approach to disease surveillance and response, both within countries and within the West Africa region overall. The EVD epidemic highly underscores the importance of regional cooperation among West African countries for the prevention and control of potential cross-border disease outbreaks, as a key component of the post-Ebola health systems recovery strategy, and overall health systems strengthening efforts in the region.

The West Africa Regional Disease Surveillance Systems Enhancement Project (REDISSE) will be implemented as an interdependent series of projects (SOP) in support of the health system recovery strategy and the overall health systems strengthening efforts in the West African Region. The project is in line with the WB's mission to end extreme poverty and promote shared prosperity. Communicable and non-communicable diseases are a major constraint on the health, education and potential earnings of people living in the ECOWAS region and have the greatest impact on the most vulnerable population. Hence, the economic rationale for investing in these interventions is key to mitigating the economic burden not only on individuals but also on the country as a whole. The CPS for the nine countries targeted by this project emphasize the need to strengthen the capacity of health systems of which disease surveillance is a key pillar, in order to improve health outcomes and reduce vulnerability. The first project in the series-REDISSE-SOP1-will target both extremely vulnerable countries (Guinea, Sierra Leone and Liberia) and countries which have more effective surveillance systems and serve as hosts for important regional assets (Nigeria and Senegal). Phase 2 (REDISSE-SOP2) is expected to be delivered in the second quarter of Fiscal Year 17 (FY17).

The case for strengthening the health care systems in Liberia cannot be overemphasized. Despite efforts to strengthen health systems management and health services delivery since the end of the war, Liberia continues to face significant challenges in improving health outcomes. The maternal mortality ratio (MMR) remains high, but has declined from close to 1,000 per 100,000 live births in 2007 to 770 per 100,000 live births in 2010. While more than one in ten children will die before the age of five, infant and under five mortality rates have almost halved over the last 20 years. Malaria continues to be a major source of morbidity and mortality. The 2014 Ebola virus disease (EVD) epidemic is the largest in history, affecting multiple countries in West Africa. Ebola is a severe, often fatal illness in humans. The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. The

outbreak began in Guinea in December 2013 and entered Liberia in March 2014. According to CDC, Liberia experienced over 10,000 cases and 4,806 deaths before being declared Ebola free on May 8, 2015 after 42 days with no new cases.

This project is therefore well in line with the government effort to strengthen the health care systems in the country as envisaged in the Government of Liberia new health system recovery plan. Recognizing the devastating impacts of the EVD epidemic and the weaknesses of the country health system, the Government of Liberia announced its new health system recovery plan in April 2015. The plan aims to improve the health status of the population of Liberia on an equitable basis by 2021. Epidemic preparedness, surveillance and response is one of three pillars of the plan. Implementation of the plan has begun and several key activities initiated: the plan for human resource for health development has been revised; the protocol for community event-based disease surveillance has been developed and piloting of this approach is underway; and, assessment of the public health laboratory system has been completed. However, full implementation of the health systems recovery plan requires a significant increase in the investment. According to the estimation by MOH, about 14 million US dollars would be needed in the next two years. This project will contribute to filling this financing gap to ensure that Liberia is adequately prepared to participate in a regional disease surveillance and response network. The following areas have been identified in the health systems recovery plan as areas requiring urgent attention in the recovery process:

Human Resource

The shortage of human resource for health is the most urgent challenge affecting health systems in the Country. During the EVD outbreak, many key functions were performed by foreign responders with funding from international communities. Many key posts are now vacant sue to the shortage of national professionals. For instance, there is presently no designated staff responsible for disease surveillance and the quality of disease reporting runs the risk reverting to the pre-EVD status. In most of daily EVD reports in September 2015, it was common that eight to nine counties out of fifteen did not report at all.

One health approach for infectious diseases

Three key concerns related to animal and human health are (i) although efforts are underway to re-stock small ruminants, hogs and poultry, as well as beef cattle, after the war. The country's veterinary public health is almost non-existent; (ii) there is no control over animal movement; and, (iii) consumption and trade of bush meat (from non-domesticated animals) is on the increase. These certainly increase the risk of infectious disease outbreaks in humans and animals that have a potential to spread beyond the borders of Liberia. The one health approach would lend effective measures in addressing infectious diseases at human-animal interface while improving nutritional and health status of the population in Liberia and reducing the risk of trans-border epidemics.

Lack of public health laboratory system

A national public health laboratory system does not exist in the Country. The national Reference Laboratory located in the Liberia Institute for Biomedical Research (LIBR) has been performing some of surveillance functions for HIV, TB, Lassa fever, Malaria, etc. It suffers from inadequate staffing, rundown utility functions and sub-optimal biosecurity standards. In the absence of national public health laboratories sample transportation processing/testing and getting the results to the counties in the remote areas took 3-5 days. Moreover, supplies and storage of laboratory kits are of concern in the country.

Liberia Country Context

Since 1980 Liberia has experienced significant political instability. Two civil wars resulted in the deaths of between 250,000 and 520,000 people and devastated Liberia's economy. Between 1983 and 2003 Liberia experienced a 90 percent decline in its GNI per capita. In recent years Liberia had seen significant progress. The 2003 Peace Agreement led to democratic elections in 2005 as Liberia began to transition from recovery to development.

In 2007, nearly two-thirds of Liberia's population lived below the poverty line and almost half were living in extreme poverty. Poverty is estimated to have fallen to 56.4 percent more recently but in 2013 Liberia still had a per capita GNI of only US$410.

Despite efforts to strengthen health systems management and health services delivery since the end of the war, Liberia continues to face significant challenges in improving health outcomes. The maternal mortality ratio (MMR) remains high, but has declined from close to 1,000 per 100,000 live births in 2007 to 770 per 100,000 live births in 2010. While more than one in ten children will die before the age of five, infant and under five mortality rates have almost halved over the last 20 years. Malaria continues to be a major source of morbidity and mortality.

The 2014 Ebola virus disease (EVD) epidemic is the largest in history, affecting multiple countries in West Africa. Ebola is a severe, often fatal illness in humans. The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. The outbreak began in Guinea in December 2013 and entered Liberia in March 2014. According to CDC, Liberia experienced over 10,000 cases and 4,806 deaths before being declared Ebola free on May 8, 2015 after 42 days with no new cases.

Project Development Objective (PDO)

The project's development objective (PDO) is to strengthen cross-sectoral and regional capacity for collaborative disease surveillance and response in West Africa. The project has four components:

- **Component 1: Surveillance and Information Systems for Early Detection and Analysis**
- **Component 2: Strengthened Laboratory Capacity**
- **Component 3: Preparedness and Emergency Response**

- **Component 4: Retention of Trained Healthcare Workforce for Surveillance, epidemiological intelligence, Laboratory functions, and Infection Prevention and Control**

Rationale for Preparation of Relevant Safeguard Documents

The REDISSE project is a category B project. Given the activities that will be undertaken during this project implementation, the World Bank safeguards policies on Environmental Assessment (OP/BP 4.01) and Pest management (OP/BP 4.09) have been triggered. Thus three safeguards instruments would be required: (i) Medical waste Management Plan; (ii) Integrated Pest Management Plan; and (iii) Environment and Social Management Framework.

Purpose of the ESMF

The purpose of this ESMF is to examine the project's potential negative and positive environmental impacts in light of the triggered safeguard policies, and to propose an Environmental and Social Management Plan (ESMP) that outlines measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The ESMF also outlines Environmental and Social (E & S) safeguards, institutional arrangements and capacity required to use the framework as well as the basic principles and processes within which the sub-projects are implemented in environmentally sustainable manners.

Approach for the preparation of ESMF

Preceding the REDISSE, there have been two projects aimed at strengthening the health systems in Liberia namely the Health Systems Strengthening Project (HSSP and the Emergency Ebola Recovery Project (EERP). By and large, the components of these projects are in line with the project components of REDISSE. Therefore, the ESM of REDISSE has been developed from the safeguards instruments of these projects which have already been disclosed both in country and on Infoshop. The disclosed safeguards instrument includes the ESMFs for the EERP and HSSP, and the Updated Medical Waste Management Plan for the health sector in Liberia.

Environmental and Social Screening and Assessment Process

The screening process is the first step in operationalizing the ESMF process. The objective of screening is to identify those sub-projects that have minimal or no environmental or social concerns. A checklist of items that are required to be adhered to conform to the provisions of this ESMF has been developed. . Thus the various subprojects shall be cleared for implementation after undertaking the necessary environmental and social assessments, as required by the environmental regulation of Liberia as well as the safeguard policies of the World Bank. The process for conformance to these procedures has been defined in this framework and the criteria established as per the checklist of items to enable the identification of such projects.

The report on the outcome of the screening, scoping and EA category exercises will be sent to the World Bank for review and clearance. In addition, all EAs/ESMP prepared will be sent to the World Bank for review and clearance to ensure compliance with OP4.01 and any other relevant safeguard policies, procedures and guidelines.

Potential Environmental and Social Impacts and Mitigation Principles

The environmental impacts of the REDISSE can be classified into two general categories- impacts arising from civil works and ancillary activities, and those arising from handling and disposal of medical wastes and other products usually generated during the provision of health care. Impacts associated with the civil works will include noise and air pollution, generation of construction wastes, and occupational health and safety concerns related to works of this nature. Concerns about soil and water pollution, biodiversity loss, loss of vegetation cover Exposure to hazardous substances such as pesticides, and risks associated with working at height, operation of potable power tools and equipment amongst others. The potential impacts of the project are not severe and can be adequately mitigated using the instruments that have been developed.

Despite the potential negative impacts associated with this project, the positive environmental and social impacts clearly outweigh any negative impacts. The project is envisaged to have a range of positive environmental and social impacts. Some of these are a function of the objectives of the project, while others are a function of the way in which the project is designed to meet its objectives. The project beneficiaries are the population of poor rural communities living aside from the roads. Specifically, the following are some of the benefits that could be due to the project: improved soil conservation, increased farm incomes from crop output and ensuring dignity in farming practices, food security, poverty alleviation, elevation of rural income and national economy, improved nutrition, employment creation for community members, empowerment of farmers enhanced gender opportunities, improved infrastructure, improved health care, attainment of the agricultural transformation agenda of the federal government, etc.

Cumulative Environmental and Social Impacts

No long term or cumulative adverse environmental and social impacts of sub-projects are envisaged. However, the combination of multiple impacts from existing projects, the proposed project, and/or anticipated future subprojects may result in significant negative and/or positive environmental and social impacts that would not be expected in case of a standalone project. The cumulative impacts of the project may potentially affect other areas coterminous to the project area but the mitigation measure for this risk is that in depth technical and spatial analysis will be conducted to model the impact of the proposed subprojects once sufficient details are known and thus limit the risks. In addition, the proposed screening of subprojects with the site specific ESIAs/ESMPs for the various potential subprojects would give priority to assessing cumulative impacts stemming from each proposed undertakings or subproject activities.

ESMF Implementation

The implementation arrangements of the ESMF for REDISSE will be similar to those of EERP and HSSP. There are already structures in place at the MOH for the implementation of World Bank financed projects. These structures will be used in order to ensure effective implementation of the REDISSE. Modification of the structures could be made when deemed necessary. The current structures include three separate groups consisting of the Executive, the senior users and the senior suppliers. There are also two member groups which include Technical working group for project component and project management.

Steering Committee Executive

The steering committee executive officials including the Ministers of Health who have oversight responsibilities in the implementation of the Bank supported portfolio. It receives support from the other groups but ensures the smooth implementation of the project to achieving the project agreed objectives.

Steering Committee of Senior Users

This committee comprises of representative of division and or departments from the Ministry of Health (example: Human Resource Division, Infrastructure etc.). This committee ensures that the usability of the solutions for the Bank supported portfolio.

Steering Committee of Suppliers

This committee ensures the feasibility of the project's solutions. It comprises of representatives from the World Bank, the World Health Organization (WHO), and the UNOPS. In this arrangement, WHO serves as partner in the project implementation, World Bank as project donor.

Estimated Budget for Implementing the ESMF

To effectively implement the environmental and social management mitigation measures as part of the ESMF, necessary budgetary provisions have to be made for sub-projects. It is important to identify financial requirements even if indicative. This ensures upfront appreciation of the financial requirements and allows early planning and budgeting accordingly.

Tentative budget for each of the project includes the environmental and social mitigation cost, management costs, cost of environmental monitoring and capacity building. All administrative costs for implementing the ESMF shall be budgeted for as part of the project costing. The total estimated cost for the ESMF implementation is One hundred eighty two thousands United States Dollars ($182,000). Detailed breakdown of the cost is provided in Table 4.

Stakeholder Consultation and Engagement

Stakeholders have been and are being considered at two broad levels:1) those that the project will directly or indirectly affect positively or negatively including those who will lose land, farms, grazing land, buildings, crops, economic trees, businesses, etc. and 2) those that will support project with data, capacity and other forms of technical support before and during implementation (, Government Ministries and Agencies).

This requirements and phasing of consultations are as follows:

- Consultation on the finalization of ESMF – to include:
    - Circulation of the draft ESMF for comments to all relevant ministries and agencies
    - Organization of public stakeholder workshops and comments incorporated in the final ESMF document
    - Public disclosure of Final ESMF (cleared by WB) in-country at designated centres accessible to stakeholders and at the WB info shop prior to appraisal
- During the preparation of individual ESIA/ESMP
    - Potential investors, Farmers, interested groups and communities with LGCs affected will be consulted and informed about the proposed subproject activities and how they stand to be impacted environmental and socially
    - Identification of impacts and appropriate mitigation measures shall be sought through consultation with the relevant local stakeholders community members and expert knowledge gained elsewhere and judgement in the light of best practice
    - Consultation of the proponent and implementing government agencies on relevant policy terms.
- During the Implementation of the ESMP
    - Stakeholder communities and livestock owners will be informed about the date/schedule of project commencement who will be involved in site selection, screening and planning administration of needed mitigation measures and monitoring and evaluation
- During audit/monitoring and evaluation of the ESMP to determine the performance of the ESMP
    - livestock owners and community members will be consulted to appreciate their understanding of the impacts that have been generated and whether the mitigation measures are working or if there will be need to change the entire ESMP. This will take place 6months after the start of the implementation of ESMP and 2 years after for the audit.

Grievance Redress Mechanism

Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-

compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

During project implementation, project level grievance redress system will be put into place to address grievances that may arise as a result of project activities. Similar structures already exist for ongoing World Bank financed project that are being implemented by the MOH. The structures at a minimum ensure that aggrieved person are provided with the relevant information as to how to register their grievance, and that grievances registered are looked into for redress, and where redress cannot be reached at project level options for judicial proceedings are provided to the aggrieved.

Environmental and Social Monitoring

Monitoring is a key component of the ESMF during project implementation. Monitoring verifies the effectiveness of impact mitigation measures, including the extent to which mitigation measures are successfully implemented. Monitoring specifically helps to:

- Improve environmental and social management practices;
- Check the efficiency and quality of the ESMP processes;
- Establish the scientific reliability and credibility of the ESMP for the project and
- Provide the opportunity to report the results on safeguards and impacts and proposed mitigation measures implementation.

Some indicators that could be used to ensure participation process involved in subproject activities include:

- Number and percentage of affected households/individuals/institutions consulted during the planning stage;
- Levels of decision-making of affected people;
- Level of understanding of project impacts and mitigation;
- Effectiveness of local authorities to contributing and making relevant decisions;
- Frequency and quality of public meetings

Disclosure

The World Bank policies require that environmental reports for projects are made available to project affected groups, local NGOs, and the public at large. Public disclosure of environmental reports is also a requirement of the Liberia EIA procedures. In line with the Bank's policy on public disclosure and Liberian environmental regulations, this ESMF will be publicly disclosed in Country and on Infoshop.

1.0 PROJECT DESCRIPTION

The West Africa Regional Disease Surveillance Systems Enhancement Project (REDISSE) will be implemented as an interdependent series of projects (SOP) that will eventually engage and support all 15 ECOWAS member countries. This is the first project in the series, REDISSE-SOP1 which targets both extremely vulnerable countries (Guinea, Sierra Leone and Liberia) and countries which have more effective surveillance systems and serve as hosts for important regional assets (Nigeria and Senegal). Phase 2 (REDISSE-SOP2) is expected to be delivered in the second quarter of Fiscal Year 17 (FY17). The estimated project financing for REDISSE-SOP2 is US$102 million. FY17 delivery of this project will allow additional time for consultations, assessments and planning needed to ensure country readiness. REDISSE-SOP2 countries will include: Cote d'Ivoire, Guinea Bissau, Ghana, Togo, Benin and possibly The Gambia. Together, REDISSE SOP 1&2 constitute a block of equatorial, coastal countries with shared borders and similar epidemiologic profiles which extends from Senegal in the west to Nigeria in the east. The series of projects will be implemented in the context of the African Integrated disease surveillance and Response Strategy, international standards and guidelines of World Health Organization (WHO), World Organization for Animal Health (OIE), and Food and Agriculture Organization of the United Nations (FAO), fostering a One Health Approach. It will support the countries to establish a coordinated approach to detecting and swiftly responding to regional public health threats. Cooperation among West African countries to prevent and control potential cross-border diseases is a regional public good. The regional benefits and positive externalities of effective disease surveillance and response are substantial. The West African Health Organization (WAHO) and the Regional Animal Health Center (RAHC) (Centre Régional de Santé Animale-CRSA, based in Bamako) , both of which are affiliated with ECOWAS, will be responsible for the regional coordination, as well as implementation of specific regional activities and day-to-day oversight of the Project. Collective action and cross-border collaboration are emphasized throughout the Project: (i) the Project will support countries' efforts to harmonize policies and procedures; (ii) countries will be empowered to engage in joint planning, implementation and evaluation of program activities across borders at regional national and district levels, and; (iii) the Project will promote resource sharing of high cost specialized assets such as reference laboratories and training center and pooled procurement of difficult to access commodities.

Most recent estimates show that communicable diseases (CDs) account for more than one third of the global disease burden and that most of this burden falls on the countries of West Africa. Countries in this region are at high-risk for infectious disease outbreaks including those of animal origins (zoonotic diseases). The World Health Organization (WHO) has documented that of the 55 disease outbreaks that were reported in Africa over the last decade, 42 took place in West Africa. Some common outbreaks in the region include Cholera, Dysentery, Malaria, Hemorrhagic fevers (e.g. Ebola virus disease, Rift Valley fever, Crimean-Congo fever, Lassa fever, and Yellow fever), and Meningococcal Meningitis. West Africa also bears a

disproportionate burden of malaria, TB, HIV and neglected tropical diseases, many of which are at risk of resurgence due to drug and insecticide resistance.

Over the last four decades, the world has witnessed one to three newly emerging infectious diseases annually. Of infectious diseases in humans, the majority has its origin in animals ("zoonotic" diseases), with more than 70% of emerging zoonotic infectious diseases coming from wildlife. Recent outbreaks such as Ebola Viral Disease (EVD), H7N9 avian influenza, Middle East Respiratory Syndrome (MERS-CoV), Marburg virus, Nipah virus infection, bovine spongiform encephalopathy and HIV/AIDS showcase the catastrophic health and economic effects of emerging zoonotic diseases. The West Africa region is both a hotspot for emerging infectious diseases (EIDS) and a region where the burden of zoonotic diseases is particularly high. In this region, emerging and re-emerging diseases at the human-animal-ecosystems interface are occurring with increased frequency. As evidenced by the recent Ebola epidemics in Guinea, Sierra Leone, and Liberia, and the re-occurrence and spread in of Highly Pathogenic Avian Influenza (HPAI) (H5N1), highly contagious diseases can easily cross borders in the region through the movements of persons, animals and goods.

The major drivers of the emergence of novel infectious diseases are human behavior, demographic change, technology and industry, economic development, land use, international travel and trade, microbial adaptation and change, breakdown of public health measures and bioterrorism. The population of sub-Saharan Africa has doubled between 1975 and 2001, and the African Population and Health Research Center predicts a further increase, up to 1.9 billion by 2050. Urban population densities have dramatically increased, by 223%, 178%, and 275% respectively in Guinea (1960-2012), Sierra Leone and Liberia (1961-2013) due largely to migration from rural to urban areas. The link between deforestation and infectious disease outbreaks is well documented; deforestation and encroachment into natural habitats is also claimed to be responsible for EVD outbreak in West Africa. According to FAO data, Western Africa is suffering deforestation at twice the world rate approximately. Deforestation has been particularly severe in Nigeria, but also in Guinea and Sierra Leone, with much of the landscape being replaced with forest-agricultural mosaics. Civil war and social turmoil have also been common in West Africa. The social instability and its consequential population relocation and breakdown of governments provide fertile ground for the rampant spread of infectious diseases.

The impacts of infectious disease outbreaks can be devastating to the fragile social and economic situation of countries. The WB estimated a global cost of US$3 trillion in the case of a severe pandemic such as the 1918 Spanish Flu; an estimate that is comparable to the impact of the 2008 global financial crisis. In the West Africa region, the recent Ebola Virus Disease outbreak clearly eroded hard-won gains in the fight against poverty, including gains in human development and economic growth in Guinea, Liberia and Sierra Leone, as well as in the entire region. In these three countries, the estimated forgone output reached US$1.6 billion, which represents over 12% of the countries' combined outputs. The outbreak also resulted in school closure for at least 6 months and over 16,600 children lost one or both parents to the epidemic. Overall, the estimated loss in Gross Domestic Product (GDP) for the 15 countries in the ECOWAS region was

approximately US$1.8 billion in 2014, and was expected to rise to US$3.4 billion in 2015 and US$4.7 billion in 2016. These add to the ongoing burden of neglected and endemic human and animal diseases, including zoonoses.

Animal health is critical to public health and to the sustainable growth of the livestock sector. Livestock farming plays an important role in the ECOWAS region, contributing an average of 44% to its agricultural GDP. Livestock farming concerns virtually all rural households and is a crucial factor in combating rural poverty (see map below), both directly, through the income it generates, and indirectly, in allowing agriculture intensification and contributing to food security, nutrition and broader economic development. ECOWAS as a whole has a trade deficit in animal products and this trade deficit is particularly acute in the coastal countries. Demand for livestock products is expected to continue to grow significantly in the next decades, based on demographic trends, and propelled by increased urbanization and incomes. This evolution implies higher risks of occurrence of disease (frequency and/or severity), and higher impact of these diseases.

Project Development Objective (PDO

The project's development objective (PDO) is to strengthen national and regional cross-sectoral capacity for collaborative disease surveillance and epidemic preparedness in West Africa.

1.1 REGIONAL SECTORAL AND INSTITUTIONAL CONTEXT

Like in other developing countries, the performance of health systems in many countries in West Africa is weak. They suffer from chronic insufficient financial and human resources, limited institutional capacity and infrastructure, weak health information systems, prevailing inequity and discrimination in availability of services, absence of community participation, lack of transparency and accountability, and a need for management capacity building. Public sector spending on health is generally low. Only Liberia exceeded the Abuja target of 15% of Gross Government Expenditure (GGE) allocated to health. Out of pocket spending on health was high ranging from a low of 21% in Liberia to a high of 76% of total health expenditure in Sierra Leone. Guinea, Liberia and Sierra Leone have low density and inequitable distribution of health services and health workers as a result of low production, low motivation, inadequate training, lack of quality supplies and the loss of health workers, particularly physicians and nurses to emigration (a.k.a. brain drain). This was further aggravated during the EVD outbreak, which took a high toll on the lives of health workers.

Country led self-assessment on disease surveillance, preparedness and response capacity in Guinea, Liberia, Nigeria, Senegal and Sierra Leone as well as the lessons learnt from the EVD outbreak revealed some key weaknesses of health systems in terms of infectious disease surveillance, epidemic preparedness and response. These include: (i) a fit for purpose health workforce for disease surveillance, preparedness and response is lacking at each level of the health pyramid; (ii) community level surveillance and response structures either do not exist or need significant improvement; (iii) there is limited availability of laboratory infrastructure in place for timely and quality diagnosis of epidemic-prone diseases; (iv) lack of interoperability of

different information systems hampers analysis and utilization of information for decision making and actions for disease mitigation measures; (v) infection prevention and control standards, infrastructure and practices are generally inadequate; (vi) management of the supply chain system is weak and inefficient; and (vii) there are significant gaps in regional level surge capacity for outbreak response, stockpiling of essential goods, information sharing and collaboration. Similar findings were also documented by the Global Health Security Agenda baseline assessments in a number of countries including Liberia, and Sierra Leone.

After the EVD outbreaks, health system recovery and strengthening plans were developed for at least the next five years in Guinea, Liberia and Sierra Leone. Building up a resilient health system to effectively respond to health emergencies has universally been identified as one of the strategic pillars in the plans. At the national level, broad-based health system strengthening committees or similar structures have been established to lead and coordinate the efforts for strengthening the national health system in the three countries. With the help from USAID, a plan for health system strengthening was also developed in Senegal. In all five countries REDISSE will build on and complement the ongoing health system strengthening initiatives of the national governments that are supported by the Bank and other development partners.

Animal Health

The animal health sector in the ECOWAS region is characterized by a high incidence and prevalence of infectious diseases communicable diseases, both zoonotic and non-zoonotic, impacting veterinary and public health, trade, rural development and livelihoods. Among the most serious infectious diseases, contagious bovine pleuropneumonia (CBPP), foot and mouth disease (FMD), African Swine Fever (ASF), Rift Valley Fever (RVF), Peste des Petits Ruminants (PPR), African Animal Trypanosomiasis (AAT), highly pathogenic avian influenza (HPAI), and rabies are highlighted by ECOWAS and the GF-TADs for Africa. A recent summary of evaluations of Veterinary Services by the World Organization for Animal Health (OIE) in ECOWAS countries highlighted the services' lack of budgetary resources and mismatch between the human resources required and those actually available for preventing and controlling animal diseases. In terms of the strategic action required to sustain animal health, all of the countries identified the need to improve the coverage of their surveillance programs as well as the control of high-priority animal diseases. Lack of preparedness, insufficient human, physical and financial resources, and the lack of cross-sector collaboration were again emphasized by the FAO and OIE as causes for failure to address promptly and efficiently the resurgence of highly pathogenic avian influenza in the region.

Improvement of animal health requires increased and sustained investments in national Veterinary Services to meet international standards of quality defined by the OIE. Any country failing to prevent, detect, inform, react and control sanitary issues, such as infectious diseases or antimicrobial resistance places other countries at risk, hence the importance of regional approaches. All countries in the region have engaged in the OIE Performance of Veterinary Services (PVS) Pathway, a program which provides independent qualitative (PVS evaluation)

and quantitative (PVS Gap Analysis) evaluations of Veterinary Services, identifying their strengths and weaknesses, prioritizing interventions and costing activities needed to address deficiencies. Some countries have also received support to review their veterinary legislation.

Insufficient government funding and limited interest from donors to support Veterinary Services have not allowed significant progress to date in addressing systemic issues. Some important programs are worth noting though in the animal health sector, such as the EPT2 program, financed by USAID and implemented in many of the ECOWAS countries, through FAO and other implementing agencies; FAO support to HPAI infected countries; and, AU-IBAR support through the Vet-Gov program. In the last 15 years, two main regional and global programs significantly contributed to strengthening national Veterinary Services, namely the PACE program and the World Bank financed Avian Influenza Global Program which were implemented in many countries of the region. The lessons and best practices derived from these two programs are reflected in this project. The RESEPI and RESOLAB networks were also supported and facilitated by FAO under different projects and handed over in 2012 to ECOWAS.

Animal health is seen as a priority by the two regional economic communities in West Africa. ECOWAS and WAEMU have set a target of harmonizing national animal health systems. WAEMU, which covers 8 countries in the region, has moved forward on a number of fronts in particular on the harmonization of regulations on veterinary medicinal products, but progress has been slow due to administrative, human, organizational and financial constraints. In 2012, ECOWAS member countries declared the Regional Animal Health Center (RAHC)—an informal platform originally set up in 2006 by OIE, FAO and AU-IBAR as the ECOWAS specialized technical center for animal health. An operational plan for RAHC was developed in August 2014. However, delays in staff recruitment and establishment of a dedicated operational budget have kept the institution from implementing this plan and rolling-out activities in accordance with its mandate. The RAHC is currently supported through a limited number of initiatives with specific objectives, including to further develop the One Health agenda in the region, and to develop Integrated Regional Coordination Mechanisms for the Control of TADs and Zoonoses (IRCM). The WB-financed Regional Sahel Pastoral Support project (PRAPS), which supports the improvement of animal health in 6 West African Sahel countries, also specifically aims at contributing to the operationalization of the RAHC.

Tackling multisectoral issues efficiently requires working across sectors and disciplines. Yet, very few countries have adopted coordinated approaches, along the lines of the "One Health" concept. The response to the HPAI crisis since 2005 contributed to enhancing cooperation between the human and veterinary health sectors in many countries in the region, but in the absence of a dedicated program incentivizing such a joint approach, silos remain established. Nonetheless, important lessons have been learned and experience gained, and successful regional programs for the control of selected priority diseases, both within and outside the region, have demonstrated the efficiency of a regionally coordinated approach to diseases surveillance and response.

The Development Partner landscape in the sub-region is complex, particularly in the three countries most affected by the 2014-2015 EVD epidemic. The Ebola outbreak triggered a significant international response that brought many partners together to address the crisis and support the post-Ebola agenda of health systems recovery and strengthening. It also highlighted the need to focus attention on building the capacity for disease surveillance and response in the sub-region for both human and zoonotic diseases. The development partners engaged on these issues in the sub-region include major donor organizations including development banks, multilateral and bilateral donors and private foundations; UN systems agencies; technical agencies such as the US and China Center for Disease Control and Prevention; academic and research institutions and large numbers of international and local non-governmental organizations. As noted in Annex 2, in this type of environment duplication of effort, inefficient use of resources and failure to address resource, policy and programmatic gaps is a substantial risk. It is expected that there will continue to be an influx of funds and other forms of support to the region, in particular, to the three EVD affected countries (Guinea, Sierra Leone, and Liberia) in the next three to five years. As a result, coordination of resources and activities offered by the various partner organizations will remain a significant challenge for national governments. Therefore, coordination mechanisms at both national and regional levels that engage both the human and animal health sectors need to be developed to maximize the impacts of the increasing support and foster sustainability of the anticipated outcomes. The World Bank's convening power will be highly instrumental in forging a coalition of national, regional, and global technical and financial institutions to support the disease surveillance and epidemic preparedness agenda in West Africa.

The World Bank is well placed to mobilize substantial financing for this multi-sector initiative and to convene premier technical and financial partners engaged in the field of disease surveillance and epidemic preparedness. The World Bank has strategically engaged with a core group of development partners including those implementing the Global Health Security Agenda (GHSA) in the development of the REDISSE project. The REDISSE project itself will provide resources to regional institutions and national governments to establish the needed coordinating mechanisms

The World Bank financed project will help to operationalize elements that are contemplated as part of the WHO-led and National Emergency Response Plans, complementing, expanding and intensifying the responses rapidly. They will consist of a group of interventions based on the country's epidemiological and institutional needs and assessed options for meeting them.

1.2 LIBERIA COUNTRY CONTEXT

Since 2003, Liberia has made significant progress until Ebola struck in March 2014. Although the process of rebuilding and rehabilitating its health infrastructure was underway, important gaps remained. The Ebola epidemic exposed prior vulnerabilities of the health system.

The following information was presented by the World Health Organization, December 10-11 2014.

Prior to the Ebola outbreak Liberia had a national plan in place. Although health expenditure was still very low, health expenditure it was rising ($102 per capita (PPP, int. $), 2000-2013**.** Moreover, there was major progress on health indicators especially child mortality and coverage of interventions. However, many health systems elements remained very weak. 30% of the population live >5 km from a health facility, there is only one doctor for 30,000 people and the majority of clinicians are concentrated in the capital city.

Liberia also has weak disease surveillance systems. Liberia failed to attain the minimum IHR core capacities and by 2014 some level of training had taken place at national level on Integrated Disease Surveillance and Response (IDSR). However, with the revision of the current IDSR Guidelines, no training has taken place.

Liberia faced the challenge of addressing the Ebola outbreak while simultaneously managing prominent Maternal and Child Health (MCH) and infectious disease challenges. Unfortunately, the Ebola Virus Disease (EVD) epidemic resulted in large drops in facility attendance. There was a 50% drop in institutional deliveries, a 26% drop in child immunizations and a major drop (two-thirds) in August 2014 for almost all services compared to May- June 2014. 62% of health facilities were closed.

In conclusion, Liberia was making major progress on several health MDG indicators. However, the overall system remained fragmented and unable to cope with unexpected challenges. Ebola has made an impact on health gains over and above its contribution to mortality by indirectly affecting all services and economic activity. This puts health (and economic/social) gains of the past decade at serious risk.

1.3 PROJECT LOCATION

REDISSE will be implemented in five counties: Guinea, Liberia, Nigeria, Senegal and Sierra Leone. In Liberia like other countries where the project will be implemented, the project will involve several sub projects and the specific areas will be identified only when the sub projects are defined.

1.4 PROJECT COMPONENTS

REDISSE has five components namely:

Component 1: Surveillance and Information Systems: The first component will support the enhancement of national surveillance and reporting systems and their interoperability at the different tiers of the health systems. This component will support national and regional efforts in the surveillance of priority diseases (including emerging, re-emerging and endemic diseases) and the timely reporting of human public health and animal health emergencies in line with the IHR (2005) and the OIE Terrestrial Animal Health code.

Component 2: Strengthening Laboratory Capacity: The objective of this component is to establish networks of efficient, high quality, accessible public health, veterinary and private

laboratories for the diagnosis of infectious human and animal diseases, and to establish a regional networking platform to improve collaboration for laboratory investigation. The project seeks to address critical laboratory system weakness systems weaknesses across countries, fostering cross-country and cross-sectoral (at national and regional levels) collaboration.

Component 3: Preparedness and Emergency Response: This component will support national and regional efforts to enhance infectious disease outbreak preparedness and response capacity. Activities under this component will support the (i) updating and/or development of cross-sectoral emergency preparedness and response plans (national and regional) for priority diseases, and ensuring their integration into the broader national all-hazards disaster risk management framework; (ii) regular testing, assessment, and improvements of plans; (iii) expansion of the health system surge capacity including the allocation and utilization of existing pre-identified structures and resources (at the national and regional level) for emergency response, infection prevention and control.

Component 4: Human resource management for effective disease surveillance and epidemic preparedness: Component 4 is cross-cutting given that animal and human health workers form the backbone of Disease Surveillance (Component 1), Laboratories (Component 2) and Preparedness and Response (Component 3). Effective human resource management aims at bringing the right people with the right skills to the right place at the right time.

Component 5: Institutional Capacity Building, Project Management, Coordination and Advocacy: This component focuses on all aspects related to project management. It includes fiduciary aspects (financial management and procurement), M&E, knowledge generation and management, communication, and management (capacity building, monitoring and evaluation) of social and environmental safeguard mitigation measures. It also provides for critical cross-cutting institutional support, meeting capacity-building and training needs identified in the five countries and at WAHO and RAHC on top of specific technical capacity-building activities undertaken within the four technical components. It will support the routine assessment of critical animal health and human health capacities of national systems using reference tools (such as OIE PVS and JEE) to identify weaknesses and monitor progress

2.0 POLICY AND INSTITUTIONAL FRAMEWORK

This section of the ESMF reviews the relevant legislations, policies, and institutions for the implementation of this project. The World Bank Safeguard Policies are also discussed in addition to other relevant voluntary standard tools.

Institutional Framework

The Environmental Protection Agency (EPA): The EPA is the main responsible for environmental protection and management in Liberia. The EPA was established under the Act Creating the Environmental Protection Agency of the Republic of Liberia 2003 referred to as the EPA Act. The EPA became a fully functional body in 2006 after the appointment of a board of directors and establishment of a policy council. The EPA among other things has the mandate to "coordinate, monitor, supervise and consult with relevant stakeholders on all activities in the protection of the environment and sustainable use of natural resources". Though the EPA coordinates with other relevant agencies on environmental matters, it is the lead national environmental agency that is charged with executive authority for all environmental activities and programmes relating to environmental management in Liberia. Key responsibilities of the EPA include issuance of environmental impact assessment licenses, enforcement of environmental regulations and standards, and compliance monitoring.

The main functions of the EPA are:

1. Co-ordinate, integrate, harmonize and monitor the implementation of environmental policy and decisions of the Policy Council by the Line Ministries,
2. Propose environmental policies and strategies to the Policy Council and ensure the integration of environmental concerns in overall national planning;
3. Collect, analyze and prepare basic scientific data and other information pertaining to pollution, degradation and on environmental quality, resource use and other environmental protection and conservation matters and undertake research and prepare and disseminate every two years a report on the state of the environment in Liberia;
4. Encourage the use of appropriate environmentally sound technologies and renewable sources of energy and natural resources;
5. Establish environmental criteria, guidelines, specifications and standards for production processes and the sustainable use of natural resources for the health and welfare of the present generation, and in order to prevent environmental degradation for the welfare of the future generations.
6. Responsible for the provision of guidelines for the preparation of Environment Assessments and Audits, and the evaluation of environmental permits

In addition to the EPA, there are several other government agencies and ministries that play vital roles in environmental protection and management. These institutions the Forestry Development Authority (FDA), Ministries of Lands, Mines and Energy (MLM&E), Ministry of Planning and Economic Affairs (MPEA), Ministry of Justice (MOJ), Ministry of Public Works (MPW), and Ministry of Health and Social Welfare (MHSW), Ministry of Agriculture (MOA), Ministry of

Commerce (MOC), Monrovia City Corporation and the Liberia Water and Sewer Corporation (LWSC).

2.1 POLICY AND LEGAL FRAMEWORK

2.1.1 THE CONSTITUTION OF LIBERIA

Overall, the 1986 Constitution of Liberia provides the basis for environmental law in the country. Article 7 of the Liberian Constitution provides for the participation of all citizens in the protection and management of the environment and natural resources of Liberia. With this constitutional mandate, Liberia has adopted a body of environmental laws and regulations, which cover wide range of environmental protection and management issues, including management of surface and ground waters, waste management, pollution prevention, environmental impact assessment and other issues relating to the protection and management of the biophysical environment of Liberia.

2.1.2 THE ENVIRONMENTAL PROTECTION AGENCY ACT (EPA ACT)

The Environmental Protection Agency Act created the Environmental Protection Agency of Liberia. The Act was approved on November 26, 2002, and published on April 30, 2003. The creation of the EPA marked an important step for environmental management and protection in Liberia. Section 5 of the EPA Act designates the EPA as the lead Agency for environmental protection and management in Liberia, while Section 6 defines the functions of the EPA.

2.1.3 THE ENVIRONMENT PROTECTION AND MANAGEMENT LAW (EPML)

The EPML is an outshoot of the EPA Act. The EPML, approved in 2002, is the most important legal instrument for environmental protection and management in Liberia. It provides the legal framework for the sustainable development, management and protection of the environment by the EPA in partnership with relevant ministries, autonomous agencies and organizations, while stressing inter-sectoral coordination.

It also establishes regulations for environmental quality standards, pollution control and licensing, among others. The EPML further mandates the EPA to establish environmental regulation standards for the full implementation of the EMPL. Most of such environmental standards are yet to be established or finalized. The EPML-most importantly- provides rules, regulations, and procedures for the conduct of EIA. The EIA

2.1.4 THE NATIONAL ENVIRONMENTAL POLICY ACT

The Act defines policies, goals, objectives, and principles of sustainable development and improvement of the physical environment, quality of life of the people and ensures coordination between economic development and growth with sustainable management of natural resources

2.1.5 PUBLIC HEALTH LAW

This law mandates the Ministry of Health to ensure environmental sanitation in communities as well as in private and public places. The Law recognizes the importance of issuance sanitary permits to institutions for the operation public places including institution of public health importance.

2.1.6 INTEGRATED WATER RESOURCES MANAGEMENT POLICY (IWRMP) AND INTEGRATED NATIONAL WASTE MANAGEMENT STRATEGIC PLAN (INWMSP) (2011)

This policy serves as a common guiding reference for the implementation of the "Libreville Declaration on health and environment". Among other issues, the Declaration emphasizes the implementation of 11 priority interventions which include strengthening the waste management system as a strategy for efficiency and effectiveness in the provision of quality services for improved health outcomes.

2.1.7 COMPLIANCE WITH WORLD BANK SAFEGUARDS POLICIES

The project has been rated under category B of Operational Policy 4.01 (Environmental Assessment), as some activities envisage under the may have negative impacts on the environment. The objective of OP 4.01 is to ensure that projects financed by the Bank are environmentally and socially sustainable, and that the decision making process is improved through an appropriate analysis of the actions including their potential environmental impacts. Environmental assessment (EA) is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. In addition to OP 4.01, OP/BP 4.09 (Pest Management) has also been triggered. So in addition to this ESMF, which partly fulfils the requirement of OP 4.01, and Integrated Pest Management Plan is being developed to fulfil the requirement of OP 4.09.

3.0 ENVIRONMENTAL AND SOCIAL ASPECTS OF REDISSE

The project has been rated category B of Operational Policy 4:01 (Environmental Assessment). The appraisal under category B of Operational Policy 4:01 (Environmental Assessment) entails that potential environmental and social impacts would have moderate significance in the environs, and there is need for environmental management plans to address the impacts. The project components for which some negative impacts may arise are those of components 2 and 3. The impacts can be broadly categorised into two main groups: (1) impacts arising during civil works and ancillary activities and (2) impacts arising during the operational phase. The main sources of impacts during the construction phase would be from proposed expansion, minor civil works, rehabilitation works of the facilities and new construction activities. During the construction phase, construction workers could be exposed to occupational health and safety risks including fall from height, exposure to hazardous chemicals, accidents, hearing loss, sexually transmitted diseases (STDs) and other risks normally associated with construction activities. For the operational phase, the main source of impacts would be from the generation of healthcare wastes.

Table 5 Potential Environmental Impacts and Proposed Mitigation Measures

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction activities	Flora and Fauna	The rehabilitation, refurbishment and upgrading of existing healthcare facilities could result in some clearing of vegetation that could result in loss of tree/plant cover . This is expected to be minor as the proposed construction sites are mostly in built environment and areas that are already disturbed.	• Avoid environmentally sensitive sites and unnecessary exposure or access to sensitive habitat; • Ensure that vegetation clearance does not beyond what is required for activities; • Ensure that construction workers are not engaged in hunting and activities that could pose threat to biodiversity	Construction Contractor and Project Implementation Unit	No additional cost

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction phase : Hazardous materials handling, storage, use and transportation	**Soil and water resources (both ground water and surface water resources)**	The risk of accidental discharge of hazardous products, leakage of hydrocarbons, oils or grease from construction machinery also constitute potential sources of soils and water pollution.	• Avoid the storage of hazardous substances around water bodies; • Ensure that storage containers of hazardous substances are in good condition and tightly close at all times; • Ensure that storage facilities are provided impervious surfaces and bunds to control spill in case of accidental spillage • Construction should develop spill response plan as part of the construction ESMP • Secondary containment for fuels to avoid spill contamination and inspection during operation • -Some training in fuel and waste handling should be part of the orientation for workers • -Maintain the MSDS Sheets for hazardous materials on site • -Prepare a H&S Plan	Construction Contractor and Project Implementation Unit	Cost included

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction activities: Construction Wastes Generation and Disposal issues	**Environmental degradation-soil, water resources, public health, air**	Improper disposal of construction wastes can lead to environmental degradation due to dispersion of materials of materials in the nearby canals, streets and adjacent properties -Poor or improper management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties; -The construction activities will necessitate temporary on site storage of construction materials and excavated materials, poor management of the stored materials and wastes can result in dispersion of materials in the nearby canals, streets and adjacent properties	• The contractor shall handle construction materials and waste in accordance with approved procedures. • The community should be made aware of constraints imposed on the contractor for waste collection, storage and disposal • Where possible the contract should coordinate with the Municipality, and administrations, to deposit construction waste in areas that are to be filled or reclaimed • The contractor shall contain excavated materials in the vicinity of the worksite within berms to prevent dispersion and sedimentation of drains, creeks, streets and adjacent properties • In case of accidental waste dispersion, EPA shall be informed and restoration measures shall be applied. • Waste materials are to be disposed in line with EPA regulations	Implementation: Contractor Supervision: Project Implementation Unit	Included in Contractor's costs (Include cost of signs, media costs, printing, etc.
Construction phases	**Air Emissions and Air Quality** -Dust generated from earthworks. -Dust generated from materials handling. -Wind-generated dust from exposed areas of soil and mounds of stored soil. - Dust generated from vehicle movements emissions from construction traffic and on-site machinery	**Impaired Air quality** due to emissions form vehicles and dust generated - Respiratory impacts on site workers, nearby residents and pedestrian	• Dust suppression methods such as wetting materials or slowing work should be employed as needed to avoid visible dust • Gas masks / respirators when working in closed areas such as access manholes, etc. (according to approved procedures) • Document requirements and standards in the Contractors	Implementation: Contractor Supervision: Project Implementation Unit	Included in Contractor's costs

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Construction Activities	**Noise generation** (from the use of excavation machines and construction equipment)	Noise generation from the use of excavation machines and construction equipment with its impact on workers and neighborhood	• Hearing protection for working around machinery where the noise exceeds 60 dB (according to approved procedures) • Limiting working hours according to the EPA requirements • Maintain vehicles and machinery according maintenance requirements • Consider noise suppression capability in the procurement of vehicle and equipment. • The location of noisy machinery (including generators) can also be considered such that they are positioned away from sensitive sites such as schools hospitals, residential areas etc.	Main responsability: Contractor Supervision : Project Implementation Unit	Included in Contractor's costs
Construction Activities	**Worker and Public Health and Safety**	The safety of the local population may be at risk during construction activities. The movement of trucks to and from the site, the operation of various equipment and machinery and the actual construction activities will expose the workers to work-related accidents and injuries. Pollutants such as dust and noise could also have negative implications on the health of workers and near-by communities.	• ensure that traffic management plan is place where this might be an issue • Ensure that construction equipment are good condition and service regularly; • Ensure that operators are trained; • Ensure that sites are properly barricaded during construction and temporary pedestrian walkways are provided when required; • Ensure workers are provided with personal protective equipment suitable for their work; • Ensure that workers trained and understand the risks associated with their works • Contractor must develop Health and Safety Plan (HSP) as part of the sub project ESMP	Main responsibility: Contractor Supervision: Project implementation Unit	Included in Contractor's cost

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Operation of Health Care facilities	**Health care wastes management**	Medical facilities are a potential source of infectious waste in gaseous, liquid or solid forms. These could pose unsafe conditions for healthcare staff. Of particular concern are janitors handling infectious waste (including sharps) without adequate protective gear, storage of sharps in containers that are not puncture-proof and management of radioactive waste at healthcare where x-ray equipment will be installed. While some OHS risks will be borne by new equipment or services introduced after renovation or upgraded facilities.	Detailed mitigation measures are provided in the Updated Health Care Wastes Management Plan which is one of the safeguards instruments that have been developed for this project	Main responsability: Contractor Supervision : Project implementation Unit	Included in Contractor's mobilization cost

Project Activity	Environmental Aspect	Potential Environmental and Social Impacts	Proposed Mitigation / Controls Measures	Responsibilities for Implementation of Mitigation Measures	Cost Estimates USD
Veterinary services	**Veterinary services/livestock production can generate wide range of environmental impacts that may affect several aspects of the environment as well as human health.**	Veterinary services/livestock production may generate environmental issues ranging from waste management, air emissions, waste water, hazardous material management, ecological impacts, animal diseases and health safety risks. Solid wastes generation is one of the major environmental concerns related veterinary services/livestock production. Solid wastes produced can include animal carcasses, waste feed, spoiled/leftover medication, animal excreta. All of these can pose serious risks to the environment and human health if not managed properly.	Waste Management • Ensure efficient storage, handling and use of feed by keeping proper record of feed use and purchases • Ensure proper storage of feed in secured areas to prevent exposure to rain, wind and any factor that may cause feed to transported into the environment • Maintain feeding system in good working condition to prevent spill and contact with sources that could led contamination Carcasses • Carcasses may contain pathogens. They should properly managed and disposed of as quickly as possible to prevent the spread of diseases. In general, carcasses should be managed and disposed of in a way that they are not recycled into animal feed or left in the environment where they may pose risks to the environmental media as well as human health. • Practices that could reduce animal diseases and mortalities should be encouraged In addition to these generic mitigation measures, the Project IPMP and IVMP should also be consulted for more detailed mitigation measures. IFC Environmental, Health, and Safety Guidelines for Mammalian Livestock Production should be consulted for guidance (www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines)	Contractor has responsibility for implementation of mitigation measures PIU will monitor the contractor to ensure that agreed mitigation measures are applied,	Cost included in contractor's cost

4.0 OBJECTIVE OF ENVIRONMENT AND SOCIAL MANAGEMENT FRAMEWORK

The project Environment and Social Management Framework provides overall guidance on environmental screening and management for various sub-projects. The ESMF contains useful information on the procedures for environmental and social screening for sub-projects, potential environmental and social impacts; measures for addressing the negative impacts, recommended environmental and social rules for contractors. In this addition to this umbrella ESMF, the construction contractors will be required to develop detail and site-specific ESMPs to manage the potential impacts of their works.

The aim of the ESMF is to establish procedures for initial screening of the negative impacts which would require attention, prior to site-specific project implementation. Key specific objectives for the assessment are:

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

Environmental and Social Screening will be undertaken for each of the proposed sub-projects in order to ascertain specific environmental and social impacts. Environmental and social management plans have to be drawn and recommendations integrated in construction contracts before bidding process.

A comprehensive national medical waste management plan has been developed, which addresses the requirements for handling medical wastes. This ESMF therefore focuses on the other aspects of the project which have environmental impacts, namely the construction and civil works component. An umbrella pest management plan for the project is being developed that will be used by all the implementing countries of REDISSE.

5.0 ENVIRONMENTAL AND SOCIAL SCREENING PROCESS

Environmental and Social Screening of all sub-projects will be undertaken during planning and design stage, before commencement of civil works on the site. Environmental and social management plans will be prepared to identify, assess and mitigate, as appropriate all potential negative impacts.

Step 1: Application of the Screening processes

The PIU with the assistance of a consultant team (where required), will determine appropriate instruments for mitigating environmental and social impacts. This will allow the PIU to:

a) Determine the level of environmental work required (i.e. whether an ESMP is required; whether the application of simple mitigation measures will suffice; or whether no additional environmental work is required);

b) Determine and incorporate appropriate mitigation measures for addressing adverse impacts

The PIU will prepare a Safeguard Screening Summary which includes:

- a list of micro-projects and sub-projects that are expected to have environmental and social safeguards impacts;
- the extent of the expected impacts;
- the instruments used to address the expected impacts; and
- time line to prepare the required instruments.

The Safeguard Screening Summary, when completed, will provide information on the assignment of the appropriate environmental and social category to a particular activity for construction of new facilities or rehabilitation of existing structures.

The PIU, with the assistance of a consultant team (where required), will determine and prepare appropriate instruments for mitigating environmental and social safeguards impacts identified in the screening process. During the preparation of sub-projects, the PIU will ensure that technical design can avoid or minimize environmental and social impacts, avoiding land acquisition. A Matrix of Mitigation measures for potential environmental impacts is attached as Annex 1

The PIU will carry out the initial screening in the field, through the use of the Environmental and Social Screening Form – Part 1 of the Environment Management Plan – Checklist (Annex 2). The PIU will retain a copy of the Safeguards Screening Summary for possible review by the Implementing Agency and the World Bank. The review, which may be conducted on sample basis, will verify the proper application of the screening process, including the scoping of potential impacts and the choice and application of instruments.

Step 2: Preparation of site-specific safeguards instruments

The environmental and social impact assessment process will identify and assess the potential environmental and social impacts of the proposed construction activities, evaluate alternatives, as well as design and implement appropriate mitigation, management and monitoring measures. These measures will be captured in the Environmental and social Management Plan (ESMP) which will be prepared.

This ESMF includes an ESMP-checklist which can be used as the Environmental and Social Management Plan (ESMP) for individual sub-activities once identified during the scoping identification phase. (Annexes 2, 3 and 4) For each sub-activity in which the specific buildings/sites for rehabilitation, and/or demolition and complete reconstruction is known, the EMP-checklist is completed. The checklist has three parts:

1. Part 1 includes the descriptive part that describes the project specifics in terms of the physical location, institutional arrangements, and applicable legislative aspects, the project description, inclusive of the need for a capacity building program and description of the public consultation process. This section could be up to two pages long. Attachments for additional information can be included. (This is the ESSF, Part 1 as detailed in Annex 2)
2. Part 2 includes the environmental and social screening of potential issues and impacts, in a simple Yes/No format followed by mitigation measures for any given activity. Currently, the list provides examples of potential issues and impacts. This list can be expanded to specific site issues and /or impacts; and good practices and mitigation measures. (Annex 3)
3. Part 3 will include the monitoring plan for activities during project construction and implementation. It retains the same format required for current ESMPs. **It is the intent of this checklist that Part 2 and Part 3 be included as bidding documents for contractors.** (Annex 4)

The ESMP-checklist which to be filled out for each sub-project, will be used to determine the type and scope of the environmental and social safeguards impacts. The practical application of the EMP-checklist would include filling in of Part 1 to obtain and document all relevant site characteristics. In Part 2 the type of foreseen works, would be checked, and the completed tabular EMP is additionally attached as integral part to the works contract and, analogous to all technical and commercial terms, that is signed by the contract parties. Part 3 of the ESMP-checklist, the monitoring plan, is designated for the Contractor responsibility, to be supervised by the PIU.

The PIU 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. Documentation and clear records of such site-specific consultations must be maintained at the PIU.

In case of any change in scale of scope of construction or in case the Government decides to construct new buildings, the due-diligence measures will be enhanced, in consultation with the World Bank, and no such physical investments will be undertaken without Bank approval and clearance.

Step 2: Monitoring of safeguards instruments

The PIU will supervise and monitor the overall safeguards implementation process and prepare a progress report on the application of safeguards policies during the planning, design, and construction phases of the Project. The PIU will also develop the reporting requirements and procedures to ensure compliance of the contractors; conduct public consultation and public awareness programs; and carry out periodic training for field engineers and contractors as appropriate. Environmental consultants will be hired by the PIU to support them in this activity.

Appropriate mitigation measures will be included in the bidding documents and contract documents to be prepared by the PIU. Compliance by the contractors will be monitored in the field by the project field observers, working under close supervision. The performance of the contractors will be documented and recorded for possible later review. Sample Environmental Safeguards procedures for inclusion in the technical specifications of construction contracts are provided in Annex 6.

6.0 INSTITUTIONAL ARRANGEMENTS AND GOVERNANCE STRUCTURE

Governance Structure

In order to ensure effective implementation of REDISSE, the project will use the same institutional arrangement in place at the MOH for implementing other World Bank financed projects. The current project implementation structure includes three separate groups consisting of the Executive, the senior users and the senior suppliers. There are also two member groups which include Technical working group for project component and project management.

Steering Committee Executive

The steering committee executive officials including the Minister of Health have oversight responsibilities for the implementation of the Bank financed projects. It receives support from the other groups but ensures the smooth implementation of the project to achieving the project agreed objectives.

Steering Committee of Senior Users

This committee comprises of representative of division and or departments from the Ministry of Health (example: Human Resource Division, Infrastructure etc.). This committee ensures that the usability of the EERP solutions.

Steering Committee of Suppliers

This committee ensures the feasibility of the project's solutions. It comprises of representatives from the World Bank, the World Health Organization (WHO), and the UNOPS. In this arrangement, WHO serves as partner in the project implementation, World Bank as project donor and UNOPS as provider of project assurance.

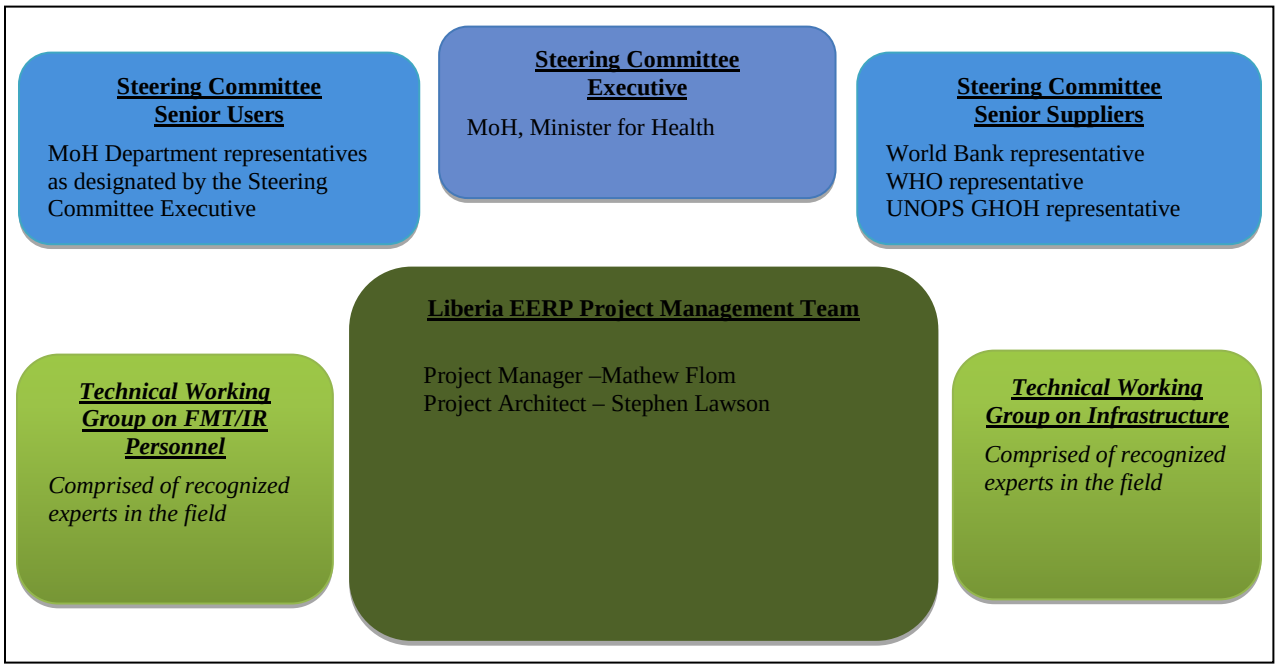


Figure 1 Governance Structure

Technical working group

The Ministry of Health has been engaged in various Bank investments projects and as such, it has project coordinating units which are very familiar with Bank Safeguard policies and procedures.

This working group is made up of representatives from institutions with expertise in technical areas relevant to the project. One key technical working group is the infrastructure working group which provides advice to the project steering committees on technical matters and support in infrastructure components of the EERP which contributes to project objectives. The infrastructure working group comprises of the Ministry of Public Works, UNICEF, Ministry of Health, UNOPS, and Environmental Protection Agency (EPA).

Project Management Team

The project management team comprises of project implementation unit housed within the Ministry of Health. This team leads on the operational aspects of the project such as development of workplans, assessing overall implementation of the project including quality assurance and overall budgetary performance.

Responsibilities and Institutional roles in the implementation of the ESMF

The below table identifies the different roles and responsibilities for specific institutions in the implementation of the ESMF.

Table 6 Roles and Responsibilities in ESMF Implementation

Measures	Areas of Intervention	Implementation responsibility
Mitigation measures	This includes mitigation of negative impacts likely to result from project activities such as civil works (i.e construction and rehabilitation)	Division of Environmental and Occupational Health (DEOH) County Health Teams
Technical measures	Conduct of relevant activities including the development of health and safety plans, conduct of environmental impact studies including Environmental Impact Assessment (EIAs) and Health Impact Assessment (HIA) Conduct regular (quarterly) assessment on the implementation of the ESMF	Consultant and DEOH
Approval and environmental classification of sub projects	Review and approve the environmental classification of sub projects and issue EIA approval Monitor the national level implementation of Environmental Measures	Environmental Protection Agency (EPA)
Recruitment of specialist services	Recruit the Environmental and Social Managament Specialist to lead on ESMF implementation as well as the development of environmental and social guidelines	EERP project Implementation Unit (PIU)
Monitoring and quality control	Reviews technical specifications of civil works projects Assesses EIAs and EMPs Provides clearance on infrastructure component of the project	Ministry of Public Works Environmental Protection Agency Ministry of Health (Infrastructure Division and DEOH)

7.0 ENVIRONMENTAL AND SOCIAL MONITORING

7.1 INSTITUTIONAL ARRANGEMENTS

In order to ensure quality delivery of the project activities, project monitoring will be conducted by different institutions and at different levels.

National Level: The infrastructure working group mentioned above will serve as the technical review arm for this project and will comprise of the Ministry of Health (Infrastructure Division and the Environmental Health Division) who will lead the process of ensuring environmental monitoring for sub project activities. The Environmental Protection Agency (EPA) will ensure that sub project activities requiring permits complies with existing laws.

A sub national level, the County Health Teams will lead the implementation of environmental mitigation activities and ensure that all sub project activities comply with existing legislation.

7.2 IMPLEMENTING SCHEDULES

Timing, frequency and duration of mitigation measures with links to the overall implementation schedule of the project should be specified.

Table 3 presents the timetable for the implementation and monitoring of the REDISSE Environmental and Social Management Framework (ESMF) activities:

Table 7 Time Table for Implementation and Monitoring

Measures	Proposed actions	Timeline in project cycle
Institutional measures	Recruit Environmental and Social Management specialist or a consultant-whichever may be required given the project needs	Before sub project implementation
Technical Measures	Application of screening checklist for sub project activities	Before implementation of sub projects project activities
Mitigating measures	Review list of mitigating measures	During sub project implementation
Awareness creation on project safeguards	County level consultation and disclosure sessions	Before sub project implementation
Follow up action	Project ESMF monitoring and Evaluation	During and at the end of project implementation
Independent Audit		One year before end of project

7.3 MONITORING AND REPORTING PROCEDURES

The project will ensure continuous monitoring and supervision, focusing primarily on monthly county level visits and a mid-term and end of project evaluation. The budgetary allocations in the budget will support local monitoring by the Environmental and Social Management consultant and monitors from the DEOH and the EPA to effect the wide scale monitoring of the ESMF.

8.0 COST ESTIMATES FOR IMPLEMENTING THE ESMF

In order to implement the ESMF, there is need for funding of the following activities clearly outlined in Table 4 below. It should be noted that cost for ESMF implementation could differ from the one mentioned here during project implementation. However, this exercise has been undertaken to ensure the importance of the ESMF implementation as an integral part of the project implementation.

Table 8 Cost Estimate of ESMF Implementation

Measure and core activities	**Budget Basis and Assumptions**	**Unit cost (US$)**	**Total cost Per Annum**
Capacity building for PIU staff for ESMF implementation	In country training for PIU staff (2 trainings per year	30, 000	60, 000
Meetings, Workshops and Stakeholder Engagement	Estimated expenses for PIU staff and cost of workshops, meetings and consultations		50,000.00
Sub projects ESMFs/ESIA	Consultancy fees for developing sub projects ESMF when required	20,000 USD/ESMF or ESIA	20,000 (total cost will depend on number of sub projects for which ESMF is developed.)
Safeguards Specialist	Monthly estimated salary for safeguards specialist	2500	30000
ESMP monitoring activities during project implementation	Estimated expenses for field visits for one person/week (assuming there will one field visit for about a week every month)	500	6000 (actual total cost will depend on number of persons and visits, and perdiem offered).
Total Estimated Budget			166, 000
Contingency (10%)			16, 600
Grand Total Cost			182,600

9.0 CONSULTATIONS AND DISCLOSURE

The World Bank policies require that environmental reports for projects are made available to project affected groups, local NGOs, and the public at large. Public disclosure of environmental reports is also a requirement of the Liberia EIA procedures. REDISSE is adopting the ESMFs of the EERP and HSSP. These ESMFs have been publicly disclosed in Country 2013 and on Infoshop. In line with the Bank's policy on public disclosure and Liberian environmental regulations, this ESMF will be publicly disclosed in Country and on Info shop.

ANNEX 1: DESCRIPTION OF THE PROJECT AREA

A. Location

Liberia is located on the West Coast of Africa and it lies between longitudes 7o30' and 11o30' west and latitudes 4o18‟ and 8o30' north. The country is bordered on the west by Sierra Leone, on the north by Guinea, on the east by Côte d‟Ivoire and on the south by the Atlantic Ocean. The total surface area is approximately 111,370 km2 (or approx. 43,506 square miles).

B. Climate

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

C. Geology and Geomorphology

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

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

D. Hydrology

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

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

E. Ecology and Biodiversity

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

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

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

The forests also contain many of the regions endangered fauna species, including the pygmy hippopotamus, forest elephant, Diana monkey, and Jentink's and zebra duikers. However, the consumption of bush meat is a threat to biodiversity while commercial logging, shifting cultiva-tion and other activities are threatening the forest cover; with up to about 480,000 acres (192,000 hectares) of forestland being lost annually. The map below (Figure 3) shows the forest cover in Liberia.

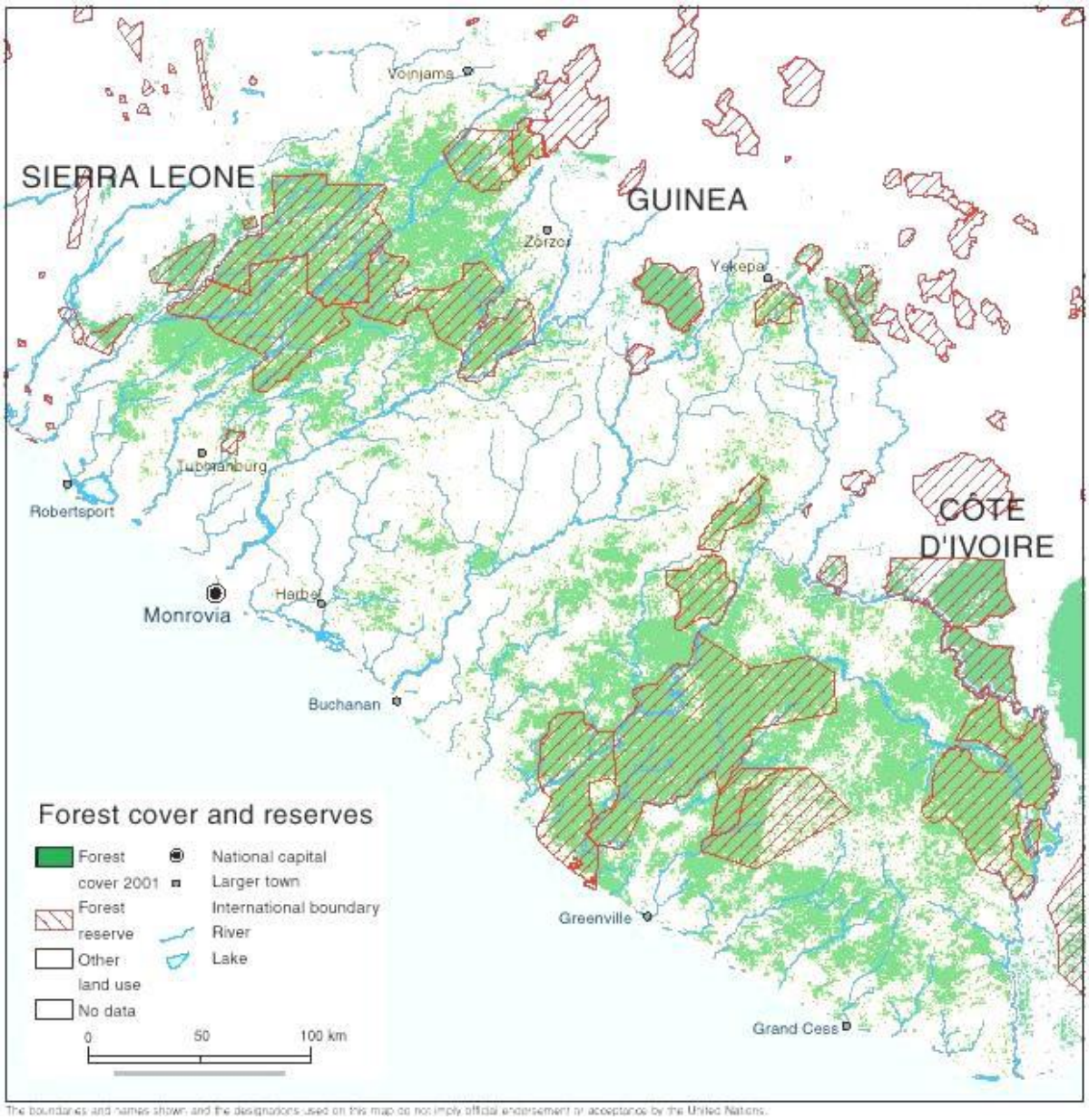


Figure 1 Forest Cover and Reserves in Liberia

F. Health Services

Fourteen years of conflict have contributed immensely to the deterioration of health care services in Liberia. The civil conflict led to the destruction and looting of health infrastructures and chronic manpower shortage. However, the situation in the health sector had started to improve since the inauguration of a new government in 2006 until the Ebola Virus Disease struck recently, which offset most of the gains made in the sector.

Prior to the EVD crisis, Liberia's health outcomes had been improving steadily since the end of the second civil war in 2003. Figures from the 2013 Liberia Demographic Health Survey (LDHS), for example, showed a 15 percent decline in under-five mortality and a corresponding decline in two subset indicators of under-five mortality (U5M), in the 10 year period prior to the survey. By 2012, Liberia was also one of the first countries in Sub-Saharan Africa (SSA) to achieve its MDG target of reducing the mortality rate of children under-five (U5MR) to one-third of its 1990 level. In addition, neonatal mortality also declined by 19 percent from 32 to 26 (per 1000), and infant mortality declined by 24 percent from 71 to 54 deaths. These improvements have been driven by increased access to antenatal care (ANC) and skilled birth attendance, as well as broader improvements across key social indicators.

Despite these gains, the health sector, however, continues to face significant challenges, with the EVD outbreak eroding a number of previous gains, thus weakening further an already weakened and fragile health system. For example, deliveries by skilled birth attendants, declined by 7% from 2013 to 2014; Antenatal care (ANC) 4th visits dropped by 8%; measles coverage declined by 21% from 2013 to 2014; and health facility utilization plummeted by 40% (5.5 visits in 2013 to 3.3 visits per inhabitant in 2014). Essential immunizations had not been carried out for more than a year, resulting in measles and meningitis outbreaks in some parts of the Country.

Liberia's shortage of health workers is significant. This shortage runs across multiple cadres but is best illustrated by the fact that the country has one of the lowest physician densities in Sub-Saharan Africa. For example, prior to the EVD outbreak, Liberia had fewer than 100 physicians believed to be practicing in the public sector. This is well below the minimum threshold of 0.55 physicians per 1,000 population estimated to be required to ensure access to basic health services.

Lack of surveillance system and challenges in quality of care is are also among the challenges facing the health. For example, the maternal mortality ratio (MMR) in Liberia is high - an estimated 770 per 100,000 in 2010. According to the 2013 LDHS report, adult mortality is higher among women than men (4.9 female deaths and 4.1 male deaths per 1,000 population respectively). Despite consolidated efforts, maternal deaths account for 38 percent of all deaths to women aged 15-49, the vast majority from preventable pregnancy-related conditions.

In view of these challenges, the Ministry of Health has embarked on a plan to build and reinforce the health system. As part of this effort, the Ministry has developed an "Investment Plan for Building a Resilient Health System: 2015 to 2021" (Investment Plan). The development of this national Investment Plan involved intensive consultations with both local stakeholders and development partners. Using the Investment Plan as a blueprint for rebuilding and reinforcing the health sector, the MOH together with development partners is currently developing detailed plans and guidelines on individual pillars, and their associated priority topics and establishing associated implementation arrangements. The latter includes the thematic working groups for coordinated planning, implementation, and tracking progress of key pillars of the Investment Plan.

G. Livestock Sector

The livestock subsector like all other sectors was decimated as a result of the civil conflict. The livestock subsector has been decimated as a result of the civil conflict. According to the Comprehensive Assessment of the Agricultural Sector (CAAS), a study conducted in 2007, the livestock population is below 10 percent of national requirements. Liberia has an estimated 2 million hectares of pastureland yet the 16 livestock sector accounts for only an estimated 14 percent of agricultural GDP which is far below potential (CAAS-Lib Synthesis Report, 2007). This sector is not well developed which can be explained by the high annual importation of livestock and livestock products. Although the local breeds of cattle, goat, sheep, pig, rabbit, guinea pig, chicken, duck, and guinea fowl raised in Liberia are well adapted to the local conditions, their productive capacity is lower than the exotic breeds. Traditional livestock farmers use local, less productive animal breeds and basic techniques, with access to few inputs, and receive limited or no support services from government. Estimates suggest there is slow growth in aggregate livestock numbers comprising mainly cattle, poultry, and swine. Traditional livestock farmers dominate, as was the case before the war. According to CAAS-Lib, traditional systems accounted for 100% of the holdings of cattle, goats, and sheep; 58% of pigs; and 100% of guinea fowl. A few modern peri-urban livestock farmers produced rabbits, guinea pigs, poultry, and ducks.

ANNEX 2: EIA PROCESS IN LIBERIA

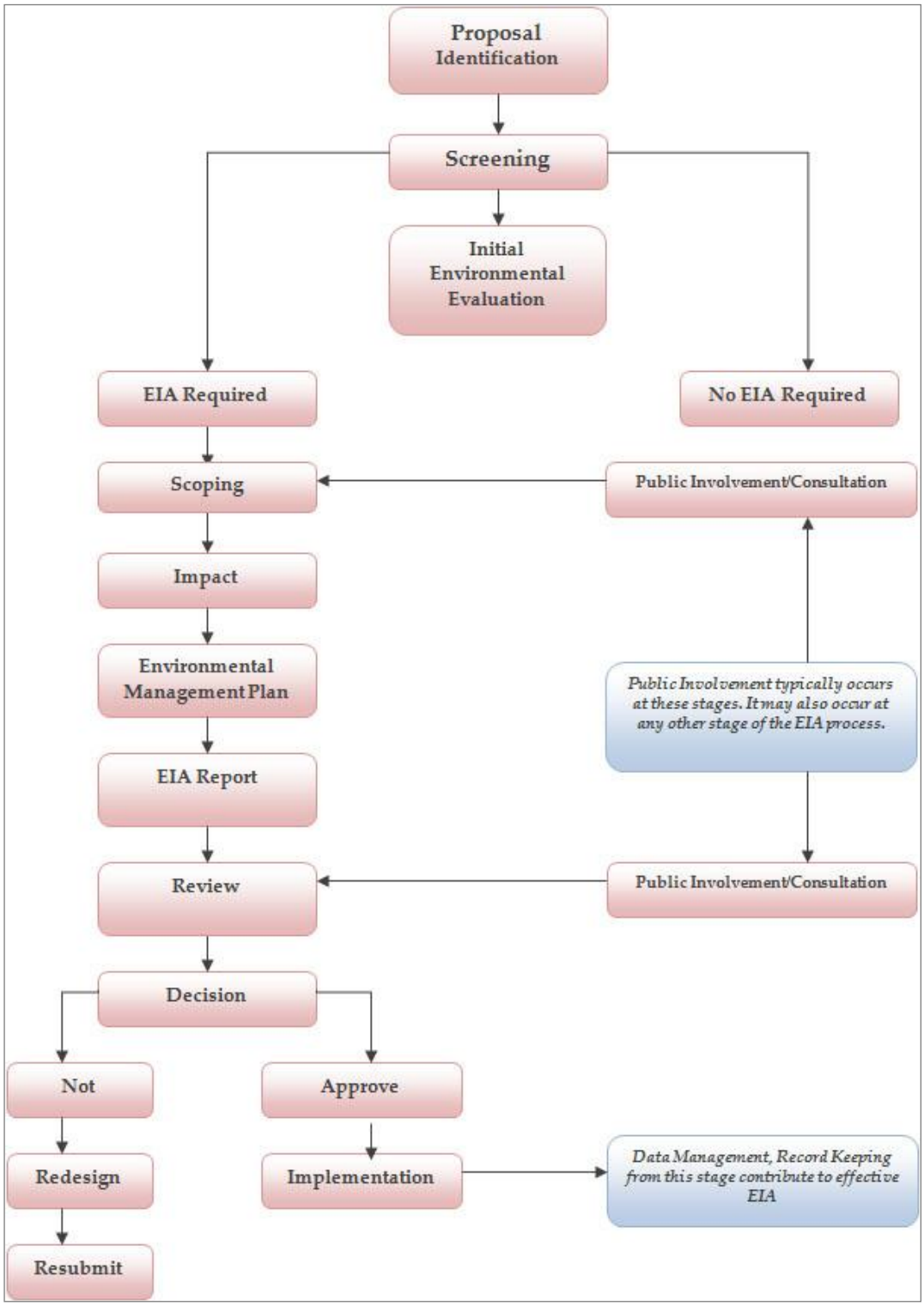
The main steps in the national EIA process are:

- Prepare Application for Environmental Impact License
- Prepare Notice of Intent (NOI)
- Submit Project Brief (allow 14 working days for EPA review and feedback)
- Conduct Scoping Process:
    - Publish NOI in Media
    - Prepare Terms of Reference (TOR)
    - Conduct Meetings with EPA Environmental Committee and District Environmental Committees, as needed.
    - Conduct Public Meetings with Potentially Affected Communities
    - Submit Scoping Report to EPA
- Prepare Environmental Review
- Obtain EPA Approval of TOR and Environmental Review
- Prepare Environmental Impact Study and Report (included in EIA)
- Prepare Environmental Impact Statement (EIS) (included in EIA)
- Develop Comprehensive Environmental Mitigation Plan and Implementation Strategy (included in EIA)
- Agency Review of EIA (within 3 months)
- Public Consultation on EIA (within first 30 days of 3 months)
- Public Hearings (EPA to decide whether to hold these)
- Liberia Line Ministries Comment on EIA
- Review by EPA Environmental Assessment Committee
- Approval or Rejection by EPA (within 3 months of receiving EIA)

Public Consultation Requirements of the EIA Process Involvement of the public in the EIA commences with the launch of the EIA process and continues throughout its course. Detailed below are the different requirements of the public involvement throughout the EIA process:

- After the submission of an application for an environmental impact assessment permit, the project proponent should publish a "notice of intent" that states the information that may be necessary to allow the stakeholders or any interested party to identify their interest in the proposed project or activity. This information should include: the nature of the project, its related activities, its timeframe and its site of operation and the area that may be impacted.
- Before preparing the EIA document, the project proponent should conduct public consultations with the potential affected stakeholders. This procedure is called the "scoping process" which aims to: 1) inform the stakeholders about the project's details, its potential impacts on the physical, biological and socio-economic environments, and the mitigation measures that can be taken in order to minimize these impacts, and 2) get the stakeholders' input on the various related issues. By achieving this, the scoping process is also a guiding tool for the project proponent and its consultants. It helps them in identifying the project's impacts, mitigation measures and alternatives, which will form the essential part of the EIA document. The scoping process consists of publishing the project's details in the affected district's media, holding public meetings to consult directly with the affected communities and stakeholders, and incorporating the views of these stakeholders in the scoping report which is submitted to the EPA.
- On the completion of the EIA study report, the public is invited again to participate in the EIA review through public consultation meetings. The public's views on the EIA are taken into consideration by the EPA when deciding about approving or rejecting the project.
- In some cases, the EPA also decides to hold a public hearing about the project in order to fortify the public participation. These cases include but are not limited to: requests by the public for a

public hearing, controversy about the project or expiry of the period stipulated for receipt of comments.



ANNEX 3: MATRIX OF MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
0. General Conditions	Land	1. The local construction and environment inspectorates and communities have been notified of upcoming activities 2. The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) 3. All legally required permits have been acquired for construction and/or rehabilitation 4. The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. 5. All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities. 6. An inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided; Tree replanting should be undertaken to replace those which need to be cut 7. There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas. 8. Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences 9. If there are any religious or cultural artifacts on site, these must be identified in site-specific EMP, and recommended actions must be agreed in consultation with local community.
Building-related Specifications		1. Building designs must be in compliance with national standards for energy efficiency, water and sewerage and healthcare waste management 2. Facility design features must ensure adequate space and equipment for health service delivery 3. As far as possible, local material must be used to reduce the energy consumption in transport 4. Asbestos must not be used; Low-cost lead-based paints should be avoided and building materials should be fire resistant. 5. Proper ventilation and natural lighting should be ensured in the building design 6. In case archaeological or religious site exists in the vicinity,

		the site-specific EMP must include all due diligence measures to avoid any harm or impact on those structures. 7. The drainage pattern should be studied to determine whether the site would be subject to flooding and stagnant water. The building designs must include systems for drainage of excess water 8. Alternative sources of power for lighting and heating options must be assessed for each site and the assessment and recommendations must be clearly documented in the site-specific EMP.
A. General Rehabilitation and /or Construction Activities	Air Quality	1. The contractor shall ensure that construction materials such as sand, quarry stone, soils or any other construction materials are acquired from approved suppliers 2. Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust 3. During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site 4. The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust. **5. Dust and noise barriers are specially required where construction faces hospital wards and patient movement** 6. There will be no open burning of construction / waste material at the site 7. There will be no excessive idling of construction vehicles at sites
	Noise	1. Construction noise will be limited to restricted times agreed to in the permit 2. During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible
	Waste management	(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (c) Construction waste will be collected and disposed properly by licensed collectors (d) The records of waste disposal will be maintained as proof for proper management as designed. (e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
	Water Supply and Quality	1. If piped water can be accessed, review possibility of linking the facility to the water source. In case of extending pipeline, environmental due diligence must be conducted with regard to the infrastructure required, materials used,

		layout of pipes within the facility etc. These must be clearly assessed and recorded in the site-specific EMP. 2. If there is no piped water, possibility of having a shallow-well/tube-well within the facility premises. In case of this option, environmental due diligence will involve assessment of the quality of groundwater and type of aquifers, availability of materials and equipment required to install the pumps etc. These must be clearly assessed and recorded in the site-specific EMP. 3. All laid pipes must be preferably copper, cast-iron sewer pipes to avoid Polyvinyl chloride (PVC) venting. Open pipes and insulation should be of non-toxic materials. 4. The quality of the water must be assessed for usage (drinking, sanitation etc). Specific plans to address any particular issues of water quality, such as arsenic and fluoride contamination, should be made if required. 5. Instructions must be included with regard to usage of the water, especially how to make it potable/drinkable. 6. Adequate provision for storage of sufficient volumes of water should be provided to ensure continuous availability of water within the building
	Sewerage and Sanitation	1. The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities 2. Assessment will be made of conditions of sewerage facility and where there is no system in place, options for constructing pit latrines must be assessed. Pit latrines must be installed downhill from water sources/wells and should be at least 2 meters above the water-table and about 6m away from the building. The design of the pit must follow international standards (WHO, WSP etc). A users and management manual must be prepared and disseminated to the users and healthcare staff. The assessment must be clearly documented in the site-specific EMP. 3. In case of infectious wastewater, the EMP must document what systems are being put in place for treatment and discharging 4. Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.
		1. The contractor shall provide all necessary protective clothing for workers exposed to hazardous and dangers work activities. 2. Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) 3. Appropriate signposting of the sites will inform workers of key rules and regulations to follow

		4. All workers shall be regularly sensitized on safety regulations on the site. 5. The construction shall maintain on the site first aid kits for male and female workers. 6. Workers shall be provided with clean potable water on the site and safety cooking places, wash rooms and ventilated pit latrines.
E. Toxic Materials	Asbestos management	1. If asbestos is located on the project site, it shall be marked clearly as hazardous material; it is to be stored temporarily, it securely contained and sealed to minimize exposure and marked appropriately 2. The removed asbestos will not be reused and should be secured so it cannot be pilfered by (worse yet, sold to) local people seeking building material. The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust 3. Workers dealing with asbestos removal must be provided with protective equipment as per OSHA guidelines (glove bags, protective clothing and approved respirators); Asbestos will be handled and disposed by trained workers. 4. All asbestos containing materials (ACM) ACM should be transported in leak-tight containers to a secure landfill in a manner that precludes air and water contamination that could result from ruptured containers. 5. In case where there is no secured landfill, the preferred alternative solution is secure burial. 6. The ACM could be buried under the foundations of the new construction but precautions must be taken that it is not broken or crushed 7. All measures will be documented in site-specific EMPs
	Toxic / hazardous waste management	(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information (b) The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching (c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used
G. Disposal of medical and veterinary wwaste	***Addressed in Medical Waste management Plan and IVMP***	(a) In compliance with national regulations the contractor will insure that newly constructed and/or rehabilitated health care facilities include sufficient infrastructure for medical waste handling and disposal; this includes and not limited to: Special facilities for segregated healthcare waste (including soiled instruments "sharps", and human tissue or fluids) from other waste disposal; and Appropriate storage facilities for medical waste are in place; and

		If the activity includes facility-based treatment, appropriate disposal options are in place and operational
H. Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	(b) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.

ANNEX 4: ENVIRONMENTAL AND SOCIAL SCREENING FORM (ESSF)

This Form is to be used by the PIU for screening sub-project proposals. One copy of this form and accompanying documentation will be kept in the PIU office, and one copy to be sent to the World Bank Task Team Leader.

PART 1: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE				
Project title				
Scope of project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management	Local Counterpart and/or Recipient	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
SITE DESCRIPTION				
Name of site				
Describe site location			Attachement 1: Site Map [ ]Y [ ] N	
Who owns the land?				
Description of geographic, physical, biological, geological, hydrographic and socio-economic context				
Locations and distance for material sourcing, especially aggregates, water, stones?				
LEGISLATION				
Identify national & local legislation & permits that apply to project activity				
PUBLIC CONSULTATION				

Identify when / where the public consultation process took place	
INSTITUTIONAL CAPACITY BUILDING	
Will there be any capacity building?	[ ] N or [ ]Y if Yes, Attachment 2 includes the capacity building program

ANNEX 5: ENVIRONMENTAL MANAGEMENT PLAN (EMP) CHECKLIST

FOR EACH SUB-PROJECT

Prepared by: _____
Reviewed by:_____
Date:_____

PART 2: SUB- PROJECT SPECIFIC SCREENING AND MITIGATION MEASURES

No	*Issues*	Yes	No	Proposed Mitigation Measures
A.	**Zoning and Land Issues**			
i.	Will the sub-project affect land use zoning and planning or conflict with prevalent land use patterns?			
ii.	Will the sub-project involve significant land disturbance or site clearance?			
iii.	Will the sub-project land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?			
iv.	Is the sub-project located in an area susceptible to landslides or erosion?			
v.	Will the sub-project involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?			
vi.	Is the sub-project located on prime agricultural land?			
vii.	Does the sub-project have access to potable water?			
viii.	Is the sub-project located far (1-2 km) from accessible roads?			
ix.	Will the sub-project need to change the vegetation and /or cutting of trees on site			
x.	Is the sub-project located in an area with a wastewater network?			
xi.	Is the sub-project located in the urban plan of the city?			
xii.	Is the sub-project located in a polluted or contaminated area?			
xiii.	Is the sub-project located in an area with designated natural reserves or protected areas? [**Note: If YES, the sub-project cannot be financed]**			

No	*Issues*	Yes	No	Proposed Mitigation Measures
xiv.	Will the sub-project involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?			
B	**Construction related Issue**			
ii	Will the sub-project require the setting up of ancillary production facilities?			
iii	Will sub-project require sourcing of building and construction materials and equipment			
iiii.	Will the sub-project require construction workforce who will need to be provided accommodation or service amenities			
Iiv	Will the sub-project generate solid (construction, rubble, cement etc) and liquid waste (chemicals, oils, wastewater etc)			
Vv	Will the sub-project require raw materials or construction materials?			
vvi	Will the sub-project lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?			
vvii	Will the sub-project involve the use of chemicals or solvents?			
Vviii	Will the sub-project lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?			
iix	Will the sub-project increase the levels of air emissions during construction or equipment movement?			
Xx	Will the sub-project generate dust and noise during construction?			
xxi	Will the sub-project increase ambient noise levels?			
xxii	Will the sub-project involve the storage, handling or transport of hazardous substances?			
xxiii	Will the sub-project have an impact on on religious monuments, structures and/or cemeteries, archaeological or historical sites?			
xxiv	Will the sub-project lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?			
xxv	Will the sub-project result in dismantling or removal of asbestos			
Xxvi	Will the sub-project involve demolition of existing structures?			

No	*Issues*	Yes	No	Proposed Mitigation Measures
C	***Design Issues***			
ii	Does the sub-project need provision of water supply			
iii	Does the sub-project need provision of electricity			
iiii.	Will the sub-project generate large amounts of residual wastes, construction material waste or cause soil erosion?			
iiv	Will the sub-project result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?			
vv	Will the sub-project lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?			
vvi	Will the sub-project involve the use of chemicals or solvents?			
vvii	Will the sub-project involve the storage, handling or transport of hazardous substances?			
vviii	Does the sub-project need provision of wastewater treatment			
iix	Is the facility installing an incinerator			If yes, attach separate UNOPS documentation
xx	Safety Issues			
xxi	Will the sub-project lead to inflow of labour and temporary construction camps?			
xxii	Is the -project or sub-project located in an area from which people have been displaced?			
xxiii	Is the sub-project located in an area where people will be temporarily relocated?			
xxiv	Is the sub-project located in a densely populated area?			
xxv	Does the sub-project require land acquisition? [**Note: If YES, the sub-project cannot be financed]**			
xxvi	Will the sub-project negatively impact livelihoods? [Note: Describe separately if YES]			
	ANNEX includes documentation of public consultation			
	ANNEX includes photographs of pre-during and post construction phases			

Signed by Environment Specialist: Name: _____
Title: _____
Date: _____

Signed by Project Manager: Name: _____
Title: _____ Date: _____

ANNEX 6: ENVIRONMENTAL MONITORING PLAN

PART 3: Monitoring Plan

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
During activity preparation							
During activity implementation							
During activity supervision							

ANNEX 7: LIST OF NEGATIVE PROJECT ATTRIBUTES

Interventions with any of the attributes listed below will be ineligible for support under the proposed emergency support

I. Sub-projects concerning significant conversion or degradation of critical natural habitats, including, but not limited to, any activity within:
Wildlife reserves
Ecologically-sensitive marine and terrestrial ecosystems
Parks or sanctuaries
Protected areas, natural habitat areas
Forests and forest reserves
Wetlands
National parks or game reserves
Any other environmentally sensitive areas
Any areas near disposal sites or requiring significant expansion into an existing disposal site.
Use of pesticides that fall in WHO classes IA, IB, or II.

II. Sub-projects requiring land acquisition or resulting in involuntary resettlement and/or permanent or temporary loss of access to assets or loss of assets for the project affected populations.

ANNEX 8: ENVIRONMENTAL GUIDELINES FOR CIVIL WORKS CONTRACTS

The contractors are required to use environmentally acceptable technical standards and procedures during the implementation of construction of works. All construction contracts will contain the following requirements:
Take precautions against negative influence on environment, any environmental damage or loss through prevention or suppression measures (where it is possible) instead of liquidation or mitigation of negative consequences.
Observe all national and local laws and rules on environmental protection. Identify officers responsible for the implementation of activities on environmental protection conforming to instructions and directions received from the construction and design or environmental protection agencies.
Store and dispose of construction waste consistent with national regulations and the sub-project (site-specific) EMP
Minimize dust emission to avoid or minimize negative consequences influencing air quality.
Provide pedestrian crossing and roads and access to the public places.
Provide markets with light and transient roundabout connections to assure safety and convenience.
Prevent or minimize vibration and noise from vehicles during explosive activities.
Minimize damages and assure vegetation recovery.
Protect surface and underground water from soil pollution. Assure water collection and distribution.

Safeguards Procedures for Inclusion in the Technical Specifications of Contracts
(for rehabilitation/repairs activities)

I. General

1. The Contractor and his employees shall adhere to the mitigation measures set down and take all other measures required by the Engineer to prevent harm, and to minimize the impact of his operations on the environment.
2. Remedial actions which cannot be effectively carried out during construction should be carried out on completion of each subproject and before issuance of the "Taking over certificate":
    i. these subproject locations should be landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;
    ii. water courses should be cleared of debris and drains and culverts checked for clear flow paths; and
    iii. borrow pits should be dressed as fish ponds, or drained and made safe, as agreed with the land owner.
3. The Contractor shall limit construction works to between 6 am and 7 pm if it is to be carried out in or near residential areas.
4. The Contractor shall avoid the use of heavy or noisy equipment in specified areas at night, or in sensitive areas such as near a hospital.

5. To prevent dust pollution during dry periods, the Contractor shall carry out regular watering of earth and gravel haul roads and shall cover material haulage trucks with tarpaulins to prevent spillage.
6. To avoid disease caused by inadequate provision of water and sanitation services, environmentally appropriate site selection led by application of the environmental and social screening form provided in this ESSAF, design and construction guidance, and a procedure for ensuring that this guidance is followed before construction is approved. Ensure engineering designs include adequate sanitary latrines and access to safe water.
7. To prevent unsustainable use of timber and wood-firing of bricks, the contractor should replace timber beams with concrete where structurally possible. In addition, the contractor should ensure fired bricks are not wood-fired. Where technically and economically feasible, substitute fired bricks with alternatives, such as sun-dried mud bricks, compressed earth bricks, or rammed earth construction.
8. The Contractor shall conduct appropriate disposal of waste materials and the protection of the workforce in the event of asbestos removal or that of other toxic materials.

Prohibitions

9. The following activities are prohibited on or near the project site:

Cutting of trees for any reason outside the approved construction area;
Hunting, fishing, wildlife capture, or plant collection;
Use of unapproved toxic materials, including lead-based paints, asbestos, etc.
Disturbance to anything with architectural or historical value;
Building of fires;
Use of firearms (except authorized security guards);

II. Transport

10. The Contractor shall use selected routes to the project site, as agreed with the Engineer, and appropriately sized vehicles suitable to the class of road, and shall restrict loads to prevent damage to roads and bridges used for transportation purposes. The Contractor shall be held responsible for any damage caused to the roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the Engineer.
11. The Contractor shall not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor.
12. Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract and such measures shall be subject to prior approval of the Engineer.

III. Workforce

13. The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.
14. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp and without causing pollution of nearby watercourses.

15. The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or base camp.
16. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.
17. The Contractor shall ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Engineer and not within 500 meters of existing residential settlements and not within 1,000 meters for asphalt plants.
18. The Contractor shall ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within 500 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.
19. The Contractor shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the Works.
20. The Contractor shall conduct safety training for construction workers prior to beginning work. Material Safety Data Sheets should be posted for each chemical present on the worksite.
21. The Contractor shall provide personal protective equipment (PPE) and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed and –shanked boots, etc.) for construction and pesticide handling work. Use of PPE should be enforced.

IV. Quarries and Borrow Pits

22. Operation of a new borrow area, on land, in a river, or in an existing area, shall be subject to prior approval of the Engineer, and the operation shall cease if so instructed by the Engineer. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage the river banks, or carry too much fine material downstream.
23. The Contractor shall ensure that all borrow pits used are left in a trim and tidy condition with stable side slopes, and are drained ensuring that no stagnant water bodies are created which could breed mosquitoes.
24. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the river banks.

25. The location of crushing plants shall be subject to the approval of the Engineer, and not be close to environmentally sensitive areas or to existing residential settlements, and shall be operated with approved fitted dust control devices.

V. Earthworks

26. Earthworks shall be properly controlled, especially during the rainy season.
27. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the work.
28. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
29. In order to protect any cut or fill slopes from erosion, in accordance with the drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with

grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.
30. Any excavated cut or unsuitable material shall be disposed of in designated tipping areas as agreed to by the Engineer.
31. Tips should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the Engineer.

VI. Historical and Archeological Sites

32. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:
i. Stop the construction activities in the area of the chance find.
ii. Delineate the discovered site or area.iii.Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities take over.

iv. Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture, Youth and Sports immediately (less than 24 hours).
v. Contact the responsible local authorities and the Ministry of Information, Culture and Communication who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archeologists of the relevant Ministry of Information, Culture and Communication (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.
vi. Ensure that decisions on how to handle the finding be taken by the responsible authorities and the Ministry of Information, Culture and Communication. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.
vii. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry of Information, Culture and Communication; and
viii. Construction work will resume only after authorization is given by the responsible local authorities and the Ministry of Information, Culture and Communication concerning the safeguard of the heritage.

VII. Disposal of Construction and Vehicle Waste

33. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the extent feasible, in the proposed construction (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the project engineer. The contractor should ensure that these sites: (i) are not located within designated forest areas; (ii) do not impact natural drainage courses; and (iii) do not impact

endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.
34. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the Supervisor/Engineer.
35. Bentonite slurry or similar debris generated from pile driving or other construction activities shall be disposed of to avoid overflow into the surface water bodies or form mud puddles in the area.
36. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Engineer.
37. Vehicle/machinery and equipment operations, maintenance and refueling shall be carried out to avoid spillage of fuels and lubricants and ground contamination. An oil interceptor will be provided for wash down and refueling areas. Fuel storage shall be located in proper bounded areas.
38. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies or as directed by the Engineer.

Annex 8: Protocols for Handling Animal Wastes and Principles for Managing Debris Resulting from Rehabilitation of Buildings

The REDISSE program is not expected to have any large-scale, significant and/or irreversible impacts as it is focused largely on public sector capacity building and strengthening readiness for dealing with , including prevention of outbreaks of diseases, as well as preventing or reducing possible human infections by strengthening emergency preparedness and response. In addition, the project design incorporates other beneficial measures such as improved biosecurity in farms and live markets. The project's preventive activities (funding of facilities, equipment, laboratories, procedures, and training programs), aimed at improving the effectiveness and safety over the existing practices, will have positive human health and environmental impacts. As such the project is assigned an Environmental Category B.

This annex depicts Principles for Managing Debris Resulting from Rehabilitation of Buildings and Protocols for handling Animal wastes. All of these mitigation measures have been incorporated into the design of the project.

Protocol for Managing Animal Wastes under the REDISSE Program.

Segregation of regulated veterinary waste at the point of generation is essential to ensure proper handling and worker safety. Waste generators are responsible for ensuring that regulated veterinary waste is discarded directly into clearly identifiable containers and labeled as described below. Regulated veterinary waste must be packaged and labeled before it is stored, treated, transported or disposed of. Persons packaging regulated veterinary waste shall wear heavy

gloves of latex (22 mil gauge minimum) or equivalent material and other items consistent with level of hazard.

Management of wastes generated at the animal laboratory: The project will provide funds in this area to ensure that the infectious wastes-sharps generated at the animal laboratory are properly managed. This involves collection of the infectious wastes-sharps separately from common wastes, on-site treatment of these wastes by autoclaving, and collection of the treated wastes along with garbage by the municipality for disposal. Procurement of another autoclave may become necessary if the existing treatment capacity is exceeded from infectious wastes generated as a result of the analysis of potential specimens/ samples.

Response to outbreaks by the veterinarians and livestock officers. The information contained in the Department of Livestock and Fisheries (DLF) manual will be updated for different audiences, including: (i) veterinarians and livestock officers, (ii) the commercial farm owners, (iii) backyard farm owners, and (iv) the general public. The manual for the veterinarians and livestock officers will be presented in the form of Standard Operating Procedures (SOPs).

Transportation of animal carcasses and farm wastes (if necessary). If proper measures are not taken, transportation of infected animal carcasses and farm wastes would likely spread the virus outside of the infected farm areas. Under this project, transportation of carcasses and farm wastes to another site for disposal will be avoided to the maximum extent possible.

However, if transportation is required, then the SOPs will specify the specific requirements for vehicle design and operation as well as containment of carcasses and farm wastes for transportation. These SOPs will also include decontamination of vehicle surfaces (e.g. tires) prior to exiting the farm. The IATA Regulations for packaging of biological specimen will be adopted and included in the SOPs.

Culling of animals/poultry: It is important that culling of animal/poultry be conducted in a humane, safe, and efficient manner. The following methods for culling poultry were identified from the FAO guidelines: (i) neck breaking (manual), (ii) neck cutting (using mechanical devices), (iii) gassing with inhalation agents (e.g. carbon dioxide), and (iv) culling following electrocution or poisoning. The SOPs will specify the criteria for using one versus the other method; and will provide the design and operating requirements on of the gassing systems (e.g. specific locations and quantities of stocked carbon dioxide).

Personal hygiene: If proper hygiene measures are not taken, virus may spread to human. For this reason, for each of the above-mentioned activities to be conducted during outbreaks, the SOPs will specify the level of protection (e.g. gloves, masks, overalls, boots) to be used.

Selection of disinfectants: It is important that the disinfectants to be selected for the disinfection of farm surfaces, equipment, materials, and wastes do not have adverse impact on human health and the environment. The selection of disinfectants in this project will be based on

such criteria as impacts of disinfectants on human health and the environment, and availability and cost of disinfectant, and compatibility of the disinfectants with the disposal methods of the wastes. The selected disinfectant, which will comply with the World Bank's Pest Management Policy (OP4.09), will be specified in the SOPs.

Disinfection of farm surfaces, equipment, materials, and wastes. Based on selected disinfectant, the type of equipment and procedures for preparing (e.g. dilution with water) and applying the disinfectant will be specified in the SOPs.

Disposal of carcasses and farm wastes: It is important that the selected disposal method does not have adverse impacts on human and the environment. For example, improper burial practices may cause contamination of ground or surface water, and poorly designed and/or operated cremation or incineration systems may create particulate emissions and objectionable odors to neighbors. The following options for the disposal of animal carcasses and farm wastes were considered: (i) burial in a pit, (ii) open air burning (cremation), (iii) composting, (iv) incineration at a fixed location or mobile incineration. However, criteria will be developed and included in the SOPs for the applicability of this disposal option for specific sites. This criteria will include: (i) height of the water table (the base of the burial pit must be at least 1 meter above the water table), (ii) dry weather conditions (dry season), (iii) distance to watercourses, bores, and wells, (iv) slope of the land at the burial site to the nearest watercourse (drainage to and from the pit), (v) type of soil (or soil permeability), (vi) distance to human settlements and public lands (including roads), (vii) prevailing wind direction (for odor emissions), (viii) availability of space for temporary storage of excavated soil, and (viii) accessibility of burial site by digging equipment (e.g. excavator). For those situations where the burial criteria are not met (wet weather conditions, high water table), the SOPs will specify the most appropriate, environmentally-safe, and cost-effective disposal option The SOPs will provide detailed design (depth of the pit), construction, and operating requirements (how the pit will be filled).

Disposal of used PPE: It is important that the selected PPE and disinfectant be compatible with the disposal method of the PPE to avoid generation of hazardous wastes (used PPE will be incinerated). As incineration of chlorine-bearing material with organics might generate emissions of dioxins and furans, care will be exercised in selecting PPE and disinfectants. First of all, all PPE procured under this project will be chlorine-free. In addition, best effort will be made to select a chlorine-free disinfectant. However, if this is not possible, then before incineration, used PPEs will be washed before incineration and the washed water needs to be disinfected and waited before discharge. The SOPs will describe these procedures in detail.

Personal hygiene at hospitals: If proper hygiene measures are not taken, epidemics may spread to humans. For this reason, guidelines regarding personal hygiene procedures will be developed at designated reference health facilities. Specifically, for each of the above-mentioned

activities to be conducted during disease outbreaks, the SOPs will specify the level of protection (e.g. gloves, masks, overalls, boots) to be used.

Healthcare waste management at hospitals to be receiving potentially infected patients: Animal virus may spread to humans if proper waste management measures are not taken at hospitals treating potentially infected patients. Under this project, only designated hospitals will receive infected (or potentially infected) patients.

Rehabilitation of existing laboratory: Rehabilitation and refurbishment of existing laboratories will be financed through the REDISSE program. The adverse impacts during rehabilitation would include dust and noise emissions, generation of construction waste, disturbance of traffic, and discharge of untreated sewage. These adverse impacts will be mitigated by including in the construction contract a clause regarding observation of standards for good construction practices.

Health laboratory-related personal hygiene measures: If proper hygiene measures are not taken, animal epidemics may spread to humans. For this reason, SOPs will be prepared for the collection, handling, and transportation of suspected specimens to the laboratory as well as handling of these specimens at the laboratory. In addition, PPE will be procured and supplied to the staff collecting, handling, and analyzing the suspected AI specimens. Training and then refresher training courses will be given to the staff on personal hygiene measures.

Waste management at the laboratory: Infectious wastes from the serology/virology, bacteriology and toxicology laboratories will be collected separately from the garbage and treated on site by autoclaving. The treated wastes and garbage are stored in an open-top basket and collected by the municipality twice a week for disposal. A consultant will be engaged to identify the quantity of infectious waste generated from the laboratory. The consultant will evaluate alternative options for waste management. The consultant will prepare a waste management plan for the laboratory solid (this plan will address all waste types, including infectious wastes, sharps, liquid wastes, and common wastes). In addition, various supplies (e.g. bins, bags, labels) will be procured. The laboratory staff will be provided training on waste management.

Protocol for Debris and Construction Waste Management in Sierra Leone

Rehabilitation of existing Buildings: Rehabilitation and refurbishment of existing buildings, including laboratories will be financed through the REDISSE program. The adverse impacts during rehabilitation would include dust and noise emissions, generation of construction waste, disturbance of traffic, and discharge of untreated sewage. Others include Sources of construction wastes such as: Waste wood, concrete rubble and tiles, Asbestos materials, Paints, Pesticides, PCBs, Excavated soil piles and demolition debris, Planks, Empty cement and plastic bags, etc. These adverse impacts will be mitigated by including in the construction contract a clause regarding observation of standards for good construction practices.

This waste management protocol will follow the standard principles of waste management consistent International Best Practice and applicable Liberian environmental regulations. The steps shall involve waste minimization, collection, segregation, recycling, and disposal to approved dumpsites.

The protocol for debris and construction waste management is a requirement that is aptly contained in the construction contract agreements for sustainable construction project implementation in Sierra Leone. The responsibility for waste management is that of the developer or project proponent. In a situation where the proponent carries out the construction work through contracting, the responsibility for compliance to the protocols/standards in debris waste management is transferred to the contractor by the proponent and is regulated through the contract agreement, while the proponent monitors the implementation to ensure that the contractor complies fully to the waste management obligations.

The protocols are presented as follows:

1) General:

- Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an Environmental management plan or in the environmental clause of the contract. In general these measures include but not be limited to:

- Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity of dust producing activities.

- There should be adequate number of garbage bins and containers made available at strategic areas of the site. The use of plastic bin liners should be encouraged.
- Solids, sludge and other pollutants generated as a result of construction or those removed during the course of treatment or control of wastewaters will be disposed of in a manner that prevents their direct or indirect re-entry into any watercourse or ground waters.

- Any waste material that is inadvertently disposed in or adjacent to watercourses will be removed immediately in a manner that minimizes adverse impacts, and the original drainage pattern should be restored original drainage pattern should be restored.

2) Campsite Waste Management

- All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bunded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.

- All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

- Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re- used or sold for re-use locally.

- Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

- Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.

- If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the SE, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

3) New extraction sites:

- Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1km from such areas.

- Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites.

- Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great caution and shall be done in the presence of government authorities having a mandate for their protection.

- Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.

- Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.

- Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

- Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

- The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable ESMP, in areas approved by local authorities and/or the SE.

4) Rehabilitation and Soil Erosion Prevention

- To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.

- Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.

- Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.
- Revegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

- Locate stockpiles where they will not be disturbed by future construction activities.

- To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

- Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.

- Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.

- Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.

- Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.

- Revegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

5) Water Resources Management

- The Contractor shall avoid conflicting with water demands of local communities.

- Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.

- Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
- No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.

6) Blasting& Quarrying

- Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of the SE.

- Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.

- Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.

- The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.

7) Disposal of Unusable Elements

- Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed of in a manner approved by the SE. The Contractor has to agree with the SE which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.

- Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

Principles and Protocols for Rehabilitating Existing Buildings

The matrix below summarizes types of construction and demolition wastes and procedures for their management

S/N	Type of Waste	Principle for Recycling Disposal Method
1	*Site Clearing and dredging materials* – These are materials or objects that are displaced during the preparation of a construction or demolition site. They include vegetation stripping, trees & tree stumps, rubble, dirt, rocks and excavated soil piles	1) Minimize/reduce waste by planning and sticking to appropriate engineering design and specification such as the size of land area to be cleared and depth of earth to be excavated. 2) Re-use soil materials for backfilling and wood as materials for construction 3) non-recyclable should be separated and regularly disposed in approved dumpsites
2	*Building material waste* - insulation, nails, electrical wiring, rebar, wood, plaster, scrap metal, cement, and bricks, Concrete, asphalt and waste tiles	These materials may be damaged or unused, but can be recycled or reused in other forms. Waste wood can be recovered and recycled into wood for new building projects. Cement, bricks, plaster and asphalt can be crushed and reused as aggregate materials in other construction or building projects.
3	*Electronic wastes and Aluminum materials* – desktop computer, television, mobile devices, air conditioners, rail	Electronic wastes and aluminum materials shall be recycled after dismantling and crushing;
4	Timber and Furniture from Buildings	Re-use materials or recycle as appropriate. Potential usages include: 1) particle board, charcoal, papermaking material; 2) use as fueling cement kilns; 3) energy recovery from incineration
5	*Hazardous waste* – such as Asbestos-containing buildings materials (roofs and ceilings); paints, PCB, lead, pesticides, batteries, insulated materials for asbestos, etc	1) Controlled management undertaken as necessary for each type of waste. 2) An inspection of building materials for the presence of asbestos and lead hazards must be conducted prior to initiating renovation and demolition. 3) Handling of hazardous wastes must follow proper procedures regarding collection, storage, transportation and disposal in approved landfill

6	Waste water, Waste oil, lubricant, sludge	1) Ensure effluent collection measures and treatment of effluent before discharging into sewage system 2) Establish and enforce daily site clean-up procedures, including maintenance of disposal facilities for construction debris. 3) Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas designated for such. 4) Ensure that oil or other lubricants are never dumped on the ground, in designated areas.