

CONSTRUCTION OF SATELLITE LABORATORY AT NYANZA HOSPITAL

---

## ENVIRONMENTAL AUDIT REPORT

**Compiled by:**

Charles MUGABO

Environmental Consultant/Accredited EIA Expert

Sure Solutions Ltd

Phone: +250 788 21 5484

P.O. Box : 6850 Kigali

E- mail : cmugabo@gmail.com

December 2016

## TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS .....	3
LIST OF FIGURES .....	4
LIST OF TABLES .....	4
EXECUTIVE SUMMARY .....	5
1. CONTEXT .....	7
2. PROJECT DESCRIPTION.....	8
3. BASELINE INFORMATION .....	10
3.1 Location .....	10
3.2 Physical environment.....	11
3.2 Demographics .....	11
4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK .....	12
4.1 Policy framework.....	12
4.2 Legal framework.....	13
4.3 Institutional Framework.....	14
4.4 Regional and International Commitments .....	14
4.5 Relevant World Bank Safeguards and Disclosure Policies .....	15
5. ENVIRONMENTAL AND SOCIAL AUDIT .....	19
5.1 Objective of the Audit.....	19
5.2 Scope and boundaries .....	19
5.3 Methodology .....	19
5.4 Outcomes of Public Consultations.....	20
5.5 Construction Phase Review .....	21
5.7 Healthcare Waste Management .....	23
6. CONCLUSIONS AND RECOMMENDATIONS .....	24
List of references .....	27
Annex.....	28
Annex 1: Guiding questionnaire for stakeholder consultations.....	28
Annex 2: Checklist of the environmental and social audit .....	29
Annex 3: Audit findings of the construction phase .....	32
Annex 4: List of key respondents .....	35

## **ACRONYMS AND ABBREVIATIONS**

CBD: Convention on Biological Diversity

CHUB: University Teaching Hospital of Kigali

CHUK: University Teaching Hospital of Kigali

Desertification

EA: Environmental Assessment

EAC: East African Community

EAPHLN: East Africa Public Health Laboratory Network Project

ESMF: Environmental and Social Management Framework

ESMP: Environmental and Social Management Plan

HCWMP: Healthcare Waste Management Plan

HNP: Ndera Neuropsychiatric Hospital

IPM: Integrated Pest Management

KFH: King Faycal Hospital

NGO: nongovernmental organizations

OP: Operational Policy

PMP: Pest Management Plan

REMA: Rwanda Environment Management Authority

RMH: Rwanda Military Hospital

RURA Rwanda Utilities Regulatory Agency

SPIU: Single Project Implementation Unit

UNCDD: United Nations Convention to Combat

WHO: World Health Organization

**LIST OF FIGURES**

Figure 1: Location of Nyanza district and Busasamana sector in national context..... 7

**LIST OF TABLES**

Table 1: Rwanda engagement to International Environmental Conventions..... 12  
Table 2: Summary of consultations..... 18  
Table 3: Summary of the construction phase review for Nyanza Laboratory..... 20  
Table 4: Action plan to address potential adverse effects during the operation phase at  
Nyanza Laboratory..... 25

## EXECUTIVE SUMMARY

1. EAPHLN - East Africa Public Health Laboratory Network Project is a regional project which aims to establish a network of laboratories in the five East African Community (EAC) member states (Burundi, Kenya, Rwanda, Tanzania, and Uganda). Through this project The Government of Rwanda received US\$15 million from the World Bank in order to rehabilitation/construction and equipping of 5 satellite laboratories (Gisenyi, Byumba, Nyagatare, Kibungo and Gihundwe) as well as national reference laboratories. The project was approved by the Board on April 29, 2010 and in Rwanda, this project became effective on October 25th, 2010.
2. The construction of Nyanza Laboratory was proposed by the Government of Rwanda and approved by the Bank in 2015 with the money earmarked by the project. Like other laboratories, Nyanza laboratory undertook environmental certification process as required by the Bank's Operational Policy on Environmental Assessment (OP/BP 4.01) and Rwandan laws and regulations on environmental management.
3. Further to the overall Environmental and Social Management Framework (ESMF), prepared in 2010 and to the Environmental Management Plan (EMP) prepared for Nyanza Laboratory in 2015, it was paramount to initiate an environmental audit as to appreciate the level of compliance and implementation of previously proposed mitigation measures.
4. This auditing exercise on environmental management aspects of the construction phase of Nyanza Laboratory revealed that no major concerns / issues or impacts could be observed and reported all along the construction period. Further to the audit of the construction phase, potential impacts that may occur during the operation phase were identified. These include; soil, water and air pollution as a result of poor health care waste management practices; workplace accidents and injuries and impacts associated with fire outbreak.

5. For purposes of continuous improvement and compliance, following recommendations were formulated;
- <sup>1</sup>It would be better to monitor and report on the implementation of environmental management tools like ESMF, EMP prepared at the beginning of the project so as to keep historical records and facts. This would help in improving compliance and serve as a written basis for other environmental initiatives like environmental auditing;
  - Given the fact that this environmental audit is was conducted at the end of the construction phase, actions aiming at mitigating anticipated adverse effects that may occur during the operation phase of Nyanza Laboratory were proposed. These include: the design and implementation of healthcare waste management plan (HCWMP), mitigation actions related to occupational health and safety and fire outbreaks.

---

<sup>1</sup> This recommendation is based on the fact that contractors and supervising teams tend to focus on construction activities only

## 1. CONTEXT

6. The Government of Rwanda received US\$15 million from the World Bank for the East Africa Public Health Laboratory Network Project (EAPHLN), a regional project which aims to establish a network of laboratories in the five East African Community (EAC) member states (Burundi, Kenya, Rwanda, Tanzania, and Uganda). The project was approved by the Board on April 29, 2010 and in Rwanda, this project became effective on October 25th, 2010.
7. The project triggered the Bank's Operational Policy on Environmental Assessment (OP/BP 4.01) due to the planned construction/rehabilitation of laboratories as well as the expected generation of medical waste from laboratories, and the project was assigned the Category B. To ensure proper assessment and mitigation of potential adverse environmental and social impacts, an Environmental and Social Management Framework (ESMF) was prepared in 2010. The ESMF outlined the steps in the environmental and social screening process, and included Environmental Guidelines for Contractors, a summary of the Bank's safeguard policies, an Environmental and Social Checklist, generic Environmental Assessment (EA) terms of reference to be applied in the event that the screening results indicate the need for a separate EA report, and an Environmental and Social Management Plan (ESMP).
8. The EAPHLN Project in Rwanda included the rehabilitation/construction and equipping of 5 satellite laboratories (Gisenyi, Byumba, Nyagatare, Kibungo and Gihundwe) as well as national reference laboratories. The Nyagatare laboratory was constructed with funds from the Global Fund. The construction of Nyanza Laboratory was proposed by the Government of Rwanda and approved by the Bank in 2015 with the money earmarked by the project. This facility is constructed in the Nyanza Hospital compound and with no land acquisition. An Environmental Management Plan was prepared and approved by REMA in June 2015.

## **2. PROJECT DESCRIPTION**

9. The development objective of the project is to establish a network of efficient, high quality, accessible public health laboratories for the diagnosis and surveillance of TB and other communicable diseases. To this end, the project will: (i) strengthen capacity to diagnose communicable diseases of public health importance and share information to mount an effective regional response (Component I); (ii) support joint training and capacity building to expand the pool of qualified laboratory technicians (Component II); and (iii) fund joint operational research and promote knowledge sharing to enhance the evidence base for these investments and support regional coordination and program management (Component III).

10. The proposed regional laboratory network aims to: (a) enhance access to diagnostic services for vulnerable groups to contain the spread of diseases in cross border areas; (b) improve capacity to provide specialized diagnostic services and conduct drug resistance monitoring at regional level; (c) contribute to disease surveillance and emergency preparedness efforts through the availability of timely lab data to provide early warning of public health events; and (d) serve as a platform for conducting training and research. The lab network will facilitate the adoption of harmonized policies, strategies, and protocols to ensure prompt and high quality results. Priority attention will be given to networking intermediate or satellite laboratories that serve cross border and migrant populations, and central public health labs that provide specialized services.
11. Although located within Nyanza Hospital boundaries, the construction and operation of the Nyanza satellite laboratory includes activities likely to have potential adverse environmental risks or social impacts on site and in its area of influence. The planned development is a G+1 building ( a ground floor and one floor on top). The building size is 200 m<sup>2</sup> for the ground floor and 150 m<sup>2</sup> for first floor. Its units are; 23 office and testing rooms, 5 interior toilets, 3 bathrooms and 1 corridor on the ground floor and 10 office and testing rooms, 5 interior toilets, one corridor and 2 verandas on the first floor.

### 3. BASELINE INFORMATION

#### 3.1 Location

12. The District of Nyanza is one of the 8 Districts of the Southern Province. It is made of 10 Sectors, and the district hospital is located in Nyanza town center, in the Busasamana sector. The project site is located in the heart of Nyanza town characterized with both urban and rural settings<sup>2</sup>.

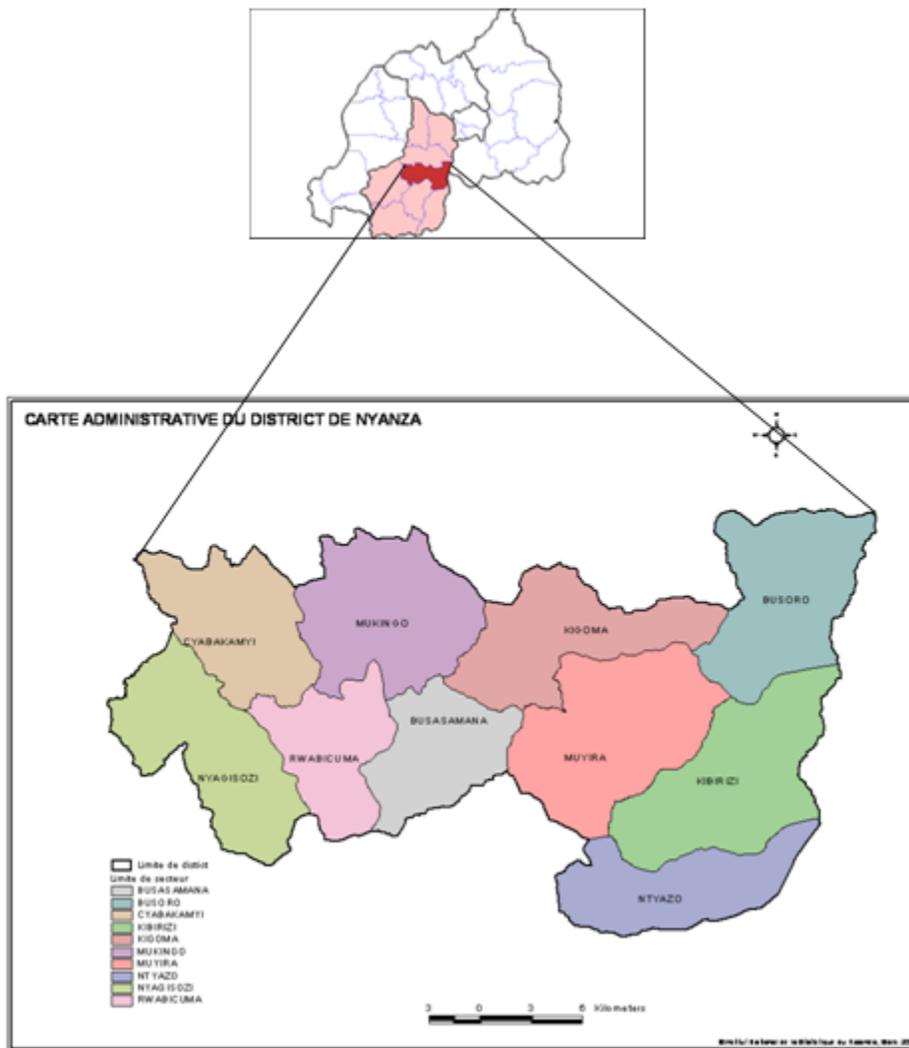


Figure 1: Location of Nyanza district and Busasamana sector in national context

<sup>2</sup> Although a town, there exist families who still rely on small scale farming mostly practices within family compounds

### 3.2 Physical environment

13. The western part of the Nyanza District is characterized by high mountains and fresh temperature while the Eastern part is of lower altitude with a rich hydrology and several wetlands. The hydrographic network includes the rivers Akanyaru shared with Burundi and the Mwogo River from the high mountains. The district does not host any protected areas or critical ecosystems.

### 3.2 Demographics

14. The total<sup>3</sup> population of Nyanza district was estimated at 307,000 inhabitants in 2012 with about 54% aged 19 years or younger and 53% constituted by female individuals. Both Nyanza population density (481 inhabitants / km<sup>2</sup>) and average population growth (3.7%) are above national averages which are respectively 416 inhabitants / km<sup>2</sup> and 2.6%. Around half (50%) of the population in Nyanza district is identified as non-poor, with the other 50% consisting of 22% who are poor and another 28% extremely poor<sup>4</sup>.

---

<sup>3</sup> Fourth Population and Habitat Census, National Institute of Statistics of Rwanda, 2012

<sup>4</sup> EICV3 DISTRICT PROFILE - South – Nyanza, National Institute of Statistics of Rwanda, 2015

## 4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

### 4.1 Policy framework

#### 15. Health Sector Policy (2005)

This policy brought a deep reform of health services as the policy was based on three major strategies (i) decentralization of the health system using the district health center as the basic operational unit; (ii) development of primary care health system; and (iii) reinforcement of community participation in the management and financing of services (including the *Mutuelle de Sante*). The 2012-2018 Health Sector Strategic Plan III aims to strengthen Rwanda's focus towards sustainable development and decentralization of health services.

#### 16. Environmental Health Policy (2008)

This policy provides guidance for appropriate Environmental Health legal and institutional framework stressing the need for adequate financial, human and material resources for effective EHS. The implementation of this policy is guided by the Health Strategic plan and the Districts are responsible for budgetary allocations for environmental health services delivery to the community.

#### 17. National Policy on Injection Safety, Prevention of Transmission of Nosocomial Infections and Healthcare Waste Management (2009)

This policy provides guidance to health professionals on setting in place mechanisms, systems and practices to prevent transmission of infections through injections and other medical procedures and ensures that medical waste is safely managed and disposed.

#### 18. National Environmental Policy (2009)

This policy has among its objectives to improve the health and the quality of life for every citizen and promote sustainable socio-economic development through rational management and utilization of resources and environment. The article 5.3.6 recommends a national strategy for specific management of chemical products, biomedical and industrial waste. Moreover, according to

this policy, Environmental Impact Assessments (EIAs) must be carried out prior to development of infrastructure projects.

19. National Policy and Strategy for Water Supply and Sanitation Services (2004)

This policy aims at ensuring sustainable and affordable access to safe water supply, sanitation and waste management services policy and outlines that waste disposal shall be planned and managed in the view to minimize environmental impact and ensure the protection of water resources.

#### 4.2 Legal framework

20. Organic Law on Environmental Protection and Management (2005)

This law defines hazardous waste used for the purpose of transboundary movements as any substance whether solid, liquid or gaseous that causes serious harm to human health, security and other biodiversity together with the quality of environment.

21. Rwanda Labour Code (revised in 2009)

This law covers occupational health and safety legislation. The ministerial order determining conditions on Occupational Health and Safety (2012) provides general and specific rules and regulations related to health and safety at workplace including for control of air pollution, noise and vibration (art.29), protective clothing and appliances (art.46) and fire-fighting measures (art.39).

22. General Guidelines and Procedures for Environmental Impact Assessment (2006) define three categories of projects based on their Impacts Levels (IL), the projects being in the categories IL 1<sup>5</sup> and IL 2<sup>6</sup> are required to conduct EIA studies. The guidelines also outline how the EIA process shall be conducted and defined the roles and responsibilities of each stakeholder involved.

---

<sup>5</sup> Projects which might have significant, or irreversible impacts to the environment

<sup>6</sup> Projects with less significant adverse impacts that can easily be prevented or mitigated

### **4.3 Institutional Framework**

23. The Ministry of Health leads the health sector in Rwanda and is the executing agency of the current project. The Single Project Implementation Unit (SPIU) within the Ministry of Health is responsible for day to day coordination of project activities.

24. The Rwanda health system consists of five national referral hospitals- the King Faycal Hospital (KFH), University Teaching Hospital of Kigali (CHUK), University Teaching Hospital of Butare (CHUB), Rwanda Military Hospital (RMH) and the Ndera Neuropsychiatric Hospital (HNP). The system also includes District Hospitals. Since 2011, the government has established District Hospitals at the core of health service facilities through the District Health System (DHS) which comprises the district hospital and a network of health centers either public, government assisted, not for profit or private. The District Health Unit plays the operational management role and the DHS is in charge of planning and management, coordination, financing and resource allocation as well as regulation of health services.

25. The health system also includes 450 health centers located at the sector level (administrative entity below the District) which is the point of service delivery, with healthcare committees providing oversight of the work of various units and strengthening the Community-based Health Insurance Scheme (Mutuelle de Santé) to improve access to basic health services.

### **4.4 Regional and International Commitments**

26. Rwanda has signed the Basel Convention in 2004 and is in a preparatory process of implementing the amendment to the Convention. The Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes was also signed in 1991. Rwanda's obligation to other conventions and agreements are provided in table 1.

**Table 1: Rwanda engagement to International Environmental Conventions**

Convention	Status
Basel Convention on Hazardous Wastes	Accessed
Convention on Biological Diversity (CBD)	Ratified
Convention on International Trade in Endangered Species (CITES)	In force
Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR)	Ratified
Kyoto Protocol to the United Nations Framework Convention on Climate Change	Accessed
United Nations Convention to Combat Desertification (UNCDD)	In force
Vienna Convention for the Protection of the Ozone Layer and Subsequent Protocols and Amendment	Signed +accepted subsequent amendments and protocols
Bamako Convention on Good Management of Hazardous waste	Signed

#### 4.5 Relevant World Bank Safeguards and Disclosure Policies

27. The World Bank Environmental and Social Safeguards Policies include key Operational Policies (OP) designed to ensure that potentially adverse environmental and social consequences are identified, minimized, and mitigated. These policies are summarized below.

28. OP/BP 4.01 Environmental Assessment: This policy is considered to be the umbrella policy for the Bank's environmental 'safeguard policies'. This policy requires Environmental Assessment of projects proposed for Bank financing to ensure that such projects are environmentally sound and sustainable. All projects proposed must be screened by the Bank and put into one of four categories for Environmental Assessment purpose. If a project falls into categories A or B, a Comprehensive Environmental Assessment (also known as EIA or SEIA for Social and Environmental Impact Assessment) must be conducted to respond to Bank requirements. An EIA must include a comprehensive environmental management plan.

29. OP/BP 4.36 Forests: This policy seeks to harness the potential of forests to reduce poverty in a sustainable manner, integrate forest effectively into sustainable economic development and protect the vital local and global environmental services and values of forests. The policy prohibits Bank support for projects which would lead to significant conversion or degradation of critical forest areas or other natural habitats.

30. OP 4.04 Natural Habitats: This policy seeks to ensure that development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society. The policy prohibits Bank support for projects which would lead to the significant loss or degradation of any critical natural habitats which are natural habitats either legally protected, officially proposed for protection, or unprotected but of known high conservation value.

31. OP 4.09 Pest Management: This policy provides that rural development projects and health sector projects have to avoid using harmful pesticides. The preferred approach is the Integrated Pest Management (IPM) techniques that must be encourage in the whole of the sectors concerned. If pesticides have to be used in the protection of crop or in the fight against vector-borne diseases, the borrower must prepare a Pest Management Plan (PMP).

32. OP/BP/GP 4.12 Involuntary Resettlement: This policy aims to avoid involuntary resettlement when feasible, or to minimize and mitigate its adverse social and economic impacts.

This policy promotes participation of displaced people in resettlement planning and implementation. The policy's main economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living. This policy also prescribes compensation and other resettlement measures and requires that project submitted includes adequate resettlement planning instruments.

33. OP/BP 4.10 Indigenous Peoples: This policy underscores the need for project proponent and Bank staff to identify indigenous peoples and to engage in a process of free, prior, and informed consultation. The policy also aims to ensure that adverse impacts on Indigenous People are avoided, or where not feasible, minimized or mitigated and that they participate in project and benefit from it in a culturally appropriate way.

34. OP. 4.11 Physical Cultural Resources: This policy aims to avoid, or mitigate, adverse impacts on cultural resources from development projects that the World Bank finances. Project falling under category A or B must addresses impacts on physical cultural resources as an integral part of the environmental assessment (EA) process.

35. OP 4.37 Safety on Dams: This policy requires that the design and supervision of construction of dam project must be carried out by experienced and competent professionals and that dam safety measures be adopted and implemented through the project cycle. The policy also applies to existing dams where they influence the performance of a project. In such case, a dam safety assessment should be carried out and necessary additional dam safety measures should be implemented.

36. OP/BP 7.50 Projects on International Waterways: This policy underscores the importance of riparian states making appropriate agreements or arrangements for the entire waterway, or parts of it. If there are no such agreements or arrangements, the Bank requires, as a general rule, that the borrower notify the other riparian of the project. The Policy lays down detailed procedures for the notification requirement, including procedures in case there is an objection by one of the riparian to the project.

37. OP 7.60 Projects in Disputed Areas: this policy requires that a project located in a disputed areas make appropriate arrangements to ensure that all the claimants to the disputed areas have no objection to the project development and financing by the Bank.

38. BP 17.50 Consultation and Disclosure Requirements: this policy requires that a project categorized as A or B consults project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. It also requires the project to disclose the draft Environmental Assessment (EA) report (for category A projects) or any separate EA report (for category B projects) at a public place accessible to project-affected groups and in the local language as well as to the World Bank Infoshop prior to project appraisal.

## **5. ENVIRONMENTAL AND SOCIAL AUDIT**

### **5.1 Objective of the Audit**

39. The purpose of this environmental and social audit is to ascertain compliance of the activities implemented under the project, the existing facilities and operations with national environmental laws and regulations as well as World Bank requirements and standards, and to plan for the management of potential risks and impacts likely to result from implementation of subsequent activities related to operation of these laboratory facilities.

### **5.2 Scope and boundaries**

40. The present audit was limited to Nyanza Satellite civil work undertaken during the construction phase and the implementation of the proposed waste management plan for the health institutions supported by the EAPHLN project. It covers two main phases of the project, with specific areas of focus:

- Project construction phase: management of construction materials and waste, air, noise and wastewater, occupational health and safety measures set in place by the contractor,
- Project operation phase: key potential impacts that may arise along the operation phase including maintenance of buildings and equipments.

### **5.3 Methodology**

41. The audit was conducted using various methods and sources, including project documentation, supervision reports, site inspections, interviews and public consultations with key stakeholders (public health officials, medical and laboratory personnel, community representatives) using a structured audit questionnaire.

42. Construction activities of Nyanza Satellite could have adverse environmental risks or social impacts in its area of influence. As a result, the World Bank Operation Policy OP 4.01 on Environmental Assessment was triggered.

### 5.4 Outcomes of Public Consultations

43. Consultations were conducted during this audit through individual interviews and small group meetings. Categories of consulted stakeholders are: Hospital personnel, the management and staff of the existing laboratory, waste handlers, patients' caretakers, and representatives<sup>7</sup> of neighboring communities. A questionnaire was used to guide the consultations and is attached as annex 1 and the list of participants for each project site is attached as annex 2.

**Table 2: Summary of consultations**

Category	Nyanza Hospital
Noticeable safety measures during construction phase	Construction workers were wearing protective clothes, hard caps, boots and masks The site was fenced and a specific access road for trucks was set up.
Noticeable public hazards from the construction of the facility	No hazards identified from construction of laboratory facilities.
Noticeable improvement of livelihood (jobs...)	Men and women managed to get jobs from the construction and the lab staff is expected to increase during operations. House owners, shopkeepers and other small business owners benefited from the presence of construction workers and the need of construction materials
Overall perception of the project	Clients using the service of the lab are expected to substantially increase and the hospital services will definitely benefit from the improved quality of results

<sup>7</sup> Also considered as local authority representatives

## 5.5 Construction Phase Review

44. The construction phase of Nyanza Laboratory started in 2015 on a site hosted by Nyanza District Hospital and was at its completion stage by the time of field visits in the course of this audit.

45. Key procedures as required by the ESMF for the construction phase of the Nyanza laboratory were fully applied. In this regard, an Environmental Management Plan (EMP) was prepared and consulted upon within Rwanda and approved by REMA in June 2015, prior to the commencement of construction activities which resulted in the absence of environmental adverse effects.

46. Although the prepared EMP report was not disclosed at the World Bank's InfoShop, the project promoter instructed contractors about the environmental and social requirements related to construction activities including prevention of air and noise pollution, implementation of best practices in waste management measures and occupational health and safety<sup>8</sup>.

47. This review is based on assessment missions conducted in Nyanza in the week of 19<sup>th</sup> to 23<sup>rd</sup> December and from the field visits and consultations conducted from 26<sup>th</sup> to 28<sup>th</sup> December 2016.

48. A matrix of key challenges and mitigations measures applied is reported in the annex 3. A table summarizing the findings and gaps identified on site as an overview of the safeguards policies compliance during the construction phase is hereby presented.

---

<sup>8</sup> EAPHLN Project environmental supervision mission report, June 2013

**Table 3: Summary of the construction phase review for Nyanza Laboratory**

<b>Key challenges</b>	<b>Effectiveness of mitigation / prevention measures set in place</b>
<b>Environmental impacts</b>	
Soil and water degradation	+++
Air pollution	+++
Noise pollution	+++
Traffic accident	+++
Forests and critical ecosystems degradation	n/a
<b>Social impacts</b>	
Occupational health and safety	+++
Land acquisition/ relocation <sup>9</sup>	+++
Hazardous toxic materials	+++

+++ : satisfactory    ++ : need improvement    + : not satisfactory

49. From field assessment mission reports and public consultations conducted at Nyanza laboratory site it was noted that no significant nuisances could be reported and some safety measures such as fencing, PPE for construction staff and public notices were set up.

<sup>9</sup> No land was acquired for the lab as it is being built within the existing hospital premises.

## **5.6 Laboratory Safety and Sanitation**

50. The existing Nyanza Laboratory has in place a health and safety committee and safety management guidelines such as the Policy and Procedures Manual and Guidelines for chemical safety handling, incident, and injuries. The newly established laboratory building has all necessary accidents safety measures in place and their use will be enforced from the beginning of operations.

51. Sanitation measures and facilities were found quite sufficient at Nyanza laboratory. It is recommended however that more water storage facilities be installed during the operation phase especially those used for storing storm water from rooftop since quantities estimated only at 25% of this resource are currently stored.

## **5.7 Healthcare Waste Management**

52. Waste segregation procedures is well known at Nyanza laboratory, the color code is not yet in place but waste containers are clearly labeled and waste handlers are aware of the importance of precaution measures required for the different category of waste incineration operations were being undertaken properly. For the sake of improvement on other types of waste, it was suggested that an additional and efficient incinerator of Montfort type be installed for easily incinerable and non contaminated waste like papers and cartons.

53. Healthcare waste segregation can be improved at Nyanza Laboratory. Hospital managers shall set up sustainable measures for waste management and enforcement of the existing regulations

## 6. CONCLUSIONS AND RECOMMENDATIONS

54. This auditing exercise on environmental management aspects of the construction phase of Nyanza Laboratory revealed that no major concerns / issues or impacts could be observed and reported all along the construction period.

55. For purposes of continuous improvement and compliance, especially during the operation phase, following recommendation is formulated;

Given the fact that this environmental audit is was conducted at the end of the construction phase, it is paramount to propose some actions in order to mitigate anticipated adverse effects that may occur during the operation phase of Nyanza Laboratory. Proposed actions are detailed in the table below:

**Table 4 : Action plan to address potential adverse effects during the operation phase at Nyanza Laboratory**

<b>Component</b>	<b>Potential Negative impacts</b>	<b>Avoidance, mitigation and /or management measure (s)</b>	<b>Indicators</b>	<b>Timeframe</b>	<b>Monitoring part</b>	<b>Estamated cost (Rwf)</b>
1) Biophysical environment	Soil, water and air pollution as a result of poor health care waste management practices	Design and implementation of healthcare waste management plan (HCWMP)	The designed healthcare waste management plan (HCWMP) is properly implemented	Before the laboratory starts its operations	RBC REMA District authorities	15.000.000
2) Occupational health and safety	Workplace accidents and injuries	Development and implementation of operational guidelines / directives on health and safety during the operations of the lab.	Health and safety operational guidelines / directives are developed and implemented	Before the laboratory starts its operations	RBC REMA District authorities	8.500.000
3) Incident of fire	Impacts related to fire outbreak	Proper maintenance of fire fighting equipments in place	Fire fighting equipments in place are properly maintained and ready to be used when needed	During the entire operation phase	RBC REMA District authorities	150.000 per month

Construction of Satellite Laboratory at Nyanza Hospital

		Awareness creation and training on fire drills	Workers are aware about risk factors for fire outbreaks and are trained on fire drills	Before laboratory operations start	RBC REMA District authorities	120.000 per month
		Selection and marking of an assembly point	An assembly point is selected and marked	Before laboratory activities start	RBC REMA District authorities	200.000

## List of references

- Operational Policies, The World Bank Operational Manual, Jan 1999
- Regional Health Systems Strengthening and TB support project Environmental and Social Management Framework for Burundi, Kenya, Tanzania, Rwanda and Uganda, February 2012.
- East Africa Public Health Laboratory Networking Project Laboratory waste management plan, Rwanda Ministry of Health, May 2009
- National Policy on Injection safety, prevention of transmission of nosocomial infections and Healthcare Waste Management, Rwanda Ministry of Health, May 2009
- East Africa Public Health Laboratory Networking Project rapid safeguard performance review of the Rwanda component, E.Dwumfur, Oct. 2014
- Report of the environmental supervision mission of the East Africa Public Health Laboratory Networking Project in Rwanda, O.Fye, June, 2013
- Organic law determining the modalities of protection, conservation and promotion of environment in Rwanda, official gazette of the Republic of Rwanda, 04/2005 of 08/04/2005
- General Guidelines and Procedures for environmental impact assessment, Rwanda Environmental Management Authority, Nov 2006
- Third Health Sector Strategic Plan July 2012-july 2018, Ministry of Health
- Ministerial guidelines on sorting, transportation, treatment and final disposal of medical waste from site of generation to site of final disposal,
- Environmental Health Policy, Ministry of Health, July 2008
- Performance audit report of the Auditor General on healthcare waste management at referral hospitals in Rwanda, Office of the Auditor General of States Finances, may 2014
- Guidelines on the management of waste disposal site (landfill), Rwanda Utilities Regulatory Agency, Nov 2009
- National Policy and Strategy for water supply and sanitation services, Ministry of Infrastructure, Feb.2010
- District Development Plan (2013-2018), Nyanza District, Southern Province, March 2013

**Annex**

**Annex 1: Guiding questionnaire for stakeholder consultations**

Name of the respondent:

Contacts: Cell

Sector

District

Telephone contact

The government of Rwanda with the support of the World Bank has constructed a laboratory in the District designed to expand access to high quality, reliable and timely laboratory services.

Do you think this new facility shall be useful to you? Yes  No

Explain your answer.....

Do you know any foreigner who benefited from the laboratory services? Yes  No

Explain you answer.....

To minimize public hazards posed by the project implementation and operation, there are some measures including communication materials, fencing of the facilities that were set up.

Are you aware of such safety measures set in place during the construction phase? Yes  No

Explain you answer.....

How did you feel about it.....

Are you aware of any environmental hazards that might have occurred? Yes  No

Explain you answer.....

Is there additional measures you would recommend in the future? Yes  No

Explain you answer.....

Can you name any public hazards (air pollution, water leakage...) that may happened since the project is operating? Yes  No

Explain you answer.....

Do you have any relative or do you know anyone who get a job from the project during the construction or operation of the project? Yes  No

Explain you answer.....

What shall be you general perception of the project: positive  negative

Explain you answer.....

**Annex 2: Checklist of the environmental and social audit**

<b>INSTITUTIONAL &amp; ADMINISTRATIVE</b>		
County / Sub-County		
Sub-Project title		
Scope of project and activity		
Institutional arrangements (Name and contacts)	Project Management (Name and contacts)	
Safeguards contacts	Contractor / Supervisor	
<b>SITE DESCRIPTION</b>		
Name of site		
Describe site location		Attachment 1: Site Map [ ]Y [ ] N
Who owns the land?		
Geographic description		
<b>PUBLIC CONSULTATION</b>		
Identify when / where the public consultation process took place		
<b>INSTITUTIONAL CAPACITY BUILDING</b>		
Will there be any capacity building?	[ ] N or [ ]Y if Yes, Attachment 2 includes the capacity building program	

Construction of Satellite Laboratory at Nyanza Hospital

<b>ENVIRONMENTAL /SOCIAL AUDIT</b>			
<b>Will the site activity include/involve any of the following potential issues and/or impacts:</b>	<b>Activity and potential issues and/or impacts</b>	<b>Status</b>	<b>Additional references</b>
	1. Building rehabilitation <ul style="list-style-type: none"> <li>• Site specific vehicular traffic</li> <li>• Increase in dust and noise from demolition and/or construction</li> <li>• Construction waste</li> </ul>	[ ] Yes [ ] No	See Section <b>B</b> below
	2. New construction <ul style="list-style-type: none"> <li>• Excavation impacts and soil erosion</li> <li>• Increase sediment loads in receiving waters</li> <li>• Site specific vehicular traffic</li> <li>• Increase in dust and noise from demolition and/or construction</li> <li>• Construction waste</li> </ul>	[ ] Yes [ ] No	See Section <b>B</b> below
	3. Acquisition of land <sup>10</sup> <ul style="list-style-type: none"> <li>• Encroachment on private property</li> <li>• Relocation of project affected persons</li> <li>• Involuntary resettlement</li> </ul>	[ ] Yes [ ] No	See Section <b>C</b> below

<sup>10</sup> Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

Construction of Satellite Laboratory at Nyanza Hospital

	<ul style="list-style-type: none"> <li>• Impacts on livelihood incomes</li> </ul>		
4.	Hazardous or toxic materials <sup>11</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	See Section <b>D</b> below
	<ul style="list-style-type: none"> <li>• Removal and disposal of toxic and/or hazardous demolition and / or construction waste</li> <li>• Storage of machine oils and lubricants</li> </ul>		
5.	Impacts on forests and/or protected areas	<input type="checkbox"/> Yes <input type="checkbox"/> No	See Section <b>E</b> below
	<ul style="list-style-type: none"> <li>• Encroachment on designated forests, buffer and /or protected areas</li> <li>• Disturbance of locally protected animal habitat</li> </ul>		

<sup>11</sup> Toxic / hazardous material includes and is not limited to asbestos, toxic paints, removal of lead paint, etc.

**Annex 3: Audit findings of the construction phase**

Activities and potential environmental and social issues	Relevance	Impact significance	Mitigation measures taken or recommended	Means of verification
<b>1. Building rehabilitation/new construction</b>				
Construction rubbish	Yes	Low (site specific, limited in time and low intensity)	Waste removed by the constructor and disposed following municipality's regulations	Assessment mission Oct 2014 Public consultations 2015
Air pollution: dust pollution of hospital wards.	Yes	Low (site specific, limited in time and medium intensity)	(a) surrounding environment (sidewalks, roads) were free of debris (b) There were no open burning of construction / waste material at the site	Assessment mission Oct 2014 Public consultations 2015
Noise pollution: use of drilling machines.	Yes	Low (site specific, limited in time and low intensity)	Construction noise was limited to official working hours	Assessment mission Oct 2014 Public consultations 2015
Increase sediment loads in receiving waters	No			

Construction of Satellite Laboratory at Nyanza Hospital

Site specific vehicular traffic	Yes	Low (site specific, limited in time and low intensity)	Construction vehicles were assigned specific access road to the site	Assessment mission Oct 2014
<b>2. Occupational health and safety</b>				
Health and safety of workers	Yes	Low (site specific, limited in time and low intensity)	(a) The public has been notified of the works through appropriate notification all over the Hospital  (b) All legally required permits (construction permit land use, resource use, dumping, sanitary inspection permit) have been acquired for construction and/or rehabilitation  (c) Work was carried out in a safe and disciplined manner  (d) Construction workers were wearing PPE compliant with international good practice (hardhats, as needed masks and safety boots)	Public consultations 2015
<b>4. Hazardous or toxic materials</b>				
Removal and disposal of asbestos roof cement	No			

Construction of Satellite Laboratory at Nyanza Hospital

5.Impacts on forest and protected areas, physical cultural resources	No			
--	----	--	--	--

**Annex 4: List of key respondents**

<b>Category / Institution</b>	<b>Position</b>
RBC	Project Engineer
RBC	
Contractor	CEO
Contractor	Site Manager
Contractor	Chief technical
Nyanza Hospital	EHO
Rwabicuma Health Center	Nurse
Nyanza District	Director – Health
Nyanza District	Local resident
Nyanza District	Local resident
Nyanza District	Local resident