

SFG1993 V5



OYO STATE

Ibadan Urban Flood Management Project

**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
(ESMP)**

For the

ELEYELE DAM OGEE SCOUR PALLIATIVE WORKS

FINAL REPORT

13 APRIL 2016

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CHAPTER ONE: INTRODUCTION

1.1 Background

The Eleyele Dam is an earth dam constructed along the Ona River at Eleyele community in 1942 for the supply of raw water for treatment at the Eleyele Waterworks for the city of Ibadan, and also to act as flood control during high flow periods through its reservoir holding capacity.

1.2 Rationale for the Emergency Palliative Intervention

The Ogee structure of the Eleyele Dam spillway has over the years being much deteriorated by repeated flooding causing scouring which cannot ensure the dam and spillway safety against further damages from heavy flood. The portion of the stilling basin of the spillway toe has failed and chips up, while other stilling basins downstream and energy breakers as well as wind walls have also collapsed. These structures are too much deteriorated and necessitated a total reconstruction.

The emergency works aim at quickly improving the protection of the Ogee structure against scouring and will reverse the current trend of dilapidation as much as possible but will not be able to ensure the dam and spillway safety against additional damages from heavy flood.

The plates below describe the damage to the spillway channel, broken concrete slabs inside the spillway channel and the growth of vegetation along Ona River course.



Plate 1: Broken Concrete slabs in spillway Channel



Plate 2: Cut trees in the spillway channel



Plate 3: Vegetation along River Ona course



Plate 4: Debris along River Ona



Plate 5: Vegetation along River Ona at Ologuneru Brigde



Plate 6: Spillway Channel with vegetation obstruction



Plate 7: Dilapidated ogee structure

CHAPTER TWO: PROJECT DESCRIPTION

2.1 Description of the Ogee Spillway

The dam is facilitated with an automated Ogee shaped side-channel spillway. The length of the spillway is 106m with a crest height of 14.5m, and design flood capacity of 367.9m³/s. The overflow is directed downstream to a concrete-lined tailrace canal which also acts as flow energy dissipater by means of a series of concrete steps.

The most severely affected part of the dam is the downstream spillway section which includes the concrete slab at the spillway section foundation, side wall of the downstream channel which has been heavily scoured and eroded by the flood in 2011 and this is further deteriorating, the bottom concrete slab channel side wall as well as some embankment section of the immediate downstream channel without concrete protection.

2.2 Description of the Proposed Emergency Palliative Works

The proposed palliative works for the Eleyele Dam Ogee structure will reverse the current trend of dilapidation as much as possible. Figure 1 below shows the engineering drawing for the proposed civil palliative works.

The proposed civil palliative works includes:

- Clearing of vegetation and removal of debris from;
 - Spillway chute area;
 - Spillway channel and
- Removal of 10cm top soil
- Removal of broken concrete slabs part inside the spillway channel
- Filling the “hole” with concrete C20 and anchor the new concrete blocks in bedrock at the spill way right bank toe.

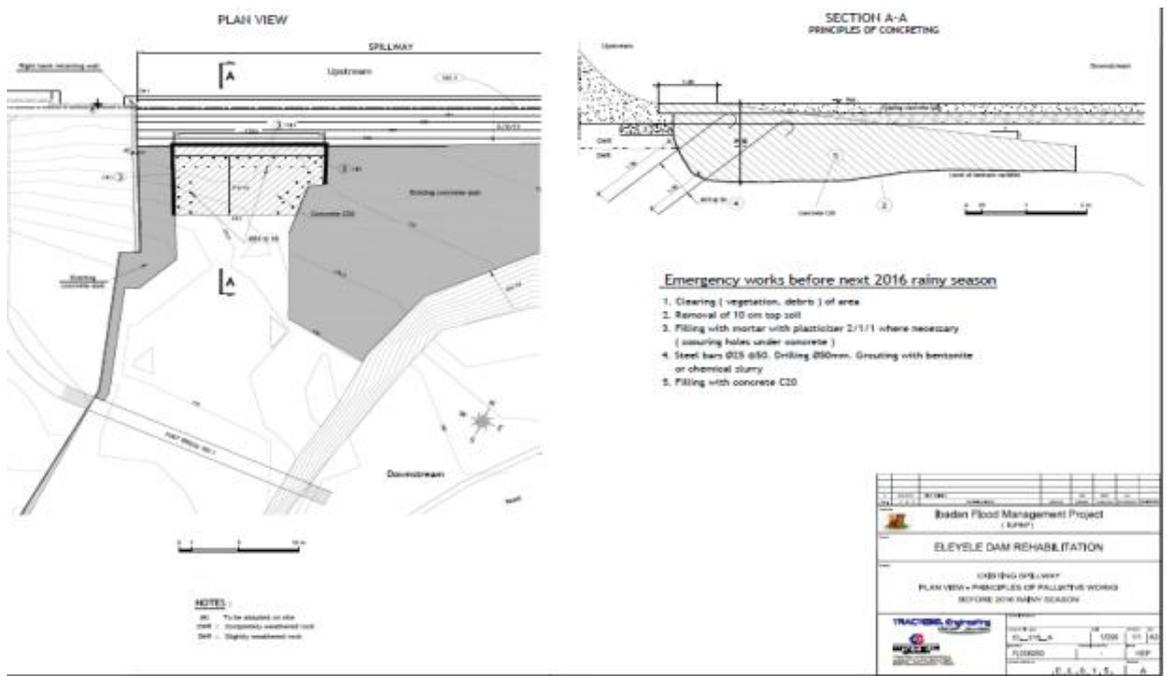


Figure 1: Engineering drawing for the proposed civil palliative works.

CHAPTER THREE: ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN

3.1 Discussion of Potential Environmental and Social Impacts

The nature of the project is such that it will not represent a large-scale intervention. The negative environmental and social impacts will be localized in spatial extent, short in duration, the less significant environmental and social impacts that are likely to occur, can be reduced or minimized through compliance with the implementation of the appropriate mitigation measures.

It also discusses the environmental and social mitigation and monitoring plan (See table 1), institutional arrangements, and cost estimates. The potential environmental and social as well as health impacts that are likely to arise as a result of proposed palliative works for the Eleyele Dam Ogee structure include:

Potential Negative Environmental Impacts

- **Noise and Vibration:** Noise and vibrations from the mobilization of equipment and materials as well as rehabilitation activities
- **Air quality deterioration:** Ambient Air deterioration from release of dusts and gaseous emissions
- **Changes in the water quality-:** Turbidity may increase downstream river channel; potential fuel and oil spillages
- **Solid Waste Generation:** Generation of vegetal wastes and construction wastes as well as from cleared clogged drainages
- **Ecosystem Disturbance:** Impact on Spawning and rearing habitats as well as aquatic and riparian life; Dispersal of fauna species along spillway channel
- **Changes to the natural flow regime:** Disrupted and altered water flows; Changes in the quantity and timing of water flows.

Potential Negative Social Impacts

- Community Perception
- Increased human population at dam spillway rehabilitation site and along River Ona Channel
- Risk of social conflict: Frustrations due to a non-employment of local labor at work site; Monitoring vandalism

Health Impacts

- Disease vectors: Disease vectors such as mosquitoes, snails, black flies etc would invade the periphery of the lake. These vectors would transmit malaria, flariasis etc

Table 1: Environmental and Social Mitigation and Monitoring Plan

S/N	Potential Impacts	Mitigation Measures	Responsibility (Implementation)	Cost of Mitigation Dollars (USD)	Indicators/ Parameters	Method of Measurement	Sampling Location	Frequency of Monitoring	Responsibility (Supervision)	Cost of Monitoring Dollars (USD)
A PRE CONSTRUCTION PHASE										
Mobilization of Equipment and Materials to Site										
1	Occupational accidents and injuries from the use of machineries and equipment	<ul style="list-style-type: none"> Provision of PPE to workers; Education of site workers; Incident/accident reporting; Provision of First Aid onsite 	Contractor	600	•Routine Inspection	•Interviews	Construction Site	Daily	Environmental specialist-IUFMP	200
2	Community perception- Members of the Community may have negative perception about the project if not properly managed	<ul style="list-style-type: none"> Provide enlightenment forums to community members from the preparatory stage and on potential environmental and social concerns from civil works Utilize existing social structures such as CDAs Create proper complaints procedure. 	IUFMP Environmental Specialist, Social development specialist, Communication specialist	-	•No of Complaints from community members	Interviews	Construction Site	Once	PIU	400
Site Mobilization and Installation of equipment and structure (Base camp, Engineer workshop etc.)										
1	Environmental Impacts <ul style="list-style-type: none"> Air quality deterioration Noise Generation of wastes Occupation Health 	<ul style="list-style-type: none"> Suppress dust emissions by appropriate methods such as spraying water on soil Maintain equipment and machineries adequately to reduce their noise levels Ensure proper handling, stockpiling and disposal of wastes (e.g cleared vegetation Provision of PPE to workers; Education of site workers; Incident/accident reporting; Provision of First Aid onsite 	Contractor	<ul style="list-style-type: none"> 300 100 500 See A1 	<ul style="list-style-type: none"> Records of maintenance for all machineries and equipment Noise Levels (Not to exceed 90dB(A) Waste Handling and Disposal of Wastes; Enhance proper handling and disposal of wastes (especially contaminated soil or water, concrete, demolition materials, oils, grease, lubricants, metals, etc.) Contractors Compliance Workers Using PPE 	<ul style="list-style-type: none"> In-Situ Measurement Complaint Register Waste Tracking Report Routine Inspection 	Construction Site	<ul style="list-style-type: none"> Daily Daily Daily Daily 	<ul style="list-style-type: none"> Environmental specialist-IUFMP Oyo State Ministry of Environment and Habitat Oyo State Solid Waste Management Authority Environmental specialist-IUFMP 	<ul style="list-style-type: none"> 200 100 300 See A1
2	Social Impacts <ul style="list-style-type: none"> Risk of occupational accidents, injuries and .diseases 	<ul style="list-style-type: none"> Provision of PPE to workers; Education of workers; Incident/accident reporting; Provision of First Aid onsite 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> See A1 	<ul style="list-style-type: none"> Routine Inspection 	Interviews	Construction Site	Daily	Environmental specialist-IUFMP	See A1

	SUB TOTAL			1500	SUB TOTAL			1200			
B	CONSTRUCTION PHASE										
Civil Engineering Works											
<ul style="list-style-type: none"> Clearing of vegetation and removal of debris from; <ul style="list-style-type: none"> Spillway chute area; Spillway channel and Removal of 10cm top soil Removal of broken concrete slabs part inside the spillway channel Filling the “hole” with concrete C20 and anchor the new concrete blocks in bedrock at the spill way right bank toe. 											
1	ENVIRONMENTAL IMPACTS <ul style="list-style-type: none"> Air quality deterioration Noise Vegetation loss from land clearing Ecosystem Disturbance- Disturbance/Destruction of flora and fauna habitat Exposure of soil to erosion Waste generation from of vegetal wastes and construction wastes, concrete broken slabs inside the spillway channel and removal of debris Changes in water 	<ul style="list-style-type: none"> Suppress dust emissions by appropriate methods such as spraying water on soil Maintain equipment and machineries adequately to reduce their noise levels Limit clearing strictly to necessary areas Protect all vegetation not required to be removed against damage Apply best engineering practices to minimize soil structure damage and adhere strictly to design specifications Ensure proper handling, stockpiling and disposal of wastes (e.g cleared vegetation Identify sensitive areas in order to protect surface water and 	Contractor	300	<ul style="list-style-type: none"> Records of maintenance for all machineries and equipment 	<ul style="list-style-type: none"> In-Situ Measurement 	Construction Site	Daily	Environmental specialist-IUFMP	200	
				200	<ul style="list-style-type: none"> Noise Levels (Not to exceed 90dB(A) 	<ul style="list-style-type: none"> Complaint Register 		Daily	Oyo State Ministry of Environment and Habitat	100	
				150	<ul style="list-style-type: none"> Clearly Defined Boundaries % of Vegetal Loss 	<ul style="list-style-type: none"> Visual Observation 		Once		100	
				500	<ul style="list-style-type: none"> Habitat Impacted area 	<ul style="list-style-type: none"> Diversity of indigenous species 		Daily		100	
				300	<ul style="list-style-type: none"> % of Vegetal Loss Compliance with Design Specification 	<ul style="list-style-type: none"> Visual Observation 		Daily		100	
				1300	<ul style="list-style-type: none"> Waste Handling and Disposal of Wastes; Enhance proper handling and disposal of wastes (especially contaminated soil or water, concrete, demolition materials, oils, grease, lubricants, metals, etc.) 	<ul style="list-style-type: none"> Waste Tracking Report 		Daily	Oyo State Solid Waste Management Authority	300	
					<ul style="list-style-type: none"> Surface water parameters 	<ul style="list-style-type: none"> In-Situ/ Laboratory Measurements 		Once	Environmental specialist-IUFMP	150	

	quality	prevent non-point source pollution.		600	such as PH, turbidity and DO				Oyo State Ministry of	200	
	•Changes to the natural flow regime	Good practice in the utilization of physical engineering techniques		600	•Good engineering practices included in contract documents	Contractors performance; Regular inspection		Daily	Environment and Habitat Environmental Specialist PIU Project Engineer		
	Risk of occupational accidents, injuries and .diseases	•Provision of PPE to workers; Education of workers; Incident/accident reporting;; Provision of First Aid onsite		See A1	• Contractors Compliance • Workers Using PPE	• Routine Inspection		Daily	Environmental specialist-IUFMP	See A1	
	• Occupation Health-HIV/AIDS and other STDs	Provide education , guidance and counseling on HIV/AIDS and other STDs for workers		300	Medical Screening/Tests	Regular check up		Weekly	Oyo State Ministry of Health	150	
2	SOCIAL IMPACTS		• Contractor								
	•Risk of occupational accidents, injuries Water-Borne Diseases through Disease vectors	• Maintenance of good drainage at construction areas to avoid creation of stagnant water bodies		500	• Contractors Compliance • Training Records Workers using PPE	• Routine Inspection	Construction site	Daily	Environmental specialist/ Oyo State Ministry Health	300	
	Risk of social conflict	Monitoring vandalism Application of local workforce		300	No of Complaints from community members; Grievance log	• Interviews		Daily	IUFMP-Social development specialist, Communication specialist	100	
SUB TOTAL				5050	SUB TOTAL				1,800		
C	MAINTENANCE PHASE										
	Maintenance of palliative Structures		• IUFMP • Relevant line MDAs • Contractor	600			Project Site	Quarterly	Environmental specialist/ Project Engineer, IUFMP	300	
1	Occupational accidents and injuries during routine maintenance	• Provision of PPE to workers			• Contractors Compliance • Training Records • Workers using PPE	• Sighting • Routine Inspection					
2	Waste generation from operations and maintenance works Solid waste/ debris	• Enhance proper handling and disposal of wastes (especially contaminated soil or water, concrete, demolition materials, oils, grease, lubricants, metals,	Oyo State Solid Waste Management Authority	500	• Contractors Compliance	• Visual Observation	Project Site	Monthly	Environmental specialist-IUFMP Oyo State Ministry of Environment	250	

		etc.) • Clear debris along spillway channel			• Waste Handling, and Disposal	• Waste Tracking Report			and Habitat Oyo State Solid Waste Management Authority	
	SUB TOTAL			950	SUB TOTAL					550
	GRAND TOTAL			7,500						3,550

3.2 Institutional Arrangements

The successful implementation of this ESMP depends on the commitment and capacity of various institutions and stakeholders to implement the ESMP effectively. Thus, the arrangement as well as the roles and responsibilities of the institutions and persons that will be involved in the implementation, monitoring and review of the ESMP are discussed below.

Annex 2 gives detailed general environmental management conditions during civil works while the roles and responsibilities of the various institutions in the implementation of this ESMP are outlined in Table 2

Table 2: Institutional Safeguards Responsibilities

S/N	Category	Roles & Responsibilities
1.	Safeguards Unit	<p>Environmental Safeguards</p> <ul style="list-style-type: none"> Analyze potential environmental impacts; Ensure that project activities that are implemented will in accordance to best practices and guidelines Identify and liaise with all stakeholders involved in environment related issues in the project; and be responsible for the overall monitoring of mitigation measures and the impacts of the project during implementation. <p>Social Safeguards</p> <ul style="list-style-type: none"> Develop , coordinate and ensures the implementation of the social aspects of the palliative measures; Identify and liaise with all stakeholders involved in social related issues in the during the palliative rehabilitation; Ensure that project activities that are implemented will in accordance to best practices and guidelines
2.	PIU	<ul style="list-style-type: none"> Liaise closely with Oyo State Ministry of Environment and Habitat in preparing a coordinated response on the environmental and social aspects of the palliative works to be carried out; Safeguards due diligence
3.	Oyo State Ministry of Environment and Habitat	<ul style="list-style-type: none"> Environmental compliance overseer at the State level Lead role - provision of advice Site assessment and monitoring of ESMP implementation
4.	Oyo State Ministry of Water Resources	<ul style="list-style-type: none"> Routing monitoring of dam spillway rehabilitation activities Ensure operation of Dam and maintenance infrastructure as part of the ESMP implementation
5.	Other relevant State Government MDAs	<ul style="list-style-type: none"> Relevant areas or resources under their jurisdiction or management are likely to be affected by or implicated projects. Participate in the EA processes and in project decision-making that helps prevent or minimize environmental and social impacts and to mitigate them.
6.	World Bank	<ul style="list-style-type: none"> Overall supervision and provision of technical support and guidance. Recommend additional measures for strengthening the management framework and implementation performance;
7.	Contractor	<ul style="list-style-type: none"> Compliance to BOQ specification in procurement of material and construction
8.	Site Engineers/Supervisors	<ul style="list-style-type: none"> Provide oversight function during construction and decommissioning
9.	Local Government	<ul style="list-style-type: none"> Provide oversight function across subproject in LGAs for ESMP compliance Liaising with the PIU, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed sub-projects, amongst the various relevant grass roots interest groups
10.	Local Community	<ul style="list-style-type: none"> Promote environmental awareness Assist and Liaise with other stakeholders to ensure proper siting and provision of approval for such sites Support with provision of necessary infrastructures and engage/ encourage carrying out comprehensive and practical awareness campaign for the proposed palliative works, amongst the various relevant grass roots interest groups.
11.	CDA	<ul style="list-style-type: none"> Ensure Community participation by mobilizing, sensitizing community members;
12.	NGOs/CSOs	<ul style="list-style-type: none"> Assisting in their respective ways to ensure effective response actions during the palliative works, Awareness campaigns
13.	Others/General Public	<ul style="list-style-type: none"> Identify environmental and social issues that could derail the temporary palliative works and support project impacts and mitigation measures, Awareness campaigns

3.3 Contractual Measures

The mitigation measures, since they are to be implemented during the emergency palliative works, will be the obligation of the Contractor. Table 3 on the next page describes the actions to be taken.

Table 3: Contractual Measures

Step	Action	Remarks
1	The measures as described in this ESMP be included in the tender documents with appropriate flexibility to adjust these measures to site circumstances, and that the potential contractor will have to prepare their proposals taking into account these measures	The non-inclusion of these measures in the proposal will lead to a disqualification of the proponent; The contract with the successful bidder should contain these environmental and social management measures as firm conditions to be complied with.
2	Cost of mitigation measures of N 1,580,000 Naira only be added to the cost of the contractual document	The contractor must take into account and put the cost for the environmental and social requirements specified in the ESMP.

3.4 Implementation Schedule

The activities related to environmental and social management and monitoring have to be integrated in the overall palliative remediation schedule. The environmental and social mitigation actions are standard measures applicable to proposed palliative works. The key elements of the implementation schedule are presented in Table 4 below:

Table 4: Tentative Implementation Schedule

s/n	Activity	Responsible	Preconstruction	Construction		Maintenance
			1	1	2	
Week			1	1	2	
1	Clearance of ESMP	PIU				
2	Inclusion of Environmental & Social Requirements in Bid Documents	PIU				
3	Inclusion of ESMP in Contract Documents	PIU				
4	Review and Approval of Contractor's ESMP	PIU				
5	Finalization of Engineering Designs	PIU /Engineering Design Consultant				
6	Implementation of Environmental and Social Mitigation Measures	Contractor				
7	Supervising ESMP Implementation	PIU				
8	Monitoring and Reporting on ESMP Implementation	PIU				
9	Environmental and Social Auditing	PIU/Oyo State Ministry of Environment and Habitat/Consultant				

3.5 Indicative Budget for ESMP Implementation

The tentative budget for the project includes the environmental and social mitigation cost, cost of environmental and social monitoring. All administrative costs for implementing the ESMP shall be budgeted for as part of the PIU costing.

The total cost for implementing the ESMP for the palliative works is estimated at **Twelve Thousand One Hundred and Fifty Five Dollars only (\$12,155)** which is **Two Million Four Hundred and Thirty One Thousand Naira Only (N 2,431,000)**. The table below shows an indicative budget breakdown and responsibility of the cost for implementing the ESMP in the project.

Table 5: Estimated Budget for the Implementation of ESMP

Item	Responsibility	Cost Estimate in Nigerian Naira (N)	Cost Estimate In US Dollars (US\$)
Mitigation	Contractor	1,500,000	7,500
Monitoring	PIU, Oyo State Ministry of Environment and Habitat, Oyo State Waste Management Board, Oyo Stare Ministry of Health	710,000	3,550
Sub- Total		2,210,000	11,050
Contingency	10% of Sub- Total	221,000	1,105
Total		2,431,000	12,155

Currency Unit = Nigerian Naira

US\$ = N200

CHAPTER FOUR: PUBLIC CONSULTATION

The ESMP results and the proposed mitigation measures was discussed with relevant stakeholders, NGOs, local administration and other organizations mainly involved by the project activities.

Below is a summary of the issues/comments raised by the various stakeholders and how the issues were addressed at the meeting. See Annex 3 for list of persons met or consulted.

Table 6: Summary of Stakeholder consultation

Items	Description
Date of Public consultation	1 April 2016
Venue	Eleyele Dam Site and Downstream communities
Language of communication	English/Yoruba
Introduction	<p>The Hydraulic Engineer and the Environmental specialist of IUFMP introduced the project and the need for palliative intervention at the Ogee spillway as well as the clearing of concrete debris at the spillway channel and vegetation removal along the River Ona channel to Ologuneru Bridge</p> <p>The ESMP consultant highlighted on the scope of the study and the need of a stakeholder consultation in order to more efficiently deliver improved project sustainably and best environmental and social practices</p>

Issues/Comments Raised by the stakeholders	How they were/are addressed by the Consultant or Project Officers
<p>The proposed palliative intervention work is most desirable to allow the free flow of water as the rainy season sets in.</p> <p>Community members appreciated the intervention regarding the removal of vegetation and debris along the Ona River course from the spillway channel</p> <p>They opined that there should be more enforcement on refuse disposal in River courses by the responsible agencies.</p> <p>A stakeholder also drew attention to her piggery farm along the River channel and hoped that the intervention would not affect her.</p>	<p>The palliative intervention would be carried out in an environmentally sustainable and socially responsible and inclusive manner</p> <p>Proper sensitization should be carried out on the danger of dumping refuse in River courses.</p> <p>The palliative works is targeted at removing the broken concrete slabs at the spillway channel as well as the removal of vegetation along the River Ona course to Ologuneru Bridge</p>

ANNEX 1: TERMS OF REFERENCE

TOR FOR THE PREPARATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR ELEYELE DAM OGEE SCOUR PALLIATIVE WORKS

4.0 BACKGROUND

The World is supporting the Oyo State Government to implement the Ibadan Urban Flood Management project (IUFMP) that aims at developing a long-term flood risk management framework by initiating risk assessment, community awareness, and providing enough flexibility in the project design to make changes based on learning. The project also supports capacity building for flood risk management in the city of Ibadan. It reinforces Oyo State government's early warning and response capabilities and leverages existing World Bank projects in Oyo State in support of the IUFMP.

The Eleyele Dam is an earth dam constructed along the Ona River at Eleyele community in 1942 for the supply of raw water for treatment at the Eleyele Waterworks for the city of Ibadan, and also to act as flood control during high flow periods through its reservoir holding capacity.

The dam embankment has a total length of 244m (embankment 138m plus 106m for spillway) and a crest height of 13.0m. The dam crest has an average width of 4.5m. The crest is overlaid centrally with 1.5m wide concrete walkway which adjoins a concrete block-work barrier on the upstream side.

The reservoir capacity of Eleyele Lake is 7MCM, with a surface area of 160ha, and a fetch of 2.4km. The maximum reservoir yield is about 2700 cu.m/day. The catchment area of the dam is 320 sq. km. The lake is believed to be heavily silted as a result of urbanization and encroachment of the flood plain at the upstream side of the reservoir.

There is an intake tower erected at the downstream end of the dam lake. It is from this location that raw water is abstracted and transmitted to Eleyele Treatment Plant. There are two other intakes, on pontoons located upstream of the dam lake; one of them is for the University of Ibadan, while the other one belongs to a private commercial establishment.

The over-flow of the reservoir is controlled by an un-gated Ogee weir spillway. The length of the spillway is 106m with a crest height of 14.5m, and design flood capacity of 367.9m³/s. The overflow is directed downstream to a concrete-lined tailrace canal which also acts as flow energy dissipater by means of a series of concrete steps.

A major contributor to the hazard potentials of Eleyele Dam is the fact that, as a result of high urban development over the years, it is now located upstream of densely populated and highly developed areas of Ibadan city. Indeed, downstream the Ona River, land use development and construction have progressively reduced the flood plain of the river. Any failure of the Dam will therefore result in heavy loss of lives, and serious damage to homes, schools, roads, bridges, rail lines, public utilities, industries, among others.

The Dam, constructed in 1942, has been subjected to at least two major floods in the past 30 years of the over 70 years of existence. Flood, ageing and other factors are adjudged to be responsible for the Dam and its apurtenance works developing various forms of structural and hydraulic defects.

2.0 PROPOSED PALLIATIVE WORKS:

1. Clearing (vegetation ,debris) of area
2. Removal of 10cm top soil
3. Filling with mortar with plasticizer 2/1/1 where necessary(scouring holes under concrete)
4. Steel bars $\phi 25@50$. Drilling $\phi 50$ mm. Grouting with bentonite and chemical slurry.

- 5. Filling with concrete C20.

3.0 NEED FOR AN ESMP

The emergency works aim at quickly improving the protection of the Ogee structure against scouring but will not be able to ensure the dam and spillway safety against additional damages from heavy flood. These structures are too much deteriorated and necessitated a total reconstruction.

4.0 SPECIFIC OBJECTIVES

The specific objective is for the consultant to assist Oyo State to undertake the necessary studies and prepared an Environmental and social management Plan (ESMP) for the proposed sub project palliative works in compliance with the World Bank environmental and Social safeguard policies and procedures as well as the Oyo State Ministry of Environment and Water Resources and the Federal Ministry of Environment guidelines and procedures.

4.0 GOAL OF THE PALLATIVE WORK

The proposed palliative works for the Eleyele Dam Ogee structure will reverse the current trend of dilapidation as muc as possible. This is a category B project according to the World Bank categorization and a category II project according to the FMEnv categorization. Thus it will require an ESMP.

From the foregoing, the less significant environmental and social impacts that are likely to occur, can be reduced or minimized through compliance with appropriate mitigation measure. The nature of the project is such that it will not represent a large-scale intervention in the site and will not fundamentally change the environment if adequately mitigated.

6.0 RATIONALE OF THE PALLATIVE WORKS

The Ogee structure of the Eleyele Dam spillway has over the years being much deteriorated by repeated flooding causing scouring which cannot ensure the dam and spillway safety against further damages from heavy flood. The portion of the stilling basin of the spillway toe has failed and chip up, while other stilling basin downstream and energy breaker as well as wind wall has also collapsed.



Dilapidated Ogee structure (Left side view)

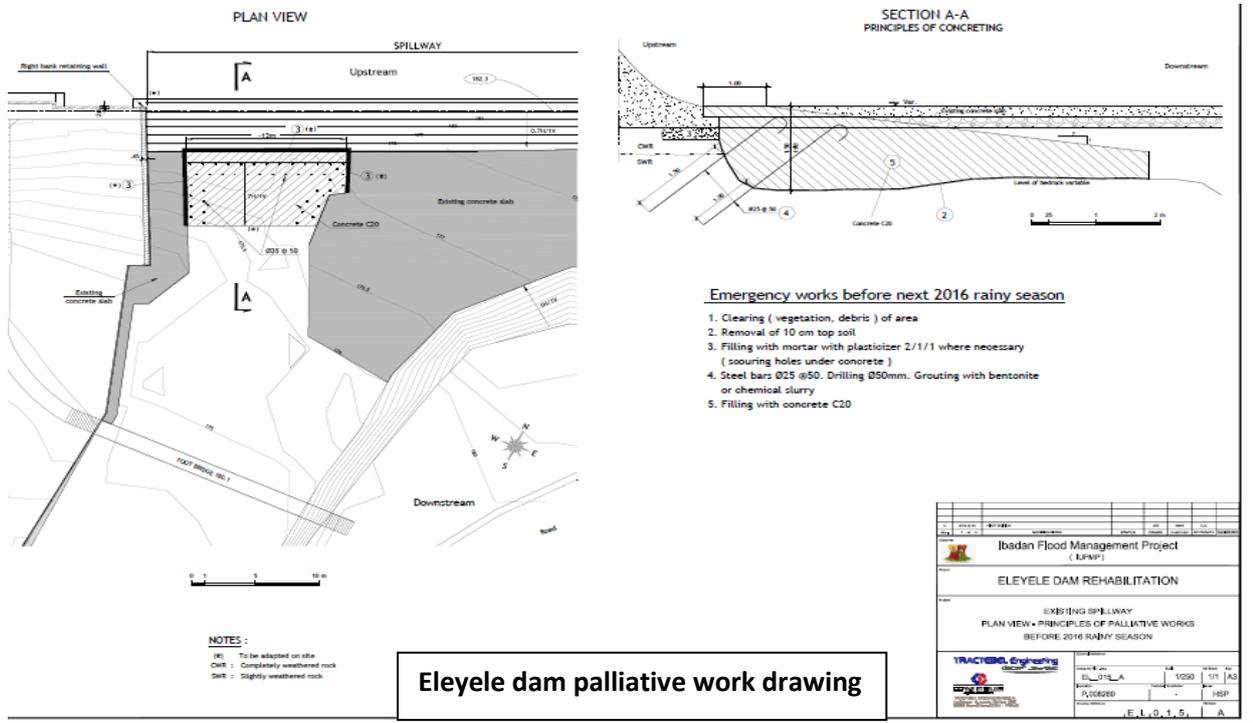


Dilapidated ogee structure (Right side view)

The proposed civil palliative works includes:

- I. Clearing of vegetation and removal of debris from;
 - o Spillway chute area

- Spillway channel and also
 - In Ona river
- II. Removal of broken concrete slabs part inside the spillway channel
 - III. Filling the “hole” with concrete C20 and anchor the new concrete blocks in bedrock at the spill way right bank toe. This filling intends to protect the spillway ogee structure from scouring. The concrete volume is roughly estimated at about 60m³. The principles of these filling works are presented on the work drawing below.



Eleyele dam palliative work drawing

7.0 SCOPE OF WORK:

The objective of the consulting services is to prepare an environmental and social management plans (ESMP) for the proposed Eleyele palliative works itemized above.

The ESMP should consist of a well-documented set of mitigation, monitoring, and institutional actions to be taken before and during implementation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. It should also include the measures needed to implement these actions, addressing the adequacy of the monitoring and institutional arrangements at upstream and downstream in the intervention site.

The consultant is expected to work in close collaboration with the engineering design consultants and IUFMP Project Implementation Unit (PIU) safeguard team, and with other actors and consultants as directed by the PIU. The consultant will have to receive the Engineering design in order to take into account the technical variants of the proposed activities and also in return, inform the technical design consultants of any major constraint that may arise due to the social and environmental situation on the ground.

The consultant will take into consideration the proposed civil engineering designs, vegetative land management measures and other activities aimed at reducing or managing runoff that would be carried out within the sub-watershed. The consultant will assess natural resources and infrastructures potentially affected during project implementation and operation and select the management strategies needed to ensure that environmental and social risks are appropriately mitigated.

8.0 THE CORE TASKS FOR THE CONSULTANT

These shall include:

- Reviewing existing documentation of the IUFMP , all relevant safeguards documents and the PAD;
- Review Environmental Assessment procedures of the World Bank safeguards policies especially Environmental Assessment (OP 4.01);
- Assess the potential environmental and social impacts related to project activities and recommend adequate mitigation measures, including costs estimation..
- Review institutional assessment and framework for environmental management.
- Identify responsibilities and actors for the implementation of proposed mitigation measures
- Develop an Environmental and Social Management Plan (ESMP) for the project. The ESMP should underline
 - (i) the potential environmental and social impacts resulting from project activities
 - (ii) the proposed mitigation measures;
 - (iii) the institutional responsibilities for implementation;
 - (iv) the monitoring indicators;
 - (v) the institutional responsibilities for monitoring and implementation of mitigation measures;
 - (vi) the costs of activities; and
 - (vii) the calendar of implementation.
- Public consultations. The ESMP results and the proposed mitigation measures will be discussed with relevant stakeholders, NGOs, local administration and other organizations mainly involved by the project activities. Recommendations from this public consultation will be included in the final ESMP report. The ESMP report should not be more than 30 pages long with details in the annex.

9.0 Qualifications and Experience of the Consultant:

The consultant should have:

- Experience with, and a professional/technical background appropriate for understanding both the environmental and social management implications of flood risk intervention projects, especially in urban areas, including their design, construction, operation and monitoring.
- At least five (5) years experience in practical safeguards, social and environmental management with demonstrated proficiency in the preparation, review, and approval of EAs/ESIAs/ESMPs to meet World Bank standards
- Excellent analytical, communication and writing skills.
- It is highly desirable that the consultant have experience with working with international development institutions like the World Bank, and on infrastructure related projects.

10 Deliverables and timing:

- The ESMP report should not be more than thirty pages.
- The duration for the assignment is a week from the signing of the contract.

ANNEX 2: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS FOR CONSTRUCTION CONTRACTS

General

1. In addition to these general conditions, the Contractor shall comply with any specific Environmental Management Plan (EMP) or Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved EMP after written instruction by the Supervising Engineer (SE) to fulfill his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.
2. Notwithstanding the Contractor's obligation under the above clause, the 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 EMP. In general these measures shall include but not be limited to:
 - (a) 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 dust producing activities.
 - (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
 - (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
 - (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
 - (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
 - (f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archaeological or historical importance during the execution of works, immediately report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.
 - (g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
 - (h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.(i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
 - (j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.
 - (k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.
3. The Contractor shall indicate the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.
4. The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan / strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.
5. Besides the regular inspection of the sites by the SE for adherence to the contract conditions and specifications, the Owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by the SE, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Worksite/Campsite Waste Management

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be banded 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.
7. 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.
8. Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.
9. 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.
10. Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.
11. 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.

Material Excavation and Deposit

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
13. 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.
14. New extraction sites:
 - a) 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.
 - b) 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.
 - c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
 - d) 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.
 - e) 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.
 - f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.
15. Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.
16. 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.

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

18. Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

Rehabilitation and Soil Erosion Prevention

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

20. 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.

21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.

22. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

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

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

25. 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.

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

27. 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.

28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.

29. Minimize erosion by wind and water both during and after the process of reinstatement.

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

31. 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.

Water Resources Management

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.

33. 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.

34. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.

35. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities down stream, and maintains the ecological balance of the river system.

36. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.

37. Wash water from washing out of equipment shall not be discharged into water courses or road drains.

38. Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

Traffic Management

39. Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas.

40. Upon the completion of civil works, all access roads shall be ripped and rehabilitated.

41. Access roads shall be sprinkled with water at least five times a day in settled areas, and three times in unsettled areas, to suppress dust emissions.

Blasting

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

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

44. Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.

Disposal of Unusable Elements

45. 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.

46. As far as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with the SE and the local authorities concerned.

47. AC-pipes as well as broken parts thereof have to be treated as hazardous material and disposed of as specified above.

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

Health and Safety

49. In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of AIDS.

50. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.

51. Construction vehicles shall not exceed maximum speed limit of 40km per hour.

Repair of Private Property

52. Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.

53. In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Contractor's Environment, Health and Safety Management Plan (EHS-MP)

54. Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an EMP for the works. The Contractor's EHS-MP will serve two main purposes:

- For the Contractor, for internal purposes, to ensure that all measures are in place for adequate EHS management, and as an operational manual for his staff.
- For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the EHS aspects of the project, and as a basis for monitoring of the Contractor's EHS performance.

55. The Contractor’s EHS-MP shall provide at least:

- a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP;
- a description of specific mitigation measures that will be implemented in order to minimize adverse impacts;
- a description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the reporting thereof; and
- the internal organizational, management and reporting mechanisms put in place for such.

56. The Contractor’s EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor’s EHS-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

EHS Reporting

57. The Contractor shall prepare bi-weekly progress reports to the SE on compliance with these general conditions, the project EMP if any, and his own EHS-MP. An example format for a Contractor EHS report is portrayed below. It is expected that the Contractor’s reports will include information on:

- EHS management actions/measures taken, including approvals sought from local or national authorities;
- Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc. as a result thereof);
- Lack of compliance with contract requirements on the part of the Contractor;
- Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and
- Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.

58. It is advisable that reporting of significant EHS incidents be done “as soon as practicable”. Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-weekly reports. A sample format for an incident notification is shown below. Details of EHS performance will be reported to the Client through the SE’s reports to the Client.

Training of Contractor’s Personnel

59. The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project EMP, and his own EHS-MP, and are able to fulfill their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the EHS-MP. General topics should be:

- EHS in general (working procedures);
- emergency procedures; and
- social and cultural aspects (awareness raising on social issues).

Cost of Compliance

60. It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item “Compliance with Environmental Management Conditions” in the Bill of Quantities covers this cost. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact.

3. Example Format: EHS Report

Contract:

Period of reporting:

EHS management actions/measures:

Summarize EHS management actions/measures taken during period of reporting, including planning and management activities (e.g. risk and impact assessments), EHS training, specific design and work measures taken, etc.

EHS incidents:

Report on any problems encountered in relation to EHS aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.

EHS compliance:

Report on compliance with Contract EHS conditions, including any cases of non-compliance.

Changes:

Report on any changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects.

Concerns and observations:

Report on any observations, concerns raised and/or decisions taken with regard to EHS management during site meetings and visits.

Signature (Name, Title Date):

Contractor Representative

4. Example Format: EHS Incident Notification

EHS Incident Notification	
Provide within 24 hrs to the Supervising Engineer	
Originators Reference No:	
Date of Incident:	Time:
Location of incident:	
Name of Person(s) involved:	
Employing Company:	
Type of Incident:	
Description of Incident:	
Where, when, what, how, who, operation in progress at the time (only factual)	
Immediate Action:	
Immediate remedial action and actions taken to prevent reoccurrence or escalation	
Signature (Name, Title, Date):	
Contractor Representative	

ANNEX 3: LIST OF PERSONS MET

s/n	Name	Organization/Community	Designation	Phone	Email
1	Mrs Ayobami Akanni	Water Cooperation Area Eleyele		08077020896	
2	Mr. Osulana Issac	Water Cooperation	Mechanic	08106381874	
3	Olajiru Olufisayo	Water Cooperation	Quality Control	08093749898	
4	Issac Olarenwaju	Eleyele	Carpenter	08035240961	
5	Ayorinde A.A	PIU	Project Coordinator	07030263100	Dayo1ayorinde@yahoo.com
6	Adesina F.E	PIU	Environmental Specialist	08062322057	funmilayoevelyn@yahoo.co.nz
7	Engineer Adeniji	PIU	Hydraulic Engineer		
8	Engineer Akintewe	Tractabell	Project Coordinator	08023243781	akintewe@gmail.com