OYO STATE

Ibadan Urban Flood Management Project

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

For the

EMERGENCY DREDGING OF CHANNELS AND CLEARING OF BLOCKED DRAINAGES ACROSS IBADAN FOR THE YEAR 2018

DRAFT FINAL REPORT

MAY 2018

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LIST OF ABBREVIATIONS AND ACRONYMS

BP	Bank Policy
BOD	Biochemical Oxygen Demand
CBOs	Community Based Organizations
CDA	Community Development Associations
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DO	Dissolved Oxygen
EA	Environmental Assessment
EC	Electrical Conductivity
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ESA	Environmentally Sensitive Area
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESO	Environmental Safeguard Officer
ESS	Environmental and Social Screening
FEPA	Federal Environmental Protection Agency
FMEnv	Federal Ministry of Environment
GoN	Government of Nigeria
GPS	Global Positioning System
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
HSE	Health Safety and Environment
ISDS	Integrated Safeguards Data Sheet
Lexp	Exposure Levels
LGA	Local Government Area
Lmax	Maximum Noise Levels
Lmin	Minimum Noise Levels
MDAs	Ministries Departments and Agencies
ME&WR	Ministry of Environment and Water Resources
MoW	Ministry of Works
ND	Not Detected
NESREA	National Environmental Standards and Regulations Enforcement Agency
NGOs	Non-Governmental Organization
NIMET	Nigeria Meteorological Agency
OP	Operational Policy
OYSG	Oyo State Government
OYOWMA	Oyo State Waste Management Authority
PAD	Project Appraisal Document
PC	Project Coordinator
PDOs	Project Development Objectives
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
RAM	Risk Assessment Matrix
sp	Species
SPM	Suspended Particulate Matter
TOR	Terms of Reference
TMP	Traffic Management Plan
WAE	West Africa Energy
WMP	Waste Management Plan

Currency and Equivalents

Currency Unit = Nigerian Naira; kkUS$1 = N360

EXECUTIVE SUMMARY

1.0 Background

The Ibadan Urban Flood Management Project (IUFMP) has a mandate to design and implement short, medium and long-term solutions to flooding in Ibadan. Recently, the IUFMP, working in conjunction with the State Ministry of Environment and Water Resources has taken on the additional task of dredging channels that overflow their banks in the rainy season and clearing blocked drainages. In 2018, a total of 69 sites have been identified for these emergency works/interventions. This ESMP has therefore been prepared towards ensuring that the activities are carried out in a sustainable manner.

The project activities are spread across 12 of the 33 LGAs of Oyo state. These LGAs are: Ibadan North, Ibadan North-East, Ibadan North-west, Ibadan South-East, Ibadan South-West, Iddo, Oluyole, Egbeda, Akinyele, Lagelu, Afijio and Ona Ara. Generally the works are in two parts: Dredging of stream channels to remove silt and solid wastes which have clogged the channels, and clearing of blocked drainages, to allow for free flow of runoff during intensive rainfall.

The proposed works will take place before the onset of heavy rainfall. Typically, the heavy rainfalls occur between June and September, when more than 40% of annual rainfall occurs. The implementation period for the intervention is 4 weeks thus project activities can be completed before the onset of the heavy rains.

This ESMP was prepared in accordance with the World Bank safeguard policies, and the Nigerian environmental assessment guidelines and procedures including the Oyo State Ministry of Environment and Water Resources. The methodology essentially entailed: preliminary site visits, literature review/desktop studies, field studies, community/stakeholder consultations and the preparation of the ESMP.

2.0 Regulatory and Administrative Framework

Various applicable regulations, standards and policies were taken into due cognizance in the preparation of the ESMP. The regulations considered included the local (state level); Oyo State Ministry of Environment and Water Resources, national and international levels. At the national level, regulations of the FMEnv were considered while the World Bank Safeguards Policies were applied. All activities undertaken in the course of preparing this ESMP complied with the provisions of the various policies.

3.0 Baseline environmental and social conditions

Climate and Meteorology

Rain falls in virtually all the months of the year with annual average of 186mm. Two seasons are identifiable: the rainy season (April to November) and the relatively dry season (December to March). Rainfall is heaviest during the months of June and September. The project area is characterized by a relatively high relative humidity throughout the year ranging between 81 and 87% in the mornings and between 65 and 80% in the afternoon. Temperature is relatively constant throughout the year, with annual ranges of 28 to 32^{0}C and 23 to 26^{0}C for maximum and minimum temperature records respectively. Mean monthly maximum and minimum temperatures are 30 and 24^{0}C respectively. The project area has a calm weather with wind speed ranging between 2-5 m/s. The wind speed is lower than 2.7m/s for about 60% of the time, and seldom (<2% of the time) exceeds 3 m/s. The monthly average sunshine hours in the study area ranges between 3 and 7 hours with an annual average of 5 hours.

Air Quality and Noise Levels

The suspended particulate matter (SPM) levels were generally low across the area, indicative of the scrubbing effect of rainfall. CO was detected in many locations but was below the 10ppm permissible limit of the FMEnv. All other gases,

including NO_2, SO_2, NH_3 H_2S and VOCs were not detected. Noise level were all below the FMEnv regulatory limit of 90 dB (A) over an 8 hour exposure period.

Water Quality

Generally, the results of in-situ measurements of surface water indicate that the project area is largely freshwater, given that salinity values was 0%. Similarly, conductivity and TDS values were low and confirm that the area is exclusively freshwater. Dissolved oxygen measurements were low in several points. The sampled surface waters were highly turbid and thus, turbidity was quite high in all samples, ranging between 450 and 560NTU against the 500NTU permissible limit of the FMEnv

Vegetation and Wildlife

Generally, vegetation in the project area consists of riparian forests along stream banks and regrowth species along roads and drains. Grasses were most abundant as well as sedges and forbs. Wildlife consisted mostly of avian species, particularly those of the water side like egrets and herons, and garden species such as the bulbul, village weavers and doves.

Socio-economics

Oyo State is homogeneous, and has a population of about 8million people. It is predominantly occupied by Yoruba people. Within the State however, there are sub-ethnic groups with distinct dialect peculiarities. Ibadan, the capital city of Oyo State and the third largest metropolitan area in Nigeria, after Lagos and Kano. It is the largest metropolitan geographical area in West Africa (1,190 sq mi or 3,080 km^2) with a highly built up and dense population.

Based on the extrapolations from the NPC 2006 National Population Census, population figures for Oyo State is currently (2018) estimated at 8,050,527, consisting of 4,041,364 males, and 4,009,562 females

Environmental and Social Impacts and Mitigation Measures

Generally, the project will be beneficial. However, a few negative impacts are identifiable which require mitigation. Site specific recommendations have been made for the various sites, while the general mitigation measures are presented in Table A1 presents a summary of the anticipated impacts of the project as well as recommended mitigation measures.

Table A1: Summary of Environmental and Social Impacts and Recommended Mitigation Measures

Project Activity/Phase	Identified Impacts	Recommended Mitigation Measure
DREDGING OF CHANNELS/STREAMS		
Mobilization/ Pre-construction Phase	During mobilization, the trucks carrying the dredgers move slowly and will tend to cause serious traffic.	Mobilization activities shall be timed to coincide with off-peak traffic periods. Based on an assessment of the existing settings in most of the project areas, this would be either in the day time, between 10am and 2pm, or at night, between 10pm and 5am A Traffic Management Plan (TMP) has been prepared for this project. Details are presented in Annex 11. The support of traffic control agencies such as the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic during mobilization and demobilization
	Emissions from the engines could contribute noxious gases into ambient air, leading to degradation of air quality.	All dredgers and other vehicles and machinery to be used for the project shall be properly serviced and maintained to ensure their compliance with international emission standards
Construction Phase	Generation of excavated materials which could cause nuisance in the neighbourhood.	Excavated materials shall be evenly spaced on available space by the stream banks The PIU shall appoint a designated HSE Supervisor to oversee the works and will be empowered to issue stop-work orders, where contraventions occur. Community involvement in determination of location for drop-off of excavated material

Project Activity/Phase	Identified Impacts	Recommended Mitigation Measure
	If adequate care is not taken in the dumping of spoils dredged from channels, it could lead to blockage of runoff routes from inland into the channel. This could create fresh flooding concerns upstream.	Adequate spacing shall be provided between dumps of spoil, to ensure that the dumps do not block existing natural runoff routes.
	There may be general complaints from sites communities	A Grievance Redress Mechanism shall be put in place for this project such that community members who have any issues can formally submit their grievances via dedicated hotlines lines provided (see Annex). The HSE Supervisor that will be hired specifically for this project, and who will be on site during project implementation, will be empowered to listen and respond to grievances that may come up while he is on field. The PIU team monitoring the exercise will also be on hand to listen to complaints and resolve them on the spot
	Nature of excavated materials could be solid wastes rather than vegetal silt which could constitute aesthetic nuisances and also contribute odours in the immediate vicinity.	Where solid wastes predominate over silt materials, arrangements shall be made to ensure that excavated materials are carted away to designated dump sites
Operation/ Maintenance Phase	Traffic congestion during waste evacuation.	The movement of wastes trucks shall be timed to coincide with off-peak traffic periods. Based on our assessment of the existing settings in most of the project areas, this would be either in the day time, between 10am and 2pm, or at night, between 10pm and 5am The support of traffic control agencies such as Oyo State Traffic Management agency (OYTRMA), the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic during mobilization and demobilization
	Health and Safety issues like cases of incidents, accidents, near miss.	Contractors shall provide necessary PPEs for all personnel The supervising engineer and the HSE supervisor shall ensure provision of PPEs by the Contractors and enforce the strict usage of same by all personnel on site
	Risk exposure to hazards of local community residents/ passers – by.	Adequate signage / cautions will be provided at all work sites to warn non-workers to go off danger zones. Contractors shall ensure adequate engagement with communities and residents of their work areas prior to, and during works. The PIU will undertake electronic media announcement and publicity to ensure that the general public are informed about ongoing project activities so that appropriate caution can be taken.
CLEARING OF BLOCKED DRAINS		
	Traffic congestion and obstruction of access.	a. The clearing of drains shall be carried out at off peak hours and /or during the statutory Thursdays Environmental Sanitation in which shops and markets remained closed until 10am. b. Adequate consultations shall be held with market associations to ensure that they are carried along with the implementation of planned activities. c. All excavated wastes shall be carted to designated dump sites.
	Possibilities of disruption of commercial activities	Application of a. – c. above
	Obstruction of traffic by wastes trucks	Waste evacuation from sites can be carried out at off peak hours or at night. The support of traffic control agencies such as Oyo State Transport and Road Maintenance Agency (OYTRMA), the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic.
	Risk exposure to hazards of local community residents/ passers – by.	Application is necessary as discussed above under dredging activities.
	There may be general complaints from sites communities	Application is necessary as discussed above under dredging activities.

In addition to the foregoing adequate monitoring shall be undertaken. As a minimum, weekly visits shall be conducted to project sites by the safeguards unit of the PIU, to ensure that mitigation measures are being implemented and that they are effective in ameliorating identified impacts.

The institutional arrangement for implementing this ESMP will include the PIU and the Safeguards Unit of the PIU, the Oyo State Ministry of Environment and Water Resources, other relevant state government MDAs, , the Contractor(s) Site Engineers, LGAs and the Local community themselves.

4.0 Public Consultations

Consultation was undertaken at the various sites. Generally, most residents were positive about the proposed initiative. However, in a few cases, the communities indicated that what is needed in their site is more than just dredging as some failed culverts for instance, make their road impassable.

5.0 Estimated Cost for Implementing ESMP

The estimated costs of implementing the ESMP will include the following:

1. Cost of Mitigation and Monitoring for Dredging of Channels/Drains	US$34,800.00
2. Cost of Mitigation and Monitoring for Clearing blocked drains	US$14,950.00
3. Cost of Hiring dedicated HSE Supervisor for a 30-day period @ US$500/day	US$15,000.00
Total Cost for implementation of the ESMP	**US$64,750.00**
10% of total for Contingency	**US$ 6,475.00**
Grand Total	**US$71,225.00**

(Seventy-one Thousand, two Hundred and twenty-five United States Dollars Only)

6.0 Recommendation

Generally, the study has indicated that the proposed project is desirable and will not cause significant adverse effects on the existing environmental, social and health situations of project sites, as well as safe conditions of the people, locally. Although a number of environmental and social adverse impacts are anticipated, they can be reasonably mitigated using simple and cost-effective measures.

CHAPTER ONE: BACKGROUND AND INTRODUCTION

1.1 Background

The Ibadan Urban Flood Management Project (IUFMP) was established to provide short and medium- to Long-term plans and options for resolving the issues of flooding in Ibadan, Oyo State. As part of its mandate, short term measures that can alleviate the immediate and chronic issues of flooding in sections of the city are encouraged and regularly implemented. Some of these short-term measures include the rehabilitation works on 4 priority sites and the recently approved works in 13 priority sites.

Recently, the IUFMP, working in conjunction with the State Ministry of Environment and Water Resources has taken on the additional duties of dredging channels that are overflowed by flood in the rainy season as well as clearing blocked drainages that could impede water flows and thus create flash floods. For the year 2018, a total of 69 sites have been identified as requiring either dredging and/or clearing of blocked drainages. These sites consist of areas that have either not been previously dredged/cleared, or some areas that were dredged/cleared in previous years, but have silted up again. The selection of sites was based on a combination of physical determination following routine requests by affected communities and follow-up fact-finding visits. Summarily, the process involved;

i. Letters/calls from concerned/affected communities,
ii. Inspection visits by staff of the Oyo State Ministry of Environment and Water Resources for assessment, sorting of proposed works based on severity and determination of appropriate interventions
iii. Joint field visits by MEnv&WR and IUFMP Engineers for finalization of proposed works..

The criteria used in the selection of the sites include;
i. Current situation of the sites with reference to recent flood events
ii. Reported impact of flood events on lives and property
iii. Non-inclusion of sites in previous dredging and desilting exercises in 2016 and 2017

To this end, in line with the World Bank's Operational Policy on Environmental Assessment OP 4.01, the proposed dredging and clearing of blocked drainages has been classified as a Category "B" Project thus requiring an Environmental and Social Management Plan (ESMP) to be prepared.

1.2 Project Location

The project sites for dredging and clearing of blocked drainages are scattered around the city of Ibadan and surrounding Local Government Area (LGA). Ibadan is the capital city of Oyo State. Oyo State is located in South-west Nigeria, and shares frontiers with several states. Oyo is bounded by the states of Kwara on the north, Osun on the east, and Ogun on the south and by the Republic of Benin on the west.

Oyo State is administratively divided into 33 LGAs. The dredging and clearing of blocked drainages is expected to span a total of 12 of the 33 LGAs. These LGAs are: Ibadan North, Ibadan North East, Ibadan North West, Ibadan South West, Ibadan South East, Afijio, Iddo, Akinyele, Lagelu, Ona Ara and Oluyole LGAs. Figure 1.1 presents an administrative map of Oyo State showing the 33 LGAs while Figure 1.2 shows the various locations for dredging and clearing of blocked drainages.

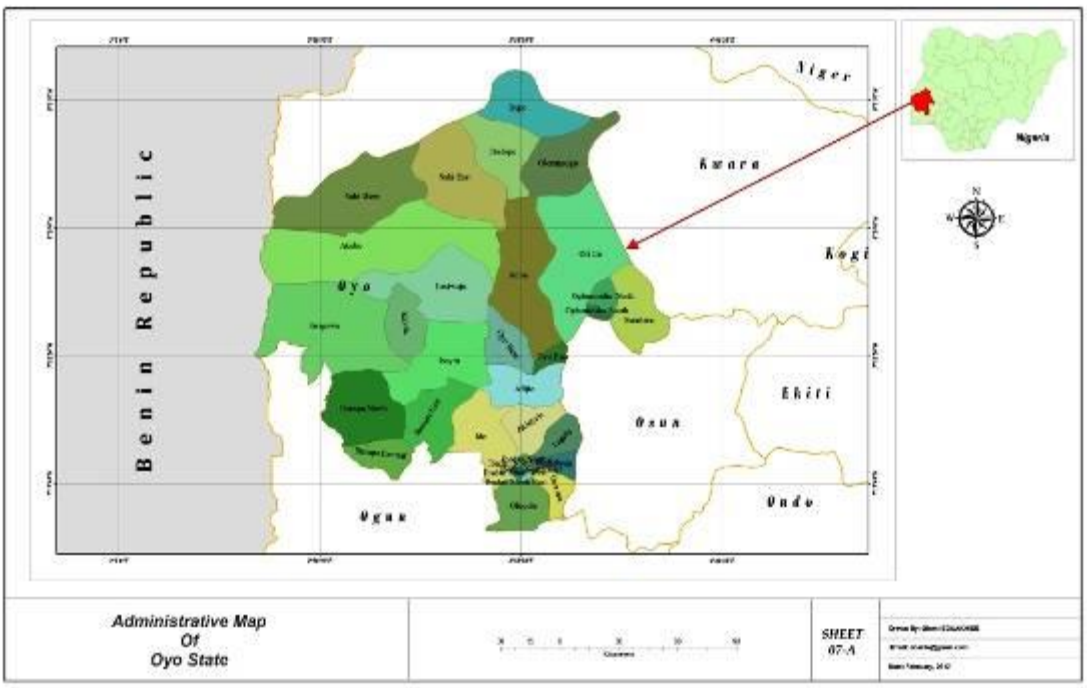


Figure 1.1: Administrative map of Oyo State showing the 33 LGAs

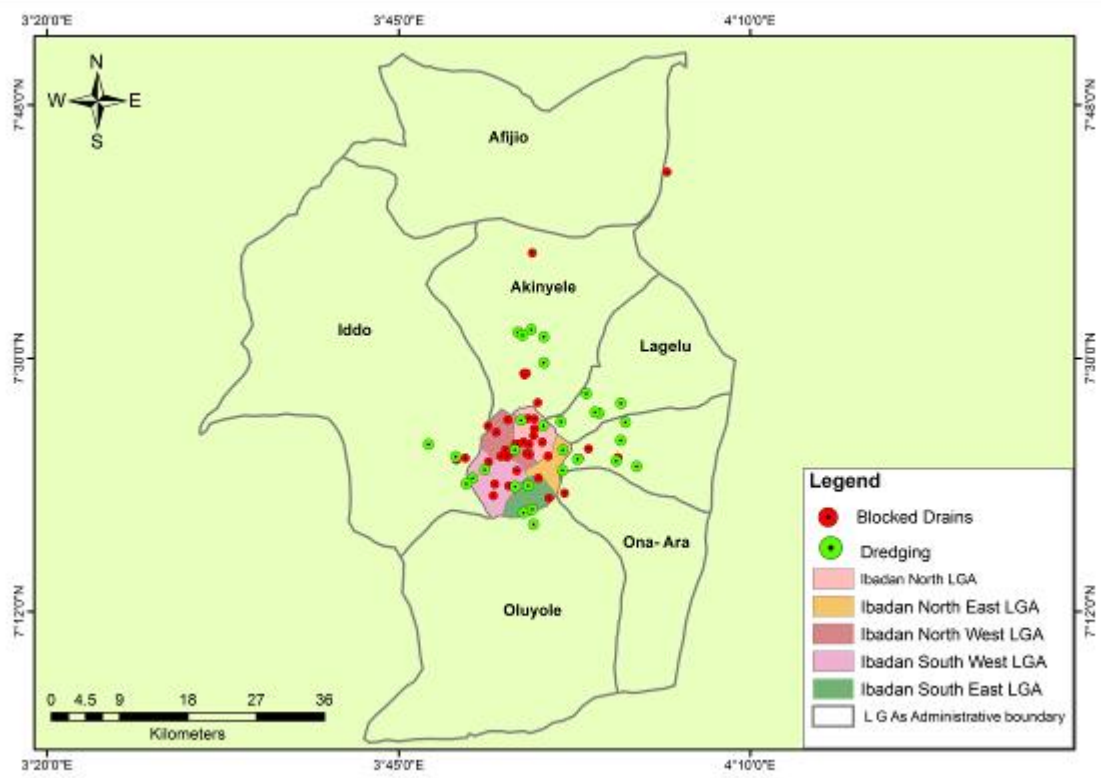


Figure 1.2: Map showing the distribution of Proposed dredging and blocked drainage locations

1.3 Description of the Proposed Works

The proposed works are in two parts:

A. Dredging Works

The dredging works includes: the dredging of stream channels to remove silt and wastes which have clogged the stream channels, leading to restriction to water flow, thus causing flash floods during heavy rainfalls. Generally, mechanical dredging will be used and dredged materials will be piled along the banks of the stream/channel being dredged. The standard practice, internationally, is to dispose dredge materials either by in-channel on large waterbodies, or cast by the banks in narrow waterbodies. Casting on the banks will serve the additional purpose of forming a protective dike by the water, which will prevent overflows from the channel into communities. At the same time however, runoff routes will be preserved and thus adequate spacing will be left between dumps to allow continued runoff into the channels. However, in cases where there is excess solid wastes, arrangements will be made to have these carted off to designated dumpsites. Details of these are presented in the Waste Management Plan presented as Annex.

Generally, a maximum dredging depth of 1m will be achieved at all locations. However, the width and length of dredging will vary from location to location, and will be driven by the envisaged requirement on site.

Table 1.1 shows the list of areas where dredging works will be carried out. Plates 1.1 to 1.6 also shows some of the locations planned for dredging.

Table 1.1: List of sites where dredging of channels and streams will occur across the state

SN	Latitude(°N)	Longitude(°E)	Name of Drainage/Rivers/stream	LGA
1.	7.530807	3.891705	Onilu Stream, Asamajana, Moniya	AKINYELE
2.	7.534345	3.897356	Elebu Stream, Asamajana	AKINYELE
3.	7.533912	3.906995	Odo Eran, Moniya	AKINYELE
4.	7.525881	3.920771	Labi Stream, Moniya	AKINYELE
5.	7.481275	3.391382	IITA Power Line	AKINYELE
6.	7.479890	3.902695	IITA, Downstream Ona River	AKINYELE
7.	7.496038	3.924343	Goodness Estate Stream	AKINYELE
8.	7.425000	3.942222	Akobo Estate Stream	EGBEDA
9.	7.447668	3.951695	Sooko stream, Akobo Ojurin	EGBEDA
10.	7.436378	3.982220	Kute Stream	EGBEDA
11.	7.425708	3.986235	Wofun Stream	EGBEDA
12.	7.446607	4.012238	Oganla Stream, Olodo Bank Area	EGBEDA
13.	7.426633	3.895187	SPAC AOFunmitream, Poly Road, Sango	IB N (TEXACO)
14.	Midpoint: 7.3830 Endpoint: 7.3803	Midpoint: 3.8180 Endpoint: 3.8199	Apata-Pete Stream, CeleApata, via NNPC link road, Apata	IB. N
15.	Midpoint: 7.3514	Midpoint: 3.8301	AkuruEleta Stream Elebu, Off Akala Expressway	IB. N
16.	7.3980	3.7855	Bethel Estate, Bode Igbo Area, Abeokuta Road, Ibadan.	IB. S.E
17.	7.3210	3.9083	Atumini Stream, Alesulo Area, Atagba	IB. S.E
18.	7.3580	3.8377	Alaro Downstream, Apple Area 1, Off Akala Expressway	IB. S.E/OLUYOLE
19.	7.3692	3.8525	Oke Ayo River, Apata-Gada Area,	IB. S.E/OLUYOLE
20.	7.3673	3.9441	Akilapa Stream, OgbereBabanla Area	IB. S.W
21.	7.3829	3.9624	Akinfenwa stream, Aroye Phase II, Gbaremu junction-Hope Road, Airport Area, Ibadan.	IB. S.W/IDDO
22.	7.3494	3.8870	Gbanamu Stream, Scout Camp, Felele	IB. S.W/IDDO
23.	7.3491	3.9036	Odo Oba Elere Stream.	IB. S.W/IDDO
24.	7.3170	3.8981	Ajofeebo Stream, Soka Area	IDDO
25.	7.3033	3.9321	GbaroAjimosun stream	LAGELU
26.	7.3786	4.0075	Oke-Omi Phase II Ogungbade	LAGELU

SN	Latitude(°N)	Longitude(°E)	Name of Drainage/Rivers/stream	LGA
27.	7.3715	4.0322	Akinjole Stream, Oluwo Area.	LAGELU
28.	7.4024	,4.0077	Peace estate stream, Kukumanda	LAGELU
29.	7.4241	4.0186	Ahoyaya River, Olodo Area	LAGELU
30.	7.3896	3.9430	Yokelepekun Stream	OLUYOLE
31.	7.3672222	3.9441667	AKILAPA STREAM OGBERE BABANLA AREA	ONA ARA
32.	7.3805556	3.9619444	AKINFENWA STREAM-AROYE PHASE II	ONA ARA
33.	7.3402778	3.9466667	AYEDADE OROGUN STREAM	ONA ARA


Plates 1.1 to 1.2: Onilu channel blocked by vegetation and solid waste,


Plates 1.3 to 1.4: Odo Eran Stream Moniya blocked by vegetation and solid waste


Plates 1.5 and 1.6: Labi Stream at Moniya, blocked by vegetal growth

B. Clearing of Blocked Drainages

In several areas of the state, some drainages have been blocked over time. The blockages are the result of indiscriminate disposal of solid wastes, gradual siltation, weed growth and collapse of drainage structures, or a combination of these factors. The proposed works include the removal of silt and solid wastes which have constituted blockages along the drains, thus leading to occurrence of flash floods. In all cases, clearing of drains will be to the base of the drain. There will be no widening or rehabilitation of existing drains.

It is anticipated that a very large proportion of materials to be excavated from blocked drains will be solid wastes. As such, apart from constituting obstruction to regular routes along which these drains are located, the solid wastes will also constitute aesthetic disturbances. Therefore, all excavated materials from the drainages will be carted away to designated dump sites. The designated dumpsites and their relative locations are indicated in the waste management plan presented as Annex 6 to this report.

Table 1.2 shows a list of the areas where blocked drainages occur and have been earmarked for clearing while Plates 1.7 to 1.12 show some of the blocked rains across the city.

Table 1.2: List of sites where blocked drainages occur across the state

SN	Latitude(^{O}N)	Longitude(^{O}E)	Name of Drainage/Rivers/stream	LGA
1.	7.3825	4.01	OLODE-ABATITI-KUKUMADA JUNCTION	EGBEDA
2.	7.3930556	3.975	ALAKIA-ISEBO-IYANA CHURCH	EGBEDA
3.	7.4083333	3.91	PALIAMENT ROAD	IB. N
4.	7.3983333	3.9044444	YEMETU OMOLEWA-UCH ROAD	IB. N
5.	7.3872222	3.9019444	TOTAL GARDEN ADEOYO	IB. N
6.	7.4008333	3.9202778	GOVT. HOUSE-OFFICER'S MESS CUSTOME	IB. N
7.	7.4166667	3.9108333	AWOLOWO JUNCTION-SECRETARIAT AREA	IB. N
8.	7.4288889	3.9036111	SANGO ELEWURE U.I JUNCTION	IB. N
9.	7.4477778	3.9147222	AGBOWO U.I JUNCTION	IB. N
10.	7.4283333	3.9108333	AWOLOWO ROAD BODIJA	IB. N
11.	7.7208333	4.0680556	ADEOYO AGBADAGBUDU BEERE	IB. N./S.E
12.	7.3941667	3.8875	SAWO CLOSE, SALVATION ARMY	IB. N.E
13.	7.3858333	3.9044444	TEMIDIRE-BEERE-OJA'BA	IB. N.E/S.E
14.	7.3891667	3.8858333	SALVATION ARMY	IB. N.W
15.	7.3669444	3.89	POPOYEMOJA-OKE-ADO ROAD	IB. N.W
16.	7.3833333	3.8786111	OKEBOLA-SEVENTH DAY-IYANGANKU	IB. N.W
17.	7.3775	3.8566667	AGO TAYLOR-ODO ONA ROAD	IB. N.W
18.	7.3844444	3.8713889	ANCE BUILDING ALESINLOYE IYANGANKU	IB. N.W
19.	7.3913889	3.8766667	ONIREKE JUNCTION, MAGAZINE ROAD	IB. N.W
20.	7.39	3.8825	J.ALLEN IDO GATE-DUGBE ALAWO	IB. N.W
21.	7.3986111	3.8905556	MOKOLA ODE OOLO, ABEBI ROAD	IB. N.W/S.E.
22.	7.625	3.9083333	U.I JUNCTION- OJOO JUNCTION	IB. N/AKINYELE
23.	7.3861111	3.905	BUS STOP-GBENLA-OJE	IB. N/N.E
24.	7.3488889	3.8805556	FELELE STRAIGHT	IB. S.E
25.	7.3344444	3.9283333	MUSLIM MOSFALA-PEGBA ROAD	IB. S.E
26.	7.3583333	3.9155556	MUSLIM ODINJO-ELETA ROAD	IB. S.E
27.	7.3986111	3.8886111	BOVAS-FLYOVER MOKOLA	IB. S.W
28.	7.38	3.8186111	APATA BENBOW ROAD	IB. S.W
29.	7.3819444	3.8288889	APATA OLUYOLE ESTATE RING ROAD	IB. S.W
30.	7.4011111	3.8980556	QUEEN ELIZBETH ROAD	IB.N
31.	7.4272222	3.8794444	IJOKODO JUNCTION-WAEC POLY	IDDO
32.	7.4125	3.8655556	BENJAMIN-ELEYELE-OLUSEYI ROAD	IDDO
33.	7.4805556	3.8991667	ELEYELE (OFFICE REHABILITATION)	IDDO
34.	7.3375	3.8622222	ORITA CHALLENGE-ODO ONA ELEWE	OLUYOLE
35.	7.3841667	3.9269444	OREMEJI AGUGU-ATOLU OGBERE	ONA ARA
36.	7.3813889	3.9638889	HOPE ROAD-GBAREMU JUNCTION	ONA ARA
37.	7.3577778	3.8680556	STATE HOSPITAL ROAD, OFF RING ROAD	IB. S.W


Plates 1.7 to 1.8: Collapsed portion of drain and blockages at Gbenla, Oje


Plates 1.8 to 1.10: Silted and blocked drainage at Temidire, Oje


Plates 1.11 to 1.12: Drain blocked by silt and vegetation along Awolowo Road, Bodija.

Project Schedule

The project is planned for implementation before the onset of the heavy rains. Usually the intense rainfall period in Ibadan is between June and August, each year. During this period, more than 40% of annual rainfall occurs and it is usually during these periods that the most grievous damages associated with flooding occurs. A maximum period of 4 weeks is anticipated for the completion of all dredging and clearing works. In order to fast tract this, the works will be split into lots that will be handled by different contractors.

1.4 Objectives of the ESMP

The overarching objective of the ESMP is to ensure that the environmental and social impacts likely to arise from the project activities are identified and appropriate mitigation measures integrated into project implementation and operation in order to protect human and environmental health.

The specific objectives of the ESMP are to:

- Comply with applicable national environmental legislations, standards and guidelines as well as the World Bank's environmental and social safeguard policies;
- Achieve and demonstrate sound environmental performance based on the principle of continual improvement;
- Identify potential positive and negative environmental and social impacts that may arise from the implementation of the project;
- Proffer management actions that need to be implemented in order to mitigate the negative environmental and social impacts and enhance the positive impacts of the project;
- Propose environmental and social monitoring programmes that will ensure that mitigation measures are implemented and effective during project execution and timely corrective actions are taken where required;
- Propose institutional arrangements, incorporating roles and responsibilities of stakeholders involved in management actions and monitoring;
- Outline the implementation schedule and reporting procedures for the ESMP;
- Communicate environmental and social expectations and requirements throughout the project life cycle; and
- Ensure the allocation of sufficient resources for effective implementation.

1.5 Approach and Methodology

This ESMP was prepared in accordance with the World Bank safeguard policies and the Nigerian environmental assessment guidelines and procedures. The methodology essentially entailed: Preliminary site visits, literature review/desktop studies, field studies, community/stakeholder consultations and the preparation of the ESMP.

1.5.1 Literature Review/Desktop Studies

Literature review and desktop studies were undertaken to obtain information on the proposed project as well as the environmental and socio-economic conditions in the project area.

The documents reviewed included:

- Project Appraisal Document (PAD);
- Environmental and Social Management Framework (ESMF);
- World Bank Safeguards Policies;
- Baseline information relating to the physical, biological and socio-cultural environment of the project site;
- Federal and state environmental laws regulations, decrees, acts, policies and guidelines;

1.5.2 Field Studies

Field studies were carried out with a view to gather additional information on the baseline environmental and social conditions that may potentially be affected during project implementation and operation phases. This involved in-situ measurements, visual assessment/observations, and unstructured Key Informant Interviews (KIIs).

1.5.3 Stakeholder Consultations

The planned activities are largely beneficial. However, rapid stakeholder consultations were carried out. The consultations built on previous engagements of the MoEnvWR with site communities who presented the requests. In some cases, some likely impacts such as loss of crops and other plants along waterways are anticipated, some level of discussions were held with people along the project locations. Details of some of these stakeholder consultations are presented in Chapter 5, while evidence of stakeholder meetings in some locations are presented in Annex 5. Such discussions aimed at obtaining their views on the planned activities, and the concerns they may have with regards to project implementation. Through this process, concerns and issues were addressed; views and inputs as regards the potential environmental and social impacts of the project and proposed mitigation/enhancement measures were obtained.

CHAPTER TWO: DESCRIPTION OF ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

2.1 Introduction and Methodology for Data Collection

This report depended extensively on literature or secondary information, particularly recent environmental and social studies around the project area, including ESMPs already approved by the World Bank for some IUFMP projectssuch as the ESIA for Eleyele Dam; ESIA for Alaro Poly Bridge Project, ESMP for Saasa Osajin Culvert; ESMPs for Ola Adua, Cele Rainbow, Ogbere Pegba, Kudeti Channels, Orogun Channel, Ogbere Channel, etc. for various locations within the recently approved 13 priority sites; ESIAs and ESMPs for projects within the first pool of long term investment projects. In addition however, some in-situ measurements were carried out at the various sites. These measurements covered air quality and noise level as well as water quality. Details of the sampling methodology for these environmental components are presented below:

2.1.1 Air Quality and Noise Sampling

Ambient air quality and noise level measurements were carried out on site using in-situ digital air quality monitoring equipment. Measurements were taken at various points around the various project site. Measurements were taken with due considerations for upwind and downwind directions. Table 2.1 shows a list of equipment used for this study.

Table 2.1: List of Air Quality and Noise Measurement Equipment Used in the Study

Parameter	Equipment
Total Suspended Particulate (TSP)	Haz Dust Digital Dust Indicator
Hydrogen Sulphide (H_2S)	Crowcon Gasman
Carbon monoxide (CO)	COM4 - CO indicator
Nitrogen Oxides (NO_X)	Crowcon Gasman
Sulphur Oxides (SO_X)	Crowcon Gasman
Noise level	Rion Sound Level Meter

The general sampling plan involved collection air samples around designated work areas (including control points). Some of the equipment used for air sampling are shown in Plate 2.1.

Plate 21: Some of the equipment used for in-situ measurements of air quality and noise levels

2.1.2 Water Quality

Water samples were collected by simple direct dip method using sample containers at proposed dredging locations. The water samples were collected for in-situ measurements only. At each sampling point, *in situ* measurements were taken using an Extech Water Quality Kit, equipped to sample 7 parameters. The field sample data sheets were appropriately completed at each sampling point. The parameters covered at each point are: pH, Conductivity, TDS, Salinity, DO, Temperature and Turbidity.

Plate 2.2 shows the sampling equipment used for in-situ water measurements.

Plate 2.2: ExTech In-situ Water Kit for Measuring 7 Parameters

2.2 Environmental Baseline Conditions

2.2.1 Climate /Meteorology

The climate of the project area and its immediate environment is influenced by the tropical and continental air masses which are associated, respectively with the north-east and moisture-laden monsoon south-west winds (Ojo, 1972). The movement of these air masses results in the two weather seasons – the wet season from April to November, the dry season from December to March typical of the project area.

Summary of climatological data for the Ibadan area, based on historical data from the Nigerian Meteorological Institute (NIMET) for the years 2002 to 2016 is presented in Table 2.2.

Table 2.2: Summary of climatic characteristics of the Ibadan area

Month	Average Rainfall (mm)	Temperature C				Relative Humidity (%)		Average Sunlight (hrs)
		Average		Recorded				
		Max	Min	Max	Min	am	Pm	
January	28	31	23	35	17	84	65	6
February	46	32	25	36	19	83	69	7
March	102	32	26	37	16	82	72	6
April	150	32	25	37	21	81	72	6
May	269	31	24	40	21	83	76	6
June	460	29	23	34	21	87	80	4
July	279	28	23	34	20	87	80	3
August	64	28	23	36	19	85	76	3
September	450	28	23	34	20	86	77	3
October	286	29	23	36	21	86	76	5
November	69	31	24	37	21	85	72	7
December	25	31	24	37	19	86	68	7
Min	25	28	23	34	16	81	65	3
Max	460	32	26	40	21	87	80	7
Average	186	30	24	36	20	85	74	5

Source: NIMET, Oshodi

Rainfall

Rain falls in virtually all the months of the year with annual average of 186mm. Rainfall pattern shows double maxima, with a relatively dry period occurring in August. Two seasons are identifiable: the rainy season (April to November) and the relatively dry season (December to March). Rainfall is heaviest during the months of June and September. This period accounts for over 50% of the total annual rainfall whilst only about 7.5% of annual total rainfall occurs between November and February (Figure 2.1).

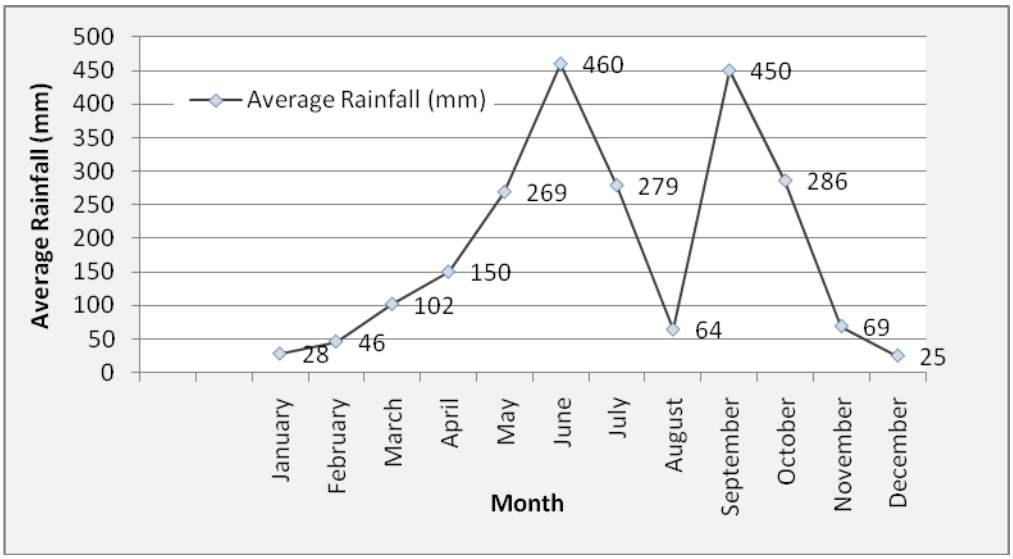


Figure 2.1: Rainfall Characteristics of the Proposed Project Area

Temperature

Based on the average of temperature data obtained from the NIMET for 2002 to 2016, Temperature is relatively constant throughout the year, with annual ranges of 28 to 32^{0}C and 23 to 26^{0}C for maximum and minimum temperature records respectively. Mean monthly maximum and minimum temperatures are 30 and 24^{0}C respectively. Lowest temperatures are recorded between July and September while highest temperatures are recorded between October and March (figure 2.2)

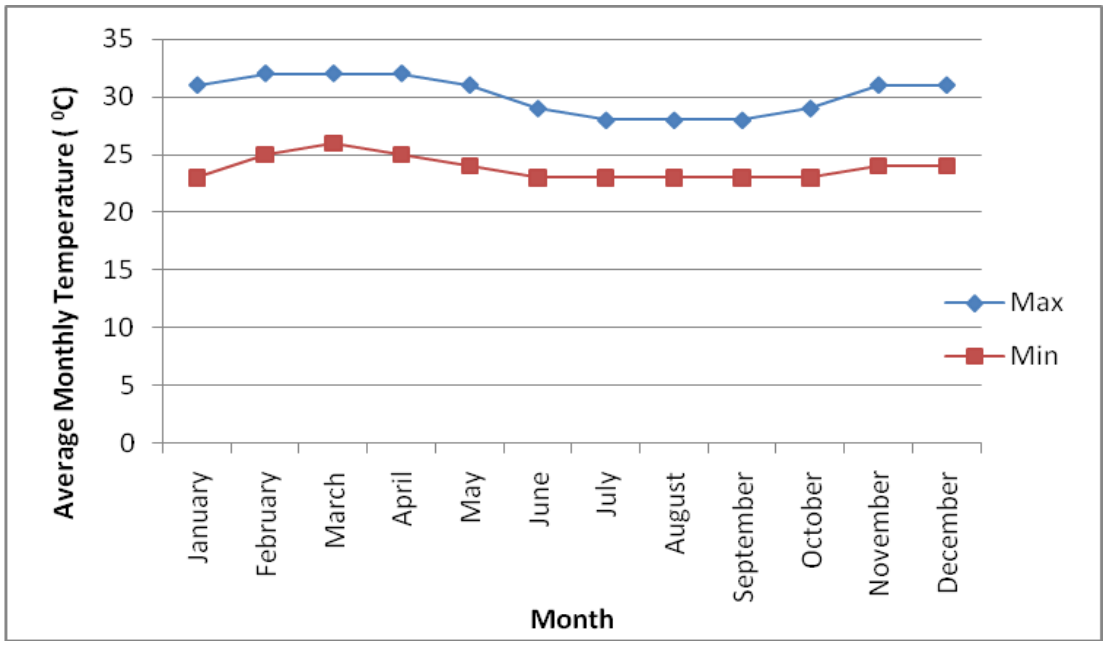


Figure 2.2: Temperature characteristics of the proposed project Area

Wind

The project area has a calm weather with wind speed ranging between 2-5 m/s. The wind speed is lower than 2.7m/s in about 60% of the time, and seldom (<2% of the time) exceeds 3 m/s. Wind speeds are generally lower in the night than during the day with the highest wind speed recorded at the onset of the rainy season. The prevailing wind direction (about 55% of the time) is South West to north east (2100 - 2400). However, during the dry season, winds are distributed in all directions, but predominantly north east to south-west.

2.2.2 Geology and Hydrogeology

The project area falls within the Dahomey sedimentary basin, a basin known to have resulted from events associated with the break-up of Gondwana and subsequent opening of the southern Atlantic. Deposition was in a fault-controlled depression, bounded by faults and other tectonic structures of the Romanche Fault Zone on the west, and by the Benin Hinge line, also a major fault structure, on the east.

2.2.3 Air Quality and Noise Level

The air quality in the study area is fairly good as shown by the results of the ambient air quality measurement around the area. Suspended Particulate Matter (SPM were very low in all cases, and reflected, to some extent, the scrubbing effect of rainfall, since sampling was carried out in the rainy season. Virtually all the gases tested were not detected. Although carbon monoxide was detected in some locations, it was way below the regulatory limit of 10ppm stipulated for 8hr occupational exposure by the FMEnv.

The measured noise levels were all below the FMEnv regulatory limit of 90 dB (A) over an 8 hour exposure period.

A summary of in-situ air measurements across the project sites is presented in Table 2.3 while detailed site-specific measurements are shown in Annex 1.

Table 2.3: Air Quality and Noise Measurements in the Study Area

Parameter	Unit	FMEnv Standards	Minimum	Maximum	Average
CO	Ppm	10	0.0	2.5	0.7
VOC	Ppm	-	0.0	0.0	0.0
SO_2	Ppm	0.14	0.0	0.0	0.0
NO_2	Ppm	0.06	0.0	0.0	0.0
H_2S			0.0	0.0	0.0
SPM	µg/m³	250	19	68	45
Noise	dB	90	35	78	54

Source: Fieldwork, April, 2018

2.2.4 Surface/Groundwater

Physico-chemistry

A summary of the results of in-situ water measurements around proposed dredging locations are presented in Table 3.4 while detailed results are presented as Annex 2. Generally, some of the parameters sampled, in several locations, especially turbidity were above the FMEnv acceptable limits, probably a reflection of the effects of solid waste inputs and flood runoff from inland areas.

Table 3.4: Summary of In-situ water measurements

	pH	**Cond mS/cm**	**TDS mg/l**	**Salinity ‰**	**Turbidity NTU**	**Temp °C**	**DO mg/l**
Minimum	6.2	0.02	42	0	450	28.9	3.5
Maximum	6.5	0.06	57	0	600	30.1	5.4
Average	6.4	0.04	48	0	490	29.8	4.3
FMEnv Limits	6.5 to 8.5		100	-	500	45	-

Generally, all water samples were in the acidic range with pH ranging between 6.2 and 6.5. Salinity was 0.0‰ across the various locations, indicating that the area is exclusively freshwater. DO was generally low across the area, with most samples recording values below 4.5mg/l, for the survival of most aquatic life. The waters were generally turbid ad this is hardly unexpected given the high volume of wastes evident in the waters, as observed during field sampling (Plates 2.3 and 2.4).

Plate 2.3: Turbid water of the channel around IITA Powerline area

Plate 2.4: Turbid water of Wofun Stream

2.2.5 Biological Environment

Vegetation and Crops

Generally, dense vegetation occurred mostly along riverbanks, especially in low population density and undeveloped areas such as occurred in Akinyele and Lagelu LGAs. Vegetation consisted mostly of riparian species along the waterways in undeveloped areas. Prominent plants were grasses and a lot of aquatic weeds, while a few trees occurred in areas that had no received recent human impacts. Along the banks of many of the streams a lot of crops such as plantains and bananas as well as vegetables, cassava and maize are being grown. Table 2.5 shows a list of the vegetation observed around the area while Plates 2.5 to 2.8 show vistas of observed vegetation across the project locations.

Table 2.5: List of plants observed around the area

	Biological Name	Common Name	Habit
1.	*Ageratum conyzoides*	Goat weed	Forb
2.	*Alchornea cordifolia*	Christmas Bush	Tree
3.	*Andropogon gayanus*	Elephant grass	Grass
4.	*Anthontha macrophylla*		Shrub/Tree
5.	*Amaranthus spinosus*	Spiny amaranth	Forb/small plant
6.	*Aspilia Africana*	Hemorrhage plant	Forb/small plant
7.	*Axonopus compressus*	Carpet grass	Grass
8.	*Boerharia diffusa*	Pigweed	Forb/small plant
9.	*Brachiaria deflexa*	Signal grass	Grass
10.	*Capsicum spp.*	Pepper	Forb/small plant
11.	*Carica papaya*	Pawpaw	Tree
12.	*Chromolaena odorata*	Siam weed	Forb
13.	*Colocasia esculenta*	Cocoyam	Herb
14.	*Commelina benghalensis*	Tropical Spiderwort	Forb
15.	*Cyperus esculentus*	Yellow nutsedge	Sedge
16.	*Elaeis guineensis*	Oil palm	Tree
17.	*Eragrostis tremula*		Grass
18.	*Euphorbia heterophylla*	Milkweed	Sedge
19.	*Euphorbia hirta*		
20.	*Euphorbia hyssopifolia*		
21.	*Fiscus exasperata*	Sandpaper tree	Tree
22.	*Gomphrena celosiodes*		
23.	*Luffa aegyptica*	Sponge	Creeper
24.	*Lycopersicum esculentum*		
25.	*Mangifera indica*	Mango	Tree
26.	*Manihot esculenta*	Cassava	Shrub
27.	*Musa paradisiaca*	Plantains	Tree
28.	*Musa sapientum*	Banana	Tree
29.	*Panicum maximum*		Grass
30.	*Paspalum vaginatum*		Grass
31.	*Phyllanthus arnarus*		Sedge
32.	*Setaria bartata*		Grass
33.	*Synedrella nodiflora*	Nodeweed	Herb
34.	*Talinum triangulare*	Waterleaf	Herb
35.	*Tridax procumbens*		Herb
36.	*Truimfetta cordifolia*		
37.	*Vernonia cinerea*	Ironweed	Herb




Plates 2.5 to 2.8: Vistas of vegetation across the project area

Wildlife

Very little wildlife species were found across most of the area, due to human presence. Quite a number of avian species, including aquatic birds such as egrets, plovers and birds of gardens and farmlands like doves, village weavers, etc. were observed in the course of field sampling. Rodents and monkeys were reported to inhabit some of the riparian forests along the rivers/streams. Based on visual observation, the bird species observed are presented in Table 2.6 while some of the birds sighted are shown in Plates 2.9 to 2.12.

Table 2.6: Avian species sighted in the course of fieldwork

Common Name	Biological Name
Senegal Coucal	*Centropus senegalensis*
Palm-nut Vulture	*Gypohierax angolensis*
Black Kite	*Milvus migrans*
Red-eyed Dove	*Streptopelia semitorquata*
Vinaceous dove	*Streptopelia vinacea*
Blue-breasted Kingfisher	*Halcyon malimbicus*
Square-tailed Rough-winged Swallow	*Psalidoprocne nitens*
Plain-backed Pipit	*Anthus leucophyrs*
Carmelite Sunbird	*Nectarinia fuliginosa*
Olive-bellied Sunbird	*Nectarinia chloropygia*
Common Bulbul	*Pycnonotus barbaetus*
Grey-headed Sparrow	*Passer griseus*
Village Weaver	*Ploceus cucculatus*
Cattle Egret	*Ardeola ibis*

Plate 2.9: Cattle Egret (*Ardeola ibis*) observed around the project site

Plate 2.10: Black Kite (*Milvus migrans*) in flight over the project area

Plate 2.11: The Great White Egret (*Egreta alba*) foraging in a stream within project area

Plate 2,12: The Red-eyed dove (*Streptopelia semitorquta*) observed around project area

2.3 Socio-economic Background on the Project Locations

Given the fact that the current project is largely beneficial and the urgency attached to its prompt implementation, detailed socio-economic assessment could not be carried out. Therefore, this section depended mostly on secondary data, obtained from previous studies within and around Oyo State as well as observational information made during site visits in the course of ESMP preparation.

2.3.1 Overview and Historical Perspectives on Ibadan

Oyo State is homogeneous, and has a population of about 8million people. It is predominantly occupied by Yoruba people. Within the State however, there are sub-ethnic groups with distinct dialect peculiarities.

Ibadan, the capital city of Oyo State and the third largest metropolitan area in Nigeria, after Lagos and Kano. It is the largest metropolitan geographical area in West Africa (1,190 sq mi or 3,080 km^2) with a highly built up and dense population. The city is frequently exposed to floods. Notable of these events, was the Ogunpa disaster of year 1980 which was recorded to have resulted in a death toll of 500 people .The latest flood event took place after a downpour rainfall of 187.5 mm (about 7.38") occurred in about 4-5 hours on August 26, 2011, induced by the overflow from Eleyele reservoir causing the death of more than 120 people and serious damages to infrastructure (many bridges collapsed, roads washed away, and substantial property loss) (Government's Task Force Report, November 2011). Based

on government assessments after the floods the following impacts of the flood disaster have been highlighted: (i) the housing sector suffered the biggest impact with about 2100 homes partially or severely affected, estimated to approximately Naira 2 billion (US$12.5 million equivalent); (ii) the agriculture sector experienced damages to hardware, infrastructure, fish and food stocks (losses included the actual year's production) estimated at over Naira 300 million (US$1.9 million equivalent); and (iii) substantial damages occurred to the transport sector, particularly bridges and culverts, estimated to have cost more than Naira 4 billion (US$25 million equivalent). The water sector, including Eleyele dam, experienced substantial damages and losses.

2.3.2 Population Structure and Distribution

The National Population Commission (NPC) published population figures for Nigeria, by State and Local Government Areas. Based on this extrapolation, the population figure for Oyo state (2011) was put at 6,615,059 people, consisting of 3,320,760 males and 3,294,299 females. The population figure was further extrapolated to 2018, using the national growth rate of 2.83% annually.

Population figures for Oyo State is currently estimated at 8,050,527, consisting of 4,041,364 males, and 4,009,562 females. Table 2.7 shows the Population figures for Oyo State, disaggregated by LGAs. For 2008 to 2011, and for 2018..

Oyo State has one of the largest numbers of urban centres with population of 50,000 or more. These include lbadan, Ogbomoso, Oyo, lseyin, Shaki, Eruwa, lgboho, Okeho, lgboOra and lgbeti amongst others. The population is therefore fairly uniformly distributed over the state.

Table 2.7: Projected Population Of Oyo State By Local Government, 2008 – 2011 and 2018

Local Government Area	Projected Population				
	2008	2009	2010	2011	2,018.00
Afijio	141,485	146,378	151,441	156,678	190,677
Akinyele	226,715	234,556	242,668	251,061	305,541
Atiba	180,085	186,313	192,756	199,423	242,698
Atisbo	117,703	121,773	125,985	130,342	158,626
Egbeda	303,602	314,102	324,965	336,203	409,159
Ibadan North	354,766	367,036	379,729	392,862	478,113
Ibadan North East	329,800	341,206	353,006	365,215	444,467
Ibadan North West	164,867	170,569	176,468	182,571	222,189
Ibadan South East	285,206	295,070	305,275	315,833	384,369
Ibadan South West	303,018	313,498	324,340	335,557	408,373
Ibarapa Central	110,508	114,330	118,284	122,374	148,929
Ibarapa East	125,428	129,765	134,253	138,896	169,036
Ibarapa North	107,350	111,063	114,904	118,878	144,675
Ido	111,411	115,264	119,251	123,375	150,147
Irepo	129,771	134,259	138,902	143,706	174,890
Iseyin	273,606	283,068	292,858	302,986	368,734
Itesiwaju	136,355	141,071	145,950	150,997	183,763
Iwajowa	110,084	113,891	117,830	121,905	148,358
Kajola	214,638	222,061	229,741	237,687	289,265
Lagelu	158,556	164,040	169,713	175,583	213,685
Ogbomosho North	212,852	220,213	227,829	235,709	286,858
Ogbomosho South	107,442	111,158	115,002	118,980	144,799
Ogo Oluwa	69,786	72,199	74,696	77,280	94,050
Olorunsogo	87,062	90,073	93,189	96,412	117,333
Oluyole	217,778	225,309	233,102	241,163	293,495
Ona-Ara	284,258	294,089	304,260	314,783	383,091

Local Government Area	Projected Population				
	2008	2009	2010	2011	2,018.00
Orelope	111,322	115,172	119,155	123,276	150,027
Ori Ire	159,921	165,452	171,174	177,094	215,523
Oyo East	132,827	137,421	142,173	147,090	179,009
Oyo West	146,059	151,110	156,336	161,743	196,841
Saki East	116,624	120,657	124,830	129,147	157,172
Saki West	292,497	302,612	313,078	323,906	394,194
Surulere	150,214	155,409	160,784	166,344	202,441
Total	**5,973,596**	**6,180,187**	**6,393,927**	**6,615,059**	**8,050,527**

2.3.3 Traditional Leadership structure

Leadership within the communities covered by this study are typical of Yoruba traditional structure. At the apex of the structure is the King (*Oba*) who rules and reigns over the entire kingdom. The *Oba is* the *Olubadan* of Ibadan. At the community level, the head is referred to as the *Baale*. The *Baale*, though the highest authority amongst the communities pledges and remains loyal to the *Oba* under whose jurisdiction the community falls. The *Baale* is charged with the traditional leadership mandate of running the affairs of the community. The *Baale* iss supported and assisted by the Council of elders in the governance of the community. The *Baale* and His Council members meet on schedules and as occasions demand to make decisions on the welfare and development of the communities. Various associations exist at different segments of the community. The associations are good organs of socialization and political administration. Figure 2.3 shows the traditional leadership structure in the study area.

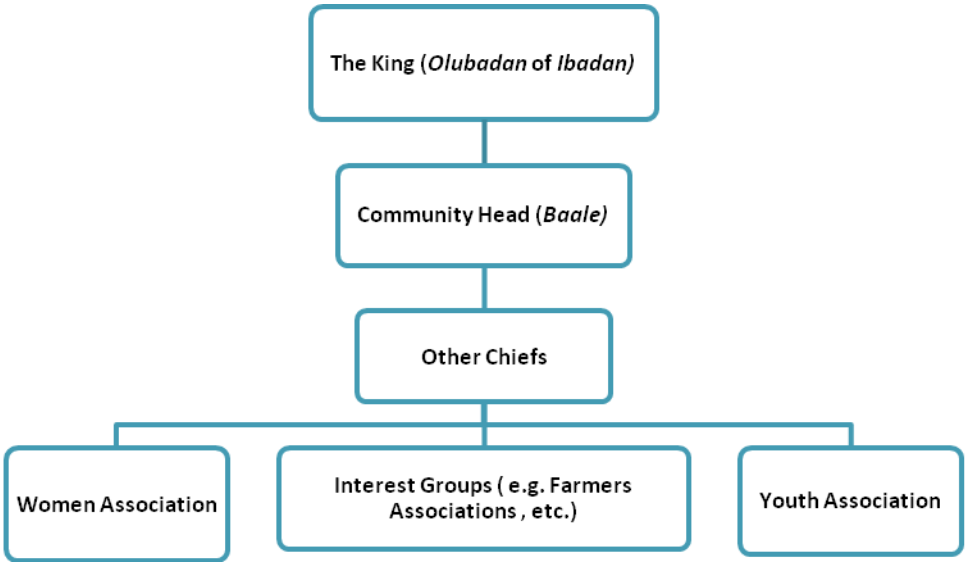


Figure 2.3: Traditional Leadership Structure in the Study Area

2.3.4 Urban Pattern

The Ibadan city has expanded over the years, the built-up area had the major rapid expansion in last 16 years. The growth in area has been along the highway with infill development taking place as communities become established. The industrial and commercial land acquired in the city is limited indicating formal economy is small and not creating sufficient jobs. The characteristic of living in the urban is the differentiation of the city into a core, traditional area occupied largely by the indigenous population and a largely migrant, sub-urban city. The inner core areas of the city over the span of time have grown by the process of densification which eventually results in the emergence of the informal settlements. The natural spaces around the houses in the traditional core area were built up to provide for more dwelling houses within traditional family compounds as family units grew larger. The compound disintegration is a direct reflection of changes in the socio economic and cultural conditions

of people. About 26,254 housing units are located in the core area of the city[3]. However, the area always suffered from inadequate provision of infrastructural facilities such as absence or irregular pipe-borne water supply, poor or nonexistent drainage and sewerage systems and inadequate sanitation facilities. The houses in the areas are usually in poor condition and the provision of community facilities and utilities is insufficient. There are numerous older buildings with historic value that tell the story of Ibadan's importance and growth, but many are in a poor state of repair.

The sub urban city is a mix of neighbourhoods which are well defined and better planned residential areas compared to the core areas. While there are some areas in the sub urban city which are mixed agglomerations which cannot be clearly defined based on socio economic class or residential density. Nevertheless, a pattern of haphazard development is still evident especially in the newly developed and peripheries of the city. This is an outcome of the Nigerian Land Use Law of 1978 which hampered the preparation of a layout[5]. Therefore, the urban arrangement in the city has taken place with violated aspects of building regulations such as plot coverage, setback stipulations, room size, provision of utilities and the change of use from a wholly residential use to the incorporation of home-based enterprises.

2.3.5 Economy

Ibadan is regional hub for trade and markets, since the city is located on the operational railway route in the Southern region connecting Lagos to Kano in the North of Nigeria. Trade and commerce forms the predominant employment sector in the city with 40 % of workforce engaged in the trading of cassava, cocoa, cotton, timber, rubber and palm oil. The main industries in the area include the processing of agricultural products; tobacco processing and cigarette (manufacture); flour mills, leather-working and furniture-making.

However, the rapid population growth of the city has increased substantial pressure on urban infrastructure and social facility creating large gaps in the provision across the city. The city's manufacturing sector has stagnated in recent years as pressures on infrastructure and services deterred large companies from setting up operations in Ibadan, in some cases even relocating to other urban centers. This exacerbates the problem of insufficient job opportunities among base industries for the local working population which seeks alternative opportunities in the informal sector. Ibadan city has also a wide and vibrant MSME sector in both formal and informal sectors. The system needs great support in terms of finance and provision of necessary infrastructure. The peri urban areas on the other hand show challenges as they are not usually usefully integrated into spatial planning and economic development frameworks to maximize the income and employment opportunities it presents for the urban population.

2.3.6 Land Use and Land Cover

The change rates of the major land use types from 1984 to 2013 which have decreased are vegetation and waterbody. However, the low and high-density settlement and bare ground/ rock outcrop areas increased. The existing land use pattern of Ibadan prepared for the study shows a clear distinction between the predominantly residential Ibadan built-up area and agricultural use in rural areas. The total land area of the eleven local governments of Ibadan is 3473 km^2, out of which about 18.51% falls under forest category and 31.04% in the vegetative land. Open/Barren land in the city occupies 23.40% while agricultural land is 12.27%. Total built-up area in the city is 13.80%, which is mainly concentrated in the centric urban areas. Water bodies occupies nearly 1% of the city land.

2.3.7 Infrastructure

The infrastructural development of city has been unable to keep up with the urbanization in Ibadan. The city lacks proper infrastructural facilities such as piped water supply, sanitation facilities, electricity etc. about 78% of the population is still dependent on boreholes and wells whereas the government is only able to supply piped water to 6% as per this study. The households also lack the basic sanitation facilities, about 55% have water closets, 28% have pit latrines while the rest 17% lack any basic sanitation facility.

The overall access to electricity in the Ibadan city is only 63% as per 2006 estimates with 72% in the inner areas. However, nationally the proportion is higher i.e. 85% implying that, with the increased availability of generators and rural electrification programs, Ibadan's households are now more likely to have electricity in their homes. Majority of the city population i.e., 45% burn their generated solid waste, while solid waste generated by other 20% and 17% of the population were collected by government and private organization. Nearly 14% of households dump their solid waste on open land and 4% in the nearby river channels. These solid wastes disposed on open land were transported through runoff during rainy season and reaches low-lying area. Moreover, these solid wastes subsequently block the bridges and culverts creating a major issue during rainy season. It is evident from this study that the solid waste collection system is available only for 37% of the total population. Nearly 14% of households dump their solid waste on open land and 4% in the nearby river channels. Over the last 5 years, with the help of household initiatives many Ibadan's households have improved water supply, toilet facilities and access to electricity; they are also more likely to use official means of refuse disposal.

2.4 Summary of Site-Specific Description of Project Locations

Table 2.8 below presents an overview of the baseline situation at each of the proposed intervention sites, The information presented in the tables is based on visual observation and documentation, at the various sites, in the course of preparing this ESMP report.

Table 2.8: Summary of General Observations in each of the Proposed Project Sites

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
	STREAM DREDGING LOCATIONS			
1.	Onilu Stream, Asamajana, Moniya	7.530807	3.891705	The stream is a semi perennial one in which some portions dry up in the dry season, but it generally has water in many parts all the year round.
2.	Elebu Stream, Asamajana	7.534345	3.897356	Site is located along Elebu Stream. The area shows signs of frequent inundation, Aquatic vegetation and solid wastes appear to be main causal agents of flooding. A couple of houses have been abandoned due to the menace of flooding
3.	Odo Eran, Moniya	7.533912	3.906995	Located along Iseyin road, this area is commercial and residential. Discussions with people along the area indicate that they would be happy to receive the succor offered by the proposed project.
4.	Labi Stream, Moniya	7.525881	3.920771	A large portion of this area is built up residential. Residents affirmed strongly on the effects of flooding, including the fact that a road link between different parts of the community has been severed. However, the dredging would alleviate the impacts of flooding in the area.
5.	IITA Power Line	7.481275	3.391382	The stream is almost like a plain ground due to siltation and vegetal cover. Dredging will create an efficient channel for the free flow of water, thus impacting positively on the neighborhood. Residences are located not too far away from the floodplains and so are susceptible to impacts of flooding
6.	IITA, Downstream Ona River	7.479890	3.902695	Located on a floodplain. Periodically inundated due to vegetal growth and wastes from upstream areas. Some farming activities along the banks. There is enough space to allow for spoil to be dumped by the banks.
7.	Goodness Estate Stream	7.496038	3.924343	Located within a residential estate which is regularly flooded during heavy rains. Main issue appears to be due to vegetal growth which has clogged the waterway, thus impeding water flow. There is enough space for wastes to be piled on the banks.
8.	Akobo Estate Stream	7.425000	3.942222	There were communal efforts in fixing some part of the drainage that ameliorate the grievous effect of the flooding in the area. The dredging activities would impact positively on the expectant community in no small measure.
9.	Sooko stream, Akobo Ojurin	7.447668	3.951695	This is located in a busy area along Akobo road. Drainage is blocked by water plants and solid wastes. Traders spoke that floods use to cover the highway and prevent traffic movement. The spoil is largely waste material than silt and so will need to be moved offsite for disposal.

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
10.	Kute Stream	7.436378	3.982220	The stream is heavily clogged with wastes and silt materials. Based on discussions with residents and other nearby dwellers, this usually results in the road and neighbouring shops and houses to be inundated periodically during heavy rains
11.	Wofun Stream	7.425708	3.986235	This stream is usually overflown causing flooding during heavy rains due to blocked channel. Dredging will reduce the impact of flooding in the area
12.	Oganla Stream, Olodo Bank Area	7.446607	4.012238	The main issues are blockage of the channel, leading to overflow of banks and adverse effects on neighbouring communities and residences. The clearing activities will have positive impact in the communities.
13.	SPAC AOFunmi tream, Poly Road, Sango	7.426633	3.895187	This site is located along the Sango to Eleyele Road. From all indications, it used to be a major flooding area. But the channel has been recently cleared through communal efforts, hence, dredging would have positive impact on the communities.
14.	Apata-Pete Stream, Cele Apata, via NNPC link road, Apata	Midpoint: 7.3830 Endpoint: 7.3803	Midpoint: 3.8180 Endpoint: 3.8199	The proposed dredging works will be carried out on two branches of the Pete stream which converge near the Alexander junction (*an intersection with the Apata-Benbow road also within the project catchment area).* There was visible history of flooding in the area. Densely vegetated flood plain with aquatic grass typical of most freshwater habitats A total river length of 2.5km will be dredged (1km on stream 1 and 1.5km on Stream II) which obviously will have positive impacts on the neighbouring communities.
15.	Akuru Eleta Stream Elebu, Off Akala Expressway	Midpoint: 7.3514	Midpoint: 3.8301	The Elebu Area is in Iddo LGA of Ibadan. Located off Akala Expressway, the Akuru-Eleta bridge links the Akuru and Eleta communities on either side of the bridge. The bridge is the crossing on the stream at this location and can be accessed from the Odunade bus stop in Elebu Area. The river is sparsely vegetated with aquatic grass typical of most freshwater habitats. Historically narrow flow path of the stream is being widened by repeated flood events. The crossing structure appears strong and adequate. The stream will be dredged in both upstream and downstream locations of the bridge for total length of 1.5km.
16.	Bethel Estate, Bode Igbo Area, Abeokuta Road, Ibadan.	7.3980	3.7855	The stream to be dredged is called Bethel Stream, a tributary of the Ona River. The stream is so called due to its contiguity to Bethel Estate. Bethel Estate is located on the RHS of the Abeokuta road in Bode Igbo, Opposite Command Secondary School, Abeokuta Road, Ibadan. The area is generally well forested as a result of limited human interference with the natural environment. Rapidly meandering stream due to siltation in downstream areas and presence of rocky outcrops in few portions along stream bed were noted. Aquaculture is very prominent owing to the presence of the freshwater resources in the area. Fish ponds are dotted on ALTERNATE sides of the river channel. *Some of the ponds have been abandoned due to repeated damage done to the stock of fish by repeated flood events.* In view of this, the preparation of A/RAP is recommended for Bethel Estate. Thus, this ESMP will proffer mitigation measures for potential

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
				17.impacts of dredging activities on this location, but work will only commence on this site after the preparation and implementation of the site specific A/RAP.
17	Atumini Stream, Alesulo Area, Atagba	7.3210	3.9083	The area is accessible from the Lagos-Ibadan Expressway through the Boluwaji Bus-Stop on the expressway. The Alesulo-Atagba community is located about 2km off the main expressway. The midpoint of proposed dredging works is an old undersized twin pipe culvert. However, the community has added a twin cell box culvert to the existing pipe culvert. Proposed emergency works include the dredging of the Atumini stream up to 1.5km downstream and 500m upstream from the culverts. The banks of the stream is well vegetated and stream tide is low but becomes very high during heavy rainfall. There is evidence of sand mining in the area. The community has however made efforts to stop the practice. The bridge connects about 40 communities who are poorly served when floodwater overtops the bridge. The Alesulo area is largely residential with low income dwellers who are mostly artisans. The communities are well organized through their CDAs.
18.	Alaro Downstream, Apple Area 1, Off Akala Expressway	7.3580	3.8377	The neighbourhood is called Apple Community. It is located in Iddo LGA and can be accessed through Akala Expressway. The Alaro river courses through the community at this location. The culvert crossing at this point appears adequate but there are signs that the river bed is silted in the upstream and downstream areas thus requiring dredging/desilting to help the flow of the river. The banks of the stream is well vegetated. Stream tide is moderately strong but becomes very high during heavy rainfall. The heavy stream tide over repeated flood events has widened the river channel.
19.	Oke Ayo River, Apata-Gada Area,	7.3692	3.8525	The stream to be dredged in this location is located in the Oke Ayo area of Apata Gada in Ibadan South West Local Government Area. Typical grass in freshwater habitats is the dominant plant species around the stream. There are no signs of aquatic fauna in areas indicated for dredging Rocky protrusions are present in portions of the stream bed. River flow is shallow and sections of upstream areas of the stream are lower than downstream sections causing backflow during flood events. Dredging will revert the effect of flooding in the area.
20.	Akilapa Stream, Ogbere Babanla Area	7.3673	3.9441	The Akilapa Stream is a tributary of the Ogbere River in Akilapa, Ogbere Babanla Area of Ibadan. No signs of aquatic fauna in areas indicated for dredging and river flow is shallow. The river channel is narrower in the downstream section due to inadequate culvert serving as the crossing at the location. Inhabitants of the area are artisans and a few of them are professionals in private and public establishments. Dredging activities have positive impact on the communities.

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
21.	Akinfenwa stream, Aroye Phase II, Gbaremu junction-Hope Road, Airport Area, Ibadan.	Endpoint: 7.3780 Midpoint: 7.3829	Endpoint: 3.9627 Midpoint: 3.9624	The dredging activity will be carried out on the Akinfenwa stream which crosses the Gbaremu junction – Hope Road at a distance of about 1/2km from the Oremeji Bridge road. The Aroye community is a residential community. Dwellers are a mixture of retired people, government employees, workers in nearby private firms and few artisans. It is a fully urbanized neighbourhood. Dredging will impact positively on the communities.
22.	Gbanamu Stream, Scout Camp, Felele	7.3494	3.8870	The area is within the vicinity of Felele straight. It is accessible through the road leading to scout camp between Challenge and Molete. It is a very small stream that supports aquatic plants on its banks. Rivers flows through a moderately populated and built up urban area. A recently constructed drainage is largely responsible for the excess water deposited into the stream.The dredging activities will allow free flow of water in the already vegetal silted stream.
23.	Odo Oba Elere Stream.	7.3491	3.9036	The stream runs through a community in the core area of the city. The steam is silted up and has meandered substantially. There is very sparse vegetation in and around the stream bed. There is generally a regard for river setback provisions in the area. Most of the residents are engaged in various forms of artisanship and are eager for the dredging of the channel due to previous flooding episodes and associated losses.
24.	Ajofeebo Stream, Soka Area	7.3170	3.8981	The Ajoofeebo area is a community that can be accessed through the Soka overhead bridge on Lagos-Ibadan expressway. Typical grass in freshwater habitats is the dominant plant species around the stream. No signs of aquatic fauna in areas indicated for dredging. Rocky protrusions are present in portions of the stream bed. The river flow is shallow and sand-mining occurs in the area.
25.	Gbaro Ajimosun stream	7.3033	3.9321	There are a lot of oil palm trees within the planned dredging area and they will definitely be affected. Therefore, no dredging will take place here until A/RAP and/or livelihood restoration plan has been prepared, cleared by the World Bank and implemented effected. However, this ESMP will specify the dredging impacts mitigation and monitoring measures, since ESMP is a basic safeguards instruments for sustainable project implementation. Nevertheless, no work will commence on site until the site specific A/RAP is prepared and implemented.
26.	Oke-Omi Phase II Ogungbade	7.3786	4.0075	The river runs on a very wide course which is silted in several sections. Vegetation is typical of most freshwater habitats. The existing river course is adequate for the proposed 6m dredging. The area is on the outskirts of the city towards Ile-Ife and is sparsely populated.
27.	Akinjole Stream, Oluwo Area.	7.3715	4.0322	The stream passes through a thickly forested area on the outskirts of the city. The area previously occupied by a farming population has received an influx of new settlers in the last 20 years. However, it is still insulated from the challenges of urbanization. The ecological system across the river banks is still in pristine natural state. Little or no human activity is evident.
28.	Peace estate stream, Kukumanda	7.4024	,4.0077	The river channel is in a newly developing neighbourhood. The channel is quite narrow and overgrown with weeds. The crossing culvert is completely broken down and currently being

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
				redeveloped through community efforts.
29.	Ahoyaya River, Olodo Area	7.4241	4.0186	Ahoyaya river is a tributary of the Omi River. Impediments on the river channel causes backflow and diversion into contiguous areas. Houses in the area are low lying and home owners have developed flood-protective construction practices.
30.	Yokelepekun Stream	7.3896	3.9430	The stream is so-called due to its closeness to the Yokelepekun bus stop which is situated in the Sawmill Area of Old Ife road. The major cause of flooding in the area is the inadequate culvert on the backstreet through which the river flows from the main bridge on the Old Ife road. The inadequate culvert caused the backflow and subsequent inundation of the 500m stretch between the main road and the said culvert. The stretch which is usually flooded during peak rain periods in densely overgrown with aquatic weed. This section is selected for dredging. However, community leaders suggested that the dredging works may not fully resolve the flooding problem. Economic and physical displacement is likely due to proposed works. A stand alone Resettlement Plan will be prepared by the project to address these impacts. Works will not commence until the A/RAP is prepared and implemented
BLOCKED DRAINAGE SITES				
1.	Gbenla-Oje Road	7.391687	3.913035	Located along the Beere-Mapo Road Mixed residential and commercial. The drains are blocked primarily by solid wastes. In some portions of the road, the rains collapsed and as such constituted a disturbance to free flow of flood waters
2.	Temidire-Oje Road	7.386248	3.906063	Along Beere -Gate Road. Drainage silted and blocked by wastes. Public water supply pipes run through this drainage and could be damaged during clearing if adequate care Is not taken. Disposal of spoil and timing of activities crucial.
3.	Agbadagbudu-Adeoyo	7.387714	3.900133	Drain is silted up and blocked with solid wastes, Road is narrow and so wastes removed have to be carted away.
4.	Total Garden-Adeoyo Road	7.397827	3.908592	A road from Total Garden, by K.S. Motel to Adeoyo Hospital. Blocked drainage. Blockage is by vegetal growth, silt and in some portions collapsed sections of the drainage structure. Disposal of spoil and timing of activities crucial
5.	Omolewa-UCH Road	7.395091	3.906012	The primary issues is a blocked drainage. However, people in the neighbourhood claim the matter is exacerbated by recently done work on rehabilitation of the Omolewa to UCH road. It is claimed that the deposit of sand excavated in the process of road by blocking runoff routes. Need to open this up, in addition to clearing blocked drainage downstream of this portion. Disposal of spoil and timing of activities crucial
6.	Parliamentary Road, by Secretariat	7.407823	3.909705	Drainage is blocked by deposited silt and vegetal matter. Need to be cleared and waste materials carted away, so that it is not washed back into the drain, or unto the road.

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
7.	Popoyemoja to Oke Ado Road	7.368643	3.882853	This area is along Molete to Oke Ado Road. Drainage is blocked in several places and most parts of the drainage are currently dry. Cleared materials must be evacuated from the site.
8.	7th Day to Iyaganku	7.383183	3.878696	Area is a single carriage road that links Oke Bola to Iyaganku. Drainage on both sides are silted up and needs to be cleared. Although vegetal matter are severally culpable, there is a lot of silt washed into the drain also, which constitutes problems. Disposal of spoil and timing of activities crucial
9.	J. Allen to Dugbe Alawo	7.388415	3.879982	Along a busy road from Old CBN area to Dugbe Alawo. Drainage is completely blocked and requires extensive desilting. Disposal of spoil and timing of activities crucial
10.	Salvation Army	7.387348	3.886237	Area is a blocked drainage on a busy and narrow road. Disposal of spoil and timing of activities crucial
11.	Mokola- Ode Oolo	7.399543	3.890028	Road from Mokola into the interior of Inalende, Oke Pdre, etc. Drains silted up in portions and blocked by solid waste, Disposal of spoil and timing of activities crucial
12.	Awolowo Road, Bodija	7.417325	3.902498	Extensive portions of this road that links Bodija to Sango is silted up and blocked, Disposal of spoil and timing of activities crucial
13.	Awolowo Junction to Secretariat			Extensive portions of this road is silted up and blocked, by solid wastes and weed growth. Disposal of spoil and timing of activities crucial
14.	Govt House-Officer's Mess-Customs.	7.404008	3.923437	Extensive portions of the drainage on this road is silted up and blocked, by solid wastes, silt and vegetal matter. Some portions are equally damaged with drainage structures caved in, thus constituting a blockage for free flow of runoff. Disposal of spoil and timing of activities crucial
15.	Atowoda, Inalende (Wrongly labelled Afonoda)	7.391937	3.888074	Narrow single carriage road, which crosses Ogunpa stream along the line. The drainage is blocked at portions
16.	ANCE-Aleshinloye-Iyaganku	7.388875	3.871638	Along a major highway. Large and deep drains on both sides of the road. But some portions are blocked by wastes and weed growth. Wastes must be carted away after clearing.
17.	Onireke Junction/Magazine Road	7.397272	3.871050	Large and deep drains on both sides of the road. But some portions are blocked by wastes and weed growth. Wastes must be carted away after clearing.
18;	Sango-UI Road	7.433497	3.906774	Along the Sango to UI road, by Samonda. Drainage blocked by solid wastes and vegetal growth in several portions. In some cases, collapsed portions of the drain create obstacle for flow of runoff. Public water supply pipes run through this drainage and could be damaged during clearing, if adequate care Is not taken.
19.	UI to Ojoo Junction	7.453548	3.907138	Along the Ojoo to UI road. Drainage blocked by solid wastes and vegetal growth in several portions. In some cases, collapsed portions of the drain create obstacle for flow of runoff. Drainage to be cleared of wastes and silt. Wastes must be carted away after clearing
20.	UI to Agbowo	7.441583	3.908332	Along the UI to Agbowo Road. Drainage blocked by solid wastes and silt in portions. In some

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
				cases, collapsed portions of the drain create obstacle for flow of runoff. Drainage to be cleared of wastes and silt. Wastes must be carted away after clearing
21.	Mokola Flyover to Bovas Filling station (Adamasingba)	Start: 7.3993 End: 7.3974	Start: 3.8889 End: 3.8877	The location of the proposed project is in the central area of Ibadan starting from the Mokola roundabout and terminating at the Bovas filling station towards Adamasingba Stadium. The area has partly covered drains ducts. Side streets are in upland locations and runoff water currently spills onto the main road. Ducts are filled with waste at various points and there is putrefying odour of solid waste in the neighbourhood. Disposal of spoil and timing of clearing activities crucial
22.	Apata – Benbow road	Start: 7.3835 End: 7.3761	Start: 3.8255 End: 3.8070	The proposed works will happen in the Apata Area on Ibadan. Located in Ibadan SW LGA, the area can be accessed from Abeokuta Road. Currently, stormwater runs off from the RHS of the road and runs to the communities on the LHS in some areas. RHS drains completely blocked m*ostly in areas close to intersections with side roads.* Drain ducts in market areas were observed to be well-maintained by traders. Areas of the road which are earthen have been washed away by recent floods.
23.	New Adeoyo Road	Midpoint: 7.3503	Midpoint: 3.8644	The proposed works will be carried out on the New Adeoyo State Hospital road which is a side road to the busy Ring Road. The work will be focused on the fodacis area. The neighbourhood can be found in a valley to the right side of the Hospital. Low areas of the catchment inundated with floodwater during flood events. A stream flows in the valley but water collection into the stream by the drain ducts hindered by temporary structures in the area. The drains at the transformer junction are inadequate to convey stormwater leading to the inundation of the side street (Fodacis Powerline) during flood events. There are at least two large technician villages in the area and one of them sits in a floodable area around transformer junction.
24.	Ijokodo Junction-WAEC-Poly Road	7.4270	3.8800	The area is a very busy area of the city which is accessible through the Sango-Eleyele dual carriageway. Portions of blocked drains on both sides of this road will be cleared for a total length of 3.6km Flood water discharges into the Alaro Stream – a tributary of the Ona River. There are no drain ducts on the RHS of the road. There is high vehicular traffic on the very busy road.
25.	Benjamin-Eleyele-Oluseyi Road	7.4015	3.8721	The area is a very busy area of the city which is accessible through the Sango-Eleyele dual carriageway. Portions of the drains (on both sides) are blocked with waste, silt or weed in several portions. There are a few undeveloped parcels of land. *The drains running in front of these undeveloped plots are more silted/filled than others.*
26.	Apata Oluyole Estate-Ring Road	Start: 7.3665 End: 7.3831	Start: 3.86085 End:3.82929	The Project area starts at the Mobil Bus Stop on Ring Road. It transverses the high-brow Oluyole Estate. Drain duct free of waste in some areas but silt is seen in a few spots where there are no housing developments. Silted sections have also become overgrown with weeds that need to be cleared.
27.	Orita Challenge-Odo Ona Elewe-Akala Expressway	7.3375	3.8622	The road whose drain ducts will be cleared in this location is a 1.9km road that connects Orita Challenge to Akala Expressway. Most sections of the drains are blocked with waste and silt..
28.	Agugu-Oremeji-Atolu Ogbere	Start: 7.3842 End: 7.3793	Start: 3.9219 End: 3.9371	The waste clearing activity will be carried out in a set of communities that are within the core indigenous areas of Ibadan. It is largely an urban slum with poor waste management practices. Most sections of the drains are blocked with waste and silt..

S/N	LOCATION ADRESS	GPS COORDINATES		GENERAL OBSERVATIONS ON SITE
		NORTHING	EASTING	
29.	Gbaremu Junction – Hope Road – Airport junction	Start: 7.3752 End: 7.3915	Start: 3.9610 End: 3.9678	The drain clearing activity will be carried out on a stretch of road which begins at Gbaremu junction. Gbaremu is a community which is about 3km from the Oremeji bridge on Lagos-Ibadan Expressway. Portions of blocked drains over a total drainage length measuring about 3.6km.
30.	Felele Straight Road	Start: 7.3490 End: 7.3427	Start: 3.8803 End: 3.8900	The project areas run across the Felele area of Ibadan which starts at the Felele roundabout in the Challenge/Ring road Area. The side drains on the street spanning a distance of 2.8km on both sides of the street will be cleared up to the terminus in the Soka Overhead bridge on Lagos-Ibadan Expressway.
31.	Muslim-Mosfala-Pegba Road	Start: 7.3509 End: 7.3434	Start: 3.9224 End: 3.9291	The Muslim-Mosfala-Pegba area of Ibadan is accessible from the Muslim Overhead bridge on Lagos Ibadan Expressway. Proposed emergency works include the clearing of blocked and silted drains from the head of the muslim bridge through Mosfala with a terminus at Muslim Secondary School. The portions to be cleared occur over a total distance of 7km on both sides of the roadway.
32.	Muslim-Odinjo-Eleta junction road	Start: 7.3434 Midpoint: 7.3584 End: 7.3644	Start: 3.9291 Midpoint: 3.9165 End: 3.9056	The clearing of blocked drains will be done on side drains of a stretch of road covering a total road length of 4.6km from the end of the Muslim overhead bridge on Lagos-Ibadan expressway. Valley points are watered with rivers flowing through them. A prominent river in the area is the Seyola stream which inundates the Sodun Area due to inadequate drains in place in the sections. There are no drain ducts on LHS of Odinjo-Eleta road.
33.	Olode-Abatiti-Kukumanda Junction	7.3825	4.0123	This is an area that is largely upland and drains water into nearby stream. Most portions of the drain ducts on both sides of the road (which connects with Adegbayi) are blocked and need to be cleared to ease draining of stormwater.
34.	Alakia-Isebo-Iyana Church	7.3848	3.9957	Most parts of the stretch of road covered by the proposed emergency works in this area are flood-prone. The drains in most parts are also blocked with waste and there are no drains at all in a few areas.

CHAPTER THREE: ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

3.1 Discussion of Significant Potential Environmental and Social Impacts

The proposed dredging and clearing of blocked drainages project will be largely beneficial, as the aim is to prevent the occurrence of flash floods and the associated losses and damage to property and possible loss of lives. However, it is expected that some adverse impacts may arise from the implementation of the project activities. These impacts will be expressed on the biophysical and socio-economic environment. This section presents an overview of the general issues associated with the proposed project activities and the mitigation measures that can be applied to ameliorate these impacts. It also presents an environmental and social monitoring plan to ensure that the mitigation measures are implemented and are effective.

3.2 Summary of Environmental and Social Impacts, and Mitigation Measures

In the course of preparing this ESMP, each of the proposed sites for dredging and clearing of drains were visited. The visits highlighted the specific issues associated with each site, such that site-specific mitigation measures could be proffered, where necessary.

In the following subsections, an overview of observations is presented. For the purpose of comprehensiveness, a general summary of the crucial issues associated with the proposed project activities is presented. In addition, site specific impacts and mitigation measures are equally presented, with an overview of responsible parties and estimated costs for implementing the measures. Table 3.1 presents an overview of the general impacts and recommended mitigation, while Tables 3.2 and 3.3 present site-specific situations for the proposed dredging works and the blocked drains clearing works respectively.

In this section, the following considerations were given due cognizance:

1. This project will have zero tolerance for disruption of livelihood and/or resettlement. As such, any location/sites where socio-economic impacts cannot be avoided, the project will be removed from the current pool of works and will be separately presented when Resettlement Action Plans have been prepared and implemented for them. As shown in Table 2.8, rows 16, 25 and 31 these sites are (i) Bethel Stream, Bode Igbo (ii) Gbaro Ajimosun stream, and (iii) Yokelepekun stream respectively.
2. Dredged materials having a preponderance of municipal solid wastes will be carted away for disposal at designated dumpsites, indicated in the Waste Management Plan (Annex 11).
3. For road drainages, there will be no dumping of wastes/excavated materials by the roadside. Thus, arrangement is made for immediate evacuation of generated wastes to designated dumpsites
4. Some of the portions where drainage desilting/clearing will be done are busy commercial areas and offices that are normally busy most weekdays, so, provision has been made to undertake clearing the drains during weekends or at night, where peak traffic can be avoided.

5. In addition to all of the foregoing provisions, some additional provisions have been made for monitoring and enforcement of the provisions of this ESMP. As such, the PIU will contract an independent HSE supervisor to undertake daily monitoring of all work sites.

3.2.1 Summary of Associated and Potential Environmental and Social Issues

3.2.1.1 Environmental and Social Issues with Dredging Activities

Generally, positive impacts may occur as a result of this project in the sense that project workers (dredger operators and support staff) will patronize local sellers in the vicinity where they are working. Also, it will give temporary employment opportunities to the owners of the dredgers. In addition, the dredging of the channels will alleviate the seasonal suffering of owners/residents of houses that get periodically inundated during heavy rainfall, and their houses will no longer be flooded (at least until the channel is silted up again. However, a number of adverse impacts will be associated with planned project activities. These include the following:

1. Dredgers will have to be mobilized to the sites to undertake the planned activities. Typically, dredgers are mobilized either using flat bottom barges (for rivers/channels that are navigable), or moved to the site by flatbed trucks. All the channels/streams to be dredged are not navigable, since many of them tend to be seasonal and only become raging floods immediately after heavy rains. Thus, it is not possible to mobilize dredgers to site using barges and so flatbed trucks will have to be used. During mobilization, the trucks carrying the dredgers move slowly and will tend to cause serious traffic build up issues.

2. While dredging, the dredger will run its engines, which consume fossil fuels (diesel). Emissions from the engines could contribute noxious gases into ambient air, leading to degradation of air quality. Also, noise from dredging activities could negatively impact the nearby communities, if it exceeds permissible limits.

3. Dredged materials will typically be dumped on the banks of steams and channels. Given the specifications provided in the dredging ToR, materials to be dredged will be a minimum of 1m3 per meter length of the channel (assuming the width is 1m). This will mean a lot of waste materials (spoils) to be dredged. As part of the impacts of this activity will be in two parts:

    a. Dredge materials disposed on the channel banks could be dumped on agricultural crops such as plantain and banana, pineapples, fruits and cassava, as well as vegetables, irrigated by water from the channels. This could lead to economic losses for owners of crops planted along the waterside.
    b. If adequate care is not taken in the dumping of spoils dredged from channels, it could lead to blockage of runoff routes from inland into the channel. This could create fresh flooding concerns upstream.

4. Dredged materials in some locations will contain a lot of municipal solid wastes such as textile/leather materials, empty cans and tins, plastic and polythene bags, etc. When unearthed, these wastes could constitute aesthetic nuisances and also contribute odours in the immediate vicinity leading to discomfort of people living in the area.

5. In cases where dredged materials have to be carted away to designated dump sites, tipper trucks will have to be mobilized to site to effect this. This could lead to traffic build up around such locations.

6. If project workers are not provided with adequate Personal Protective Equipment (PPEs) such as hard hats, gloves, and Wellington (rain) boots, they could suffer bodily injury, which could be debilitating, and lead to Lost Time Injury (LTIs) on the project

7. If adequate signage is not provided around worksites, local community residents/passers - by could stray into work areas and sustain bodily injury, which could result in debilitation and conflict. The impact is of Minor significance since it is expected that contractors will pre-engage communities prior to commencement of works

3.2.1.2 Environmental and Social Impacts of Clearing of Blocked Drainages

Generally, positive impacts in the form of temporary employment opportunities may occur as a result of this project in the sense that most of the blocked drainages are shallow and located in built up areas thus precluding the use of mechanical clearance. As a result, casual workers will be employed for manual clearing of the drains. Also, the clearing of blocked drainages will alleviate the seasonal suffering of owners/residents of houses that get periodically inundated during heavy rainfall, and their houses will no longer be flooded (at least until the drainages are silted up again. However, a number of adverse impacts will be associated with planned project activities. These include the following:

1. A lot of the drainages designated for clearing are located in heavily built up areas and the process of the works could result in obstruction of traffic in the vicinity, especially in narrow roads such as would occur around Ago Tailor (Odo Ona/Apata), Awolowo Road, Bodija, Inalende (Mokola), etc. Also, some of the blocked drainages occur in commercial market areas such as Oje Market, Agbeni Market, etc. and the process of drainage clearing, **if not properly timed**, could lead to disruption of commercial activities.

2. If wastes excavated are dumped on the roadside, they could cause obstruction to traffic along the roads, especially the narrow roads such as those mentioned in 1 above. The magnitude of the impact would be moderate as traffic issues will extend beyond the immediate vicinity. The duration would be moderate as the impact will persist as long as the deposited materials remain on the roadsides. The overall significance of the impact is therefore moderate.

3. Many of the areas where blocked drainages occur, as listed, are commercial/market zones. During the works, commercial activities could be disrupted. The impact is minor as clearing works will be done in batches and particular sections will only be affected at specific times. The duration is minor since it will take only a few hours to maximum of 2 days to clear any particular stretch. The frequency is minor as it will be a one-off activity. The overall significance of the impact is therefore Minor.

4. In most of the areas designated for clearing of blocked drainage there will be need to evacuate the materials excavated to designated dump sites. As a result, tipper trucks will be mobilized to site to cart away excavated materials. Their presence on site could lead to traffic build up, especially in narrow, single carriage roads such as Beere to Oje, Awolowo Road, Inalende, etc. The magnitude of the impact is minor since the presence of the trucks will be limited to only areas where excavation is taking place. The duration is minor also, since carting away will be

limited to only a specific period, not more than 1-2 weeks. The frequency will be moderate, since tipper trucks may have to make repeated trips to effect the carting away. The overall significance of the impact is therefore Minor

5. In some cases (Sango to UI Road, and Temidire-Oje Road), public utilities such as Water supply pipes are routed through drainages. If adequate care is not taken in the process of clearing drains, these pipes could be damaged leading to wastage of water and cutting off water supply to areas downstream of such points. The magnitude of the impact is minor, since the areas that have the likelihood for such damages to occur is limited to a few points where utility pipes pass through drains. The areas extent may however be moderate as the impact will be felt in all downstream areas of the damage point. Frequency of occurrence is minor since the clearing of blocked drains is a one-off activity. The duration is also expected to be low since a grievance redress mechanism (GRM) has been put in place for this project, which will ensure that prompt corrective actions are taken.

6. If adequate signage is not provided around worksites, local community residents/passers by could stray into work areas and sustain bodily injury, which could result in debilitation and conflict. The impact is of Minor significance since it is expected that contractors will pre-engage communities prior to commencement of works.

3.3 Mitigation Measures

The primary objectives of the mitigation measures are to ensure that anticipated impacts are kept to the barest minimum and that the effectiveness of the mitigation measures are monitored.

The recommended mitigation measures, based on the impacts identified in Section 3.2 above, are presented below. For ease of comprehension, the mitigation measures are presented in tabular form, as shown in Table 3.1 below. In addition, as indicated earlier, Tables 3.2 and 3.3 also present an overview of the site specific issues, recommended mitigation measures, the associated costs, and the monitoring requirements (including responsible parties and associated costs. It should be noted that mitigation measures are presented only for negative impacts.

Table 3.1: Recommended Mitigation Measures for Identified impacts

Project Activity/Phase	Identified Impacts	Recommended Mitigation Measure
DREDGING OF CHANNELS/STREAMS		
Mobilization/ Pre-construction Phase	During mobilization, the trucks carrying the dredgers move slowly and will tend to cause serious traffic.	Mobilization activities shall be timed to coincide with off-peak traffic periods. Based on an assessment of the existing settings in most of the project areas, this would be either in the day time, between 10am and 2pm, or at night, between 10pm and 5am A Traffic Management Plan (TMP) has been prepared for this project. Details are presented in Annex 11. The support of traffic control agencies such as the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic during mobilization and demobilization
	Emissions from the engines could contribute noxious gases into ambient air, leading to degradation of air quality.	All dredgers and other vehicles and machinery to be used for the project shall be properly serviced and maintained to ensure their compliance with international emission standards
Construction Phase	Generation of excavated materials which could cause nuisance in the neighbourhood.	Excavated materials shall be evenly spaced on available space by the stream banks The PIU shall appoint a designated HSE Supervisor to oversee the works and will be empowered to issue stop-work orders, where contraventions occur. Community involvement in determination of location for drop-off of excavated material
	If adequate care is not taken in the dumping of spoils dredged from channels, it could lead to blockage of runoff routes from inland into the channel. This could create fresh flooding concerns upstream.	Adequate spacing shall be provided between dumps of spoil, to ensure that the dumps do not block existing natural runoff routes.
	There may be general complaints from sites communities	A Grievance Redress Mechanism shall be put in place for this project such that community members who have any issues can formally submit their grievances via dedicated hotlines lines provided (see Annex). The HSE Supervisor that will be hired specifically for this project, and who will be on site during project implementation, will be empowered to listen and respond to grievances that may come up while he is on field. The PIU team monitoring the exercise will also be on hand to listen to complaints and resolve them on the spot
	Nature of excavated materials could be solid wastes rather than vegetal silt which could constitute aesthetic nuisances and also contribute odours in the immediate vicinity.	Where solid wastes predominate over silt materials, arrangements shall be made to ensure that excavated materials are carted away to designated dump sites
Operation/ Maintenance Phase	Traffic congestion during waste evacuation.	The movement of wastes trucks shall be timed to coincide with off-peak traffic periods. Based on our assessment of the existing settings in most of the project areas, this would be either in the day time, between 10am and 2pm, or at night, between 10pm and 5am The support of traffic control agencies such as Oyo State Traffic

Project Activity/Phase	Identified Impacts	Recommended Mitigation Measure
		Management agency (OYTRMA), the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic during mobilization and demobilization
	Health and Safety issues like cases of incidents, accidents, near miss.	Contractors shall provide necessary PPEs for all personnel The supervising engineer and the HSE supervisor shall ensure provision of PPEs by the Contractors and enforce the strict usage of same by all personnel on site
	Risk exposure to hazards of local community residents/ passers – by.	Adequate signage / cautions will be provided at all work sites to warn non-workers to go off danger zones. Contractors shall ensure adequate engagement with communities and residents of their work areas prior to, and during works. The PIU will undertake electronic media announcement and publicity to ensure that the general public are informed about ongoing project activities so that appropriate caution can be taken.
CLEARING OF BLOCKED DRAINS		
	Traffic congestion and obstruction of access.	d. The clearing of drains shall be carried out at off peak hours and /or during the statutory Thursdays Environmental Sanitation in which shops and markets remained closed until 10am. e. Adequate consultations shall be held with market associations to ensure that they are carried along with the implementation of planned activities. f. All excavated wastes shall be carted to designated dump sites.
	Possibilities of disruption of commercial activities	Application of a. – c. above
	Obstruction of traffic by wastes trucks	Waste evacuation from sites can be carried out at off peak hours or at night. The support of traffic control agencies such as Oyo State Transport and Road Maintenance Agency (OYTRMA), the Traffic Division of the Nigeria Police, and the Federal Road Safety Corps (FRSC) shall be enlisted to control traffic.
	Risk exposure to hazards of local community residents/ passers – by.	Application is necessary as discussed above under dredging activities.
	There may be general complaints from sites communities	Application is necessary as discussed above under dredging activities.

Table 3.2: Environmental and Social Impacts Mitigation and Monitoring Plan of Dredging Sites

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Onilu Stream, Asamajana, Moniya	Generation & Disposal of dredged spoils.	Dredge spoils will be dumped by the banks far enough to prevent washback In dumping the spoils, care shall be taken to ensure that runoff routes are not blocked. spoil dumps shall be discontinuous, with a minimum of 5m break between dumps	Dredging Contractor	100.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off	Daily Weekly	HSE Supervisor's team Environmental and Social Experts of PIU & ME&WR	50.00 50.00
Elebu Stream, Asamajana	Generation & Disposal of dredged spoils.	Care shall be taken to ensure that runoff routes are not blockedspoil dumps shall be discontinuous, with a minimum of 5m break between dumps	Dredging Contractor	100.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily Weekly	HSE Supervisor's team PIU Environmental and Social Experts & ME&WR	50.00 50.00
Odo Eran, Moniya	Generation of excavated materials, mainly silt & vegetal matter. Some clumps of bananas occur on one side of the stream	Dredge spoils will be dumped only on one side of the stream, around locations where bananas occur. The dumps may need to be a little longer and higher around such locations Spoil dumps shall be discontinuous, with a minimum of	Dredging contractor Dredging contractor	100.00 100.00	Monitor spoil disposal to ensure that spoils are not dumped on the side where bananas occur Monitor dimensions (height, length and distance from stream	Daily Daily	HSE Supervisor; PIU Environmental and Social Experts HSE Supervisor;	1500.00 200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		5m break between dumps across the entire stretch of the dredging location	Dredging contractor	250.00	bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off. Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	PIU Environmental Experts & ME&WR HSE Supervisor; PIU Environmental & Social Experts	200.00
	The area is a commercial area and thus mobilization and demobilization of dredger could affect commercial activities in the area Municipal solid wastes at locations around the bridge could cause aesthetic issues and lead to proliferation of diseases	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period Excavated/dredged materials around the bridge, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor	100.00	Monitor traffic around the bridge during evacuation of wastes	One-off during evacuation	HSE Supervisor; PIU Environmental Expert & ME&WR	
Labi Stream, Moniya	Some stands of bananas occur on one side of the stream and could be affected if spoils are not properly disposed of	Dredge spoils will not be dumped on the sides where bananas occur Spoil dumps shall be	Dredging contractor	100.00 100.00	Monitor spoil disposal to ensure that spoils are not dumped on the side where bananas occur Monitor dimensions	Daily	HSE Supervisor; PIU Social Experts HSE Supervisor;	500.00 500.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated materials	discontinuous, with a minimum of 5m break between dumps across the entire stretch of the dredging location	Dredging contractor		(height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	PIU Environmental and social Expert & ME&WR	
IITA Power Line	Some stands of bananas occur on one side of the stream and could be affected if spoils are not properly disposed of Generation of excavated materials	Dredge spoils will not be dumped on the sides where bananas occur Spoil dumps shall be discontinuous, with a minimum of 5m break between dumps across the entire stretch of the dredging location	Dredging contractor Dredging contractor	100.00	Monitor spoil disposal to ensure that spoils are not dumped on the side where bananas occur Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily Daily	HSE Supervisor; PIU Social Experts HSE Supervisor; PIU Environmental and Social Experts & ME&WR	500.00 200.00
IITA, Downstream Ona River	Generation of excavated materials	Dumps wil be discontinuous with minimum of 5m spacing between dumps.	Dredging Contractor	200.00	Monitor spoil disposal to ensure that spoils are not dumped on the side where bananas occur	Daily	HSE Supervisor; PIU Social Experts	500.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
					Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	HSE Supervisor; PIU Environmental and Social Experts	
Goodness Estate Stream	Generation of excavated materials Mobilization and demobilization of dredger to site could lead to obstruction of normal traffic	Spoil dumps shall be discontinuous, with a minimum of 5m break between dumps across the entire stretch of the dredging location Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor Dredging contractor	100.00 250.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off. Monitor traffic during mobilization and demobilization	Daily One off during mobilization and demobilization	HSE Supervisor; PIU Environmental and Social Expert & ME&WR HSE Supervisor; PIU Environmental & Social Experts	200.00 200.00
Akobo Estate Stream	Mobilization and demobilization of dredger to site could lead to obstruction of normal traffic	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to	Dredging contractor	250.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	HSE Supervisor; PIU PIU Social & Environmental Experts	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		direct traffic during this period						
	Wastes excavated around the culvert will be mostly Municipal Solid wastes and could constitute aesthetic and health hazards, if not properly disposed	Spoil dumps shall be discontinuous, with a minimum of 5m break between dumps across the entire stretch of the dredging location	Dredging contractor	100.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	HSE Supervisor; Environmental Experts & ME&WR	500.00
	Movement of Tipper Trucks during evacuation of wastes around culert could obstruct regular traffic in the area	Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor	200.00		One-off during evacuation	HSE Supervisor; PIU Environmental Experts & ME&WR	200.00
		The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic around the culvert during evacuation of wastes		HSE Supervisor, PIU Social & Environmental Experts	
Sooko stream, Akobo Ojurin	Mobilization and demobilization of dredger could lead to interference with existing traffic in the area	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	500.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	HSE Supervisor; PIU Social & Environmetal Experts	500.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated materials.	Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor	200.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	HSE Supervisor; PIU Environmental Experts & ME&WR	200.00
		The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic around the culvert during evacuation of wastes	One-off during evacuation	HSE Supervisor; PIU Environmental & Social Experts	200.00
Kute Stream	Generation of excavated wastes and plant materials which could constitute aesthetic and health problems Some banana stands occur on one side of the stream and could be affected if care is not taken in dumping dredge spoil	Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor	200.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	**A.)** HSE Supervisor; PIU Environmental Experts & ME&WR	500.00
		Dredged spoils shall not be dumped on the left side where bananas occur .Around banana stands, spoils shall be dumped only on one side. The length and height of the dumps shall increase slightly, to accommodate what should have been dumped on the banana stands	Dredging contractor	200.00	Monitor dumping of wastes around bananas, to ensure wastes are not dumped on the bananas	To be undertaken as part of daily monitoring	**B.)** HSE Supervisor; PIU Social Experts	200.00
			Dredging	200.00	Monitor traffic during	One off during mobilization	**C.)** HSE Supervisor; PIU Environmental &	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
			contractor		mobilization and demobilization	and demobilization	Social Experts	
	Obstruction of traffic at pick hours	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period						
Wofun Stream	Road is single carriage, so mobilization and demobilization of dredger could obstruct regular traffic.	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	500.00
	Some bananas occur on one side of the stream, and if spoils are not properly disposed, they could damage the bananas, leading to economic losses	Dredged spoils shall not be dumped on the left side where farmlands occur.. Around banana stands, spoils shall be dumped only on one side. The length and height of the dumps shall increase slightly, to accommodate what should have been dumped on the banana stands	Dredging contractor	200.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	200.00
	Generation of				Monitor dumping of wastes around bananas, to ensure wastes are not	To be undertaken as	See B above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	excavated materials				dumped on the bananas	part of daily monitoring		
Oganla Stream, Olodo Bank Area	Traffic congestion	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	500.00
	Generation of excavated materials	Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor	200.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	200.00
SPAC AOFunmitream, Poly Road, Sango	Traffic congestion	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	500.00
	Generation of	Dredge spoils will be dumped along the stream banks. No	Dredging contractor	200.00	Monitor dimensions	Daily	See A above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	escavated materials mainly silt and vegetal..	dumping will occur around the banana clumps.			(height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off. Monitor disposal of spoils around bananas, to ensure that they are not affected	Will be done along with the daily monitoring of disposal.	See B above	
Apata-Pete Stream, Cele Apata, via NNPC link road, Apata	Mobilization and demobilization of dredger to and from site could lead to traffic build up. Some banana clumps occur on a side of the channel. If care is not taken in disposal of dredge spoil, the bananas could be affected, leading to economic loses Generation of excavated materials	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period Dredged spoils will be dumped along the stream banks. No dumping will occur around the banana clumps. Around banana stands, spoils shall be dumped only on one side. The length and height of the dumps shall increase slightly, to accommodate what should have been dumped on the banana stands	Dredging contractor Dredging contractor	200.00 200.00	Monitor traffic during mobilization and demobilization Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off. Monitor disposal of spoils around existing businesses to ensure they are not affected	One off during mobilization and demobilization Daily Will be done along with the daily monitoring of disposal.	See C above See A above See B above	500.00 200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Akuru Eleta Stream Elebu, Off Akala Expressway	Traffic Congestion Generation of excavated materials.	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period ALL dredged materials will be dumped only on the side where there are no economic trees. Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps.	Dredging contractor Dredging Contractor; Supervising Engineer Dredging Contractor;	200.00 250.00 750.00	Monitor traffic during mobilization and demobilization Monitor disposal of spoils around existing businesses to ensure they are not affected Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	One off during mobilization and demobilization Will be done along with the daily monitoring of disposal. Daily	See C above See B above See A above	200.00 200.00
Bethel Estate, Bode Igbo Area, Abeokuta Road, Ibadan. This aspect of the ESMP will be applicable on the site on commencement of works after the preparation	Mobilization and demobilization of the dredger to and from site could affect normal transport in the area	The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. And also during mobilization and demobilization of dredgers to site. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging Contractor	200.00	Monitor traffic during mobilization and demobilization Monitor dimensions	One off during mobilization and demobilization	See C above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
and implementation of A/RAP. Please refer to Table 2.8, row 16 on page 28 for details.	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps. Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging Contractor Dredging Contractor	250.00 750.00	(height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	200.00
Atumini Stream, Alesulo Area, Atagba	Mobilization and demobilization of the dredger to and from site could affect normal transport in the area	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	200.00
	Spoil dumps could cut of runoff routes leading to flooding in upstream areas.	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps.	Dredging Contractor;	250.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Alaro Downstream, Apple Area 1, Off Akala Expressway	Mobilization and demobilization of the dredger to and from site could affect normal transport in the area	The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. And also during mobilization and demobilization of dredgers to site. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging Contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	200.00
	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps. Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging Contractor Dredging Contractor	250.00 750.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	200.00
Oke Ayo River, Apata-Gada Area,	Municipal solid wastes at locations around the bridge could cause aesthetic issues and lead to proliferation of diseases Some farmlands occur in some portions of the channel and they could be adversely affected if	Dredged spoils will not be dumped on the sides where farms occur. Spoil from areas where farmlands occir will be moved to the next vacant area for disposal. The length and height of the dumps shall increase slightly, to accommodate what should have been dumped on the farmlands Spoil dumps shall be	Dredging contractor Dredging contractor Dredging	100.00 100.00 100.00	Monitor spoil disposal to ensure that spoils are not dumped on the side where farms occur Monitor dimensions (height, length and distance from stream	Daily Daily One off during	See B above See A above	500.00 200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	spoils are dumped on them. mobilization and demobilization of dredger could cause traffic congestion	discontinuous, with a minimum of 5m break between dumps across the entire stretch of the dredging location Excavated/dredged materials around the bridge, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11 The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. And also during mobilization and demobilization of dredgers to site. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	contractor Dredging contractor	250.00	bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off. Monitor traffic during mobilization and demobilization Monitor traffic around the bridge during evacuation of wastes	mobilization and demobilization One-off during evacuation	See A above See C above	200.00
Akilapa Stream, OgbereBabanla Area	Mobilization and demobilization of dredger to site could affect normal traffic in the area	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	300.00	Monitor traffic during mobilization and demobilization Monitor dimensions (height, length and distance from stream	One off during mobilization and demobilization Daily	See B above See A above	200.00 750.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of escavated waste	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps.	Dredging contractor	750.00	bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.			
Akinfenwa stream, Aroye Phase II, Gbaremu junction-Hope Road, Airport Area, Ibadan. (Reduction of dredging length to 1.8km to avoid livelihood issues)	Mobilization and demobilization activities could alter routine traffic in the area	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging Contractor Supervising Engineer Engineering Unit of PIU	200.00	Monitor dredging works to ensure that no dredging takes place in the upper 200m of the channel. Monitor traffic during mobilization and demobilization	One-off, at project kick-off One-off, during mobilization and demobilization	See C above	200.00 750.00
	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps.	Dredging Contractor	200.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	Daily	See A above	300.00
Gbanamu Stream, Scout Camp, Felele	Use of mechanical dredger may cause economic damage to	Only manual dredging will be used at this location	Dredging contractor, Supervising	200.00	Monitor dredging of location using manual method	Daily	Supervising Engineer; HSE Supervisor;	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	buildings and businesses Around a damaged culvert, the bulk of materials that will be excavated are MSW. If dumped by the stream banks, these will constitute aesthetic and health hazards	 MSW component of materials removed from the streambed will be carted away to dumpsited based on WMP. Evacuation of dredged material will be at off-peak based on provisions of TMP	Engineer, PIU Engineering Team		 Monitor the evacuation of dredged materials to dumpsite	 One-off, during evacuation of dredged materials to dumpsite	See C above See A above	
Odo Oba Elere Stream.	Mobilization and demobilization of dredger to site may cause disruption to normal traffic regimes in the area. Some portions of the silted sections contain MSW. If this is dumped by the river banks, it could cause aesthetic and health episodes and associated losses.	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps Excavated/dredged materials around the bridge, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging contractor Dredging contractor Dredging contractor	200.00 100.00 300.00	Monitor traffic during mobilization and demobilization Monitor disposal of spoils by stream banks Monitor the evacuation of dredged materials to dumpsite	One-off, during mobilization and demobilization Daily One-off, during evacuation of dredged materials to dumpsite	See C above See A above	200.00 200.00 200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Ajofeebo Stream, Soka Area	Mobilization and demobilization of dredger to and from site could lead to disturbance of normal traffic situation in the area	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One-off, during mobilization and demobilization	See C above	200.00
	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps	Dredging contractor	100.00	Monitor disposal of spoils by stream banks Monitor the evacuation of dredged materials to dumpsite	Daily One-off, during evacuation of dredged materials to dumpsite	See A above	200.00 200.00
Gbaro Ajimosun stream This aspect of the ESMP will be applicable on the site on commencement of works after the preparation and implementation of A/RAP. Please refer to	Mobilization and demobilization of the dredger to and from site could affect normal transport in the area	The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. And also during mobilization and demobilization of dredgers to site. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging Contractor	200.00	Monitor traffic during mobilization and demobilization	One off during mobilization and demobilization	See C above	200.00
	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps. Excavated/dredged materials	Dredging Contractor	250.00	Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to	Daily	See A above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Table 2.8, row 25 on page 30 for details.		around the culvert, which are mostly Municipal Solid Waste shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11	Dredging Contractor	750.00	ensure that drainage routes are not cut off.			
Oke-Omi Phase II Ogungbade	Mobilization of dredger to site could disturb normal traffic around the location	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One-off, during mobilization and demobilization	See C above	200.00
	Generation of excavated materials	There shall be no disposal on spoils on the side where the cocnuts occur	Dredging contractor	100.00	Monitor disposal of spoils by stream banks	Daily	See B above See A above	200.00
		Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps	Dredging contractor					
Akinjole Stream, Oluwo Area.	Mobilization and demobilization of dredger to site could affect routine traffic	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One-off, during mobilization and demobilization	See C above	200.00
	Generation of	Spoil dumps shall be	Dredging					

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	excavated materials	discontinuous with minimum of 5m spacing between dumps	contractor	100.00	Monitor disposal of spoils by stream banks	Daily	See A above	200.00
Peace Estate stream, Kukumanda	Narrowness of stream at about 100m stretch will not allow in a Dredger	manual dredging will be used at the top 100m and at this location, width shall be reduce to 4m instead of 6m. Downstream portions will be carried out as planned	Dredging contractor	-	Monitor manual dredging at the top 100m of the proposed dredging stretch	Daily	See A above	100.00
	Mobilization and demobilization of dredger to other stretch of about 1,400m could affect routine traffic	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One-off, during mobilization and demobilization	See C above	100.00
	Generation of excavated materials	Spoil dumps shall be discontinuous with minimum of 5m spacing between dumpsOnly	Dredging contractor; Supervising Engineer;	100.00	Monitor disposal of spoils by stream banks	Will be covered during routine daily monitoring	See A above	300.00
Ahoyaya River, Olodo Area	Mobilization and demobilization of dredger to site could affect routine traffic	Mobilization and demobilization of dredgers shall be undertaken during off peak traffic. The Traffic Management Plan presented in Annex 10 shall be applied. Traffic agencies such as the OYTMA	Dredging contractor	200.00	Monitor traffic during mobilization and demobilization	One-off, during mobilization and demobilization	See C above	200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		and the FRSC shall be enlisted to direct traffic during this period						
	Generation of excavated materials	Disposal of dredged spoil shall be only on the Left Hand Side in places where houses/residences occur. Downstream portions will be carried out as planned Spoil dumps shall be discontinuous with minimum of 5m spacing between dumpsOnly	Dredging contractor; Supervising Engineer; Dredging contractor; Supervising Engineer;	100.00	Monitor disposal on the right hand side around locations where houses/structures occur proposed dredging stretch Monitor disposal of spoils by stream banks	Will be covered during routine daily monitoring Daily	See B above See A above	300.00
Yokelepekun Stream This aspect of the ESMP will be applicable on the site on commencement of works after the preparation and implementation of A/RAP. Please refer to Table 2.8, row	Mobilization and demobilization of the dredger to and from site could affect normal transport in the area Generation of excavated materials	The Traffic Management Plan presented in Annex 10 shall be applied during evacuation of dredged materials around the bridge. And also during mobilization and demobilization of dredgers to site. Traffic agencies such as the OYTMA and the FRSC shall be enlisted to direct traffic during this period Spoil dumps shall be discontinuous with minimum of 5m spacing between dumps. Excavated/dredged materials around the culvert, which are mostly Municipal Solid Waste	Dredging Contractor Dredging Contractor Dredging Contractor	200.00 250.00	Monitor traffic during mobilization and demobilization Monitor dimensions (height, length and distance from stream bank) of spoil dumps, as well as distance between dumps to ensure that drainage routes are not cut off.	One off during mobilization and demobilization Daily	See C above See A above	200.00 200.00

Site Address	Potential Impacts of Stream Dredging	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
30 on page 31 for details.		shall be evacuated and disposed at designated locations, based on the Waste Management Plan in Annex 11		750.00				
SUB TOTAL				**15,700**				**19,100.00**

Table 3.2: Environmental and Social Impacts Mitigation and Monitoring Plan on drainages to be Cleared/De-silted

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Gbenla-Oje Road	Traffic congestion	Use of signages and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor	200.00	Monitor traffic during drain clearing	Daily	**D)** HSE Supervisor PIU Environmental & Social Experts	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards, as well as obstruct access	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	**E)** HSE Supervisor PIU Environmental Experts, ME&WR, OYOWMA/WAE	50.00
		Clearing of Drains will be done at night, or during the regular Thursday weekly environmental sanitation where there are markets.	Contractor; Supervising Engineer;	300.00			**F)** HSE Supervisor OYOWMA/WAE	

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Temidire-Oje Road	Traffic congestion	Use of signages and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	300.00	Monitor appropriate disposal of excavated materials	Daily Covered in the course of routine daily monitoring of the entire works	See E above	50.00
	Possible damage to water pipes that pass through the drain	Care shall be taken in clearing the drains where water pipes occur. This will require support from the Oy State Water Corporation (OSWC)	Contractor	100.00	Monitor appropriate handling of drainage where utility pipes pass through		HSE Supervisor PIU Environmental and social Experts, ME&WR and OSWC	
Agbadagbudu-Adeoyo	Traffic congestion	Use of signales and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
					Monitor appropriate disposal of excavated materials	Daily	See E above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor drain clearing around market	Daily	ME&WR	50.00
Total Garden-Adeoyo Road	Traffic congestion	Use of signages and cautions. Traffic control Agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Omolewa-UCH Road	Traffic congestion	Use of signages and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor; Supervising Engineer	100.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	300.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Parliamentary Road, by Secretariat	Obstruction of free flow of traffic	Use of signages and cautions. Traffic control agencies such as the OYTMA and the FRSC will	Contractor	100.00	Monitor traffic during drain clearing	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		be mobilized to support traffic control during excavation works, in line with the provisions Traffic Management Plan in Annex 11						
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Popoyemoja to Oke Ado Road	Traffic congestion	Use of signals and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
7th Day to Iyaganku	Traffic congestion	Use of signals and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	health hazards							
J. Allen to Dugbe Alawo	Traffic congestion	Use of signals and cautions. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Salvation Army	Traffic congestion	Use of signages and cautionss. Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Mokola- Ode Oolo	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11						
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Awolowo Road, Bodija	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Awolowo Junction to Secretariat	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Govt House-Officer's Mess-Customs.	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Atowoda, Inalende (Wrongly labelled Afonoda)	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
ANCE-Aleshinloye-Iyaganku	Traffic congestion	Use of signages and caution Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor;	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Onireke Junction/Magazine Road	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Sango-UI Road	Traffic Congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
						Daily		
		Protection of public utilities during escavation eg water pipes.	Contractor	300.00	Monitor of proper handling of Drainages with utilities	Daily	See E above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials			

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Water pipes occur in the drain along the stretch and if care is not taken during excavation, the pipes could be damaged.	Care shall be taken in clearing the drains where water pipes occur. This will require support from the Oy State Water Corporation (OSWC)						
UI to Ojoo Junction	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
UI to Agbowo	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Manual clearing will be employed here	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
	Obstruction of access	Clearing of Drains will be done at night, or during the regular Thursday weekly environmental sanitation where there is Market.	Contractor; Supervising Engineer	300.00	Monitor drain clearing around market	Daily	See F above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Mokola Flyover to Bovas Filling station (Adamasingba)	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Apata – Benbow road	Traffic congestion	Use of signals and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
New Adeoyo Road	Traffic Congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
				100.00	Monitor appropriate	Daily	See E above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor		disposal of excavated materials			
Ijokodo Junction-WAEC-Poly Road	Traffic congestion	Use of signals and caution Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor;	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Benjamin-Eleyele-Oluseyi Road	Traffic congestion	Use of signals and caution Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
ApataOluyole Estate-Ring Road	Traffic congestion Generation of excavated wastes which could constitute aesthetic and health hazards	Use of signals and caution Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works,	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		in line with the provisions of Traffic Management Plan in Annex 11 All excavated materials will be carted away to approved dumpsites	 Contractor	 100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Orita Challenge-Odo Ona Elewe-Akala Expressway	Traffic congestion Generation of excavated wastes which could constitute aesthetic and health hazards	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11 All excavated materials will be carted away to approved dumpsites	Contractor Contractor	200.00 100.00	Monitor traffic during drain clearing Monitor appropriate disposal of excavated materials	Daily Daily	See D above See E above	50.00 50.00
Agugu-Oremeji-AtoluOgbere	Traffic congestion Generation of excavated wastes which could constitute aesthetic and health hazards	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11 All excavated materials will be carted away to approved dumpsites	Contractor Contractor	200.00 100.00	Monitor traffic during drain clearing Monitor appropriate disposal of excavated materials	Daily Daily	See D above See E above	50.00 50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
Gbaremu Junction – Hope Road – Airport junction	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Felele Straight Road	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Muslim-Mosfala-Pegba Road	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Muslim-Odinjo-Eleta junction road	Traffic congestion	Use of signages and cautions Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Olode-Abatiti-Kukumanda Junction	Traffic congestion	Use of signals and caution Traffic control agencies such as the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11	Contractor	200.00	Monitor traffic during drain clearing	Daily	See D above	50.00
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
Alakia-Isebo-Iyana Church	Traffic congestion	Use of signages and cautions. Traffic control agencies such as	Contractor	200.00	Monitor traffic during drain	Daily	See D above	50.00

Site Address	Potential Impacts of Drains Clearing	Recommendations/Mitigation	Party Responsible for Implementation of Mitigation	Cost of Mitigation (US$)	Monitoring Indicators	Frequency of Monitoring	Responsible Party for Monitoring	Estimated Costs of monitoring (US$)
		the OYTMA and the FRSC will be mobilized to support traffic control during excavation works, in line with the provisions of Traffic Management Plan in Annex 11			clearing			
	Generation of excavated wastes which could constitute aesthetic and health hazards	All excavated materials will be carted away to approved dumpsites	Contractor	100.00	Monitor appropriate disposal of excavated materials	Daily	See E above	50.00
SUB TOTAL				**11,400.00**				**3,550.00**

3.4 Contractual Measures

Most of the mitigation measures are the obligations of the Contractor during all phases of project implementation. Therefore, provision should be made in the tender documents to conveniently address all the mitigation measures, 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.

To ensure compliance, the requirements will be translated into a suite of environmental and social specifications that are written in the same language style and format as the rest of the contract document, thereby ensuring that the environmental and social controls integrate seamlessly into the tender document and are presented in a familiar form to the Contractor. This approach will ensure that such obligations are clearly communicated to contractors and that submitted tenders have taken into account and budgeted for the environmental and social requirements specified in the ESMP.

3.5 Environmental and Social Management and Monitoring Program

3.5.1 Monitoring and Reporting Procedure

The entire project is short-term, and dredging / clearing works are not expected to be more than 1 month. However, there is a need to monitor the implementation of the ESMP. The effectiveness of the mitigation measures are greatly dependent on the strict and timely implementation of these measures and these cannot be entrusted entirely to the contractors. Therefore, the Safeguards unit of the PIU, working in consonance with the State Ministry of Environment and Water Resources, shall arrange to undertake comprehensive monitoring of the dredging and channel clearing activities. The E&S monitoring shall be aimed at ensuring that the mitigation measures recommended above are implemented and that they are serving effectively to ameliorate the anticipated impacts.

For effective monitoring, the following measures will be taken:

- The PIU shall engage a supervising HSE Consultant to work in conjunction with the Supervising Engineer, to ensure that mitigation measures are properly implemented, in a timely manner
- Where breaches or non-compliance are observed, the HSE Supervisor shall be empowered to issue stop-work orders.
- Additional Monitoring will be conducted by trained Environmental and Social Specialists/Consultants of the PIU and other relevant personnel;

3.6 Institutional Arrangements

Although this is a short-term project, 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.

Table 3.4: Institutional Safeguards Responsibilities

S/No	Category	Roles & Responsibilities
1.	Safeguards Unit	**Environmental Safeguards** • Collate environmental baseline data on relevant environmental characteristics of the selected project sites; • Analyze potential community/individual sub-projects and their environmental impacts; • Ensure that project activities that are implemented will be in accordance to best practices and guidelines set out in the site specific ESMP; • 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

S/No	Category	Roles & Responsibilities
		implementation. **Social Safeguards** • Develop , coordinate and ensures the implementation of the social aspects of the ESMP • Identify and liaise with all stakeholders involved in social related issues in the project;
2.	PIU	• Liaise closely with Oyo State Ministry of Environment and Water Resource in preparing a coordinated response on the environmental and social aspects of project development respectively; • Safeguards due diligence
3.	Ministry of Environment and Water Resources	• Environmental compliance overseer at the State level • Lead role - provision of advice on project implementation • Site assessment and monitoring of ESMP implementation
4.	Other relevant State Government MDAs	• Other MDAs come in as and when relevant areas or resources under their jurisdiction or management are likely to be affected by or implicated projects. These will include the State Transport Management Authority (OYTMA) and the State Waste Management Agency (OYOWMA) • They participate in the EA processes and in project decision-making that helps prevent or minimize environmental and social impacts and to mitigate them. These institutions may also be required, to issue a consent or approval for an aspect of a project; allow an area to be included in a project; or allow impact to a certain extent or impose restrictions or conditions, monitoring responsibility or supervisory oversight
5.	World Bank	• Overall supervision and provision of technical support and guidance. • Recommend additional measures for strengthening the management framework and implementation performance; • Supervising the application and recommendations of sub- project ESMPs.
6.	Contractor	• Compliance to BOQ specification in procurement of material and project implementation
7.	Site Engineers/HSE Supervisors	• Provide oversight function during construction and decommissioning • Ensure that recommended mitigation measures are strictly implemented • Issue stop work order where human/community health and safety are at risk (However, this shall only be as a last resort)
8.	Local Government	• 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
9.	Local Community	• 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 projects, amongst the various relevant grass roots interest groups.
10.	CDA	• Ensure Community participation by mobilizing, sensitizing community members;
11.	NGOs/CSOs	• Assisting in their respective ways to ensure effective response actions, Conducting scientific researches alongside government groups to evolve and devise sustainable environmental strategies and rehabilitation techniques, Organizing, coordinating and ensuring safe use of volunteers in a response action, and actually identifying where these volunteers can best render services effectively & Providing wide support assistance helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts and mitigation measure, Awareness campaigns
12.	Others/General Public	• Identify environmental and social issues that could derail the project and support project impacts and mitigation measures, Awareness campaigns

3.7 Cost Estimates

To effectively implement the mitigation and monitoring measures recommended in this ESMP, necessary provision will have to be made. The cost of these measures have been estimated and included in the ESMP. The cost of mitigation by the Contractor will be included in the contract as part of the implementation cost while a provisional sum will be set aside for monitoring. As indicated earlier, the PIU will engage an independent HSE supervisor, who will work in conjunction with the supervising engineers to ensure the smooth and proper implementation of the project.

The estimated costs of implementing the ESMP will include the following:

1. Cost of Mitigation and Monitoring for Dredging of Channels/Drains	US$34,800.00
2. Cost of Mitigation and Monitoring for Clearing blocked drains	US$14,950.00
3. Cost of Hiring dedicated HSE Supervisor for a 30-day period @ US$500/day	US$15,000.00
Total Cost for implementation of the ESMP	**US$64,750.00**
10% of total for Contingency	**US$ 6,475.00**
Grand Total	**US$71,225.00**

(Seventy-one Thousand, two Hundred and twenty-five United States Dollars Only)

CHAPTER FOUR: PUBLIC CONSULTATION

4.1 Rationale for consultations

Public consultation has proven to be vital in project conception and implementation. It allows people own the projects and enhances project survival and trust between government and beneficiary community. For this project, we engaged critical stakeholders including 'affected parties" and 'other interested parties' for the overall success of the project. The affected parties were property owners, residents and business owners while other affected parties were NGOs and government officials. Because of the nature of this project, which is an emergency activity and which is one-off, no formal consultation activity was arranged. However, guided discussions were held with various community leaders and people within the project site vicinities.

4.2 Procedure

In order to achieve this, the following procedure was undertaken while engaging the communities.

1. *Pre-consultation:* The PIU safeguards unit obtained the list of community leaders who had written requests to the Ministry of Environment for the proposed works. Most of the requests were turned in by Landlords Associations of the affected areas as well as umbrella Community Development Associations.
2. *Discussion with Stakeholders:* Further to the above, one-on-one engagements as well as unstructured community meetings were held in some of the project areas. Follow-up discussions were held via telephone conversations in some instances. These different strategies enabled the acquisition of more data useful for the execution of the project. Where group discussion took place, we ensured moderation in order to control for dominance. The Consultant socioeconomic team utilized both only qualitative methods (In-depth interviews, administration of questionnaire as well as key informant interviews). Records of persons met in the locations where meetings took place is included as annex 5 of this report

4.3 Summary of the proceedings of consultations

Generally, all respondents, including those who refused to be mentioned or captured on camera were positively receptive to the planned interventions and were grateful for the anticipated interventions. However, in some cases, specific issues were highlighted. A summary of these specific issues are presented in Table 5.1 below.

Table 4.1: Summary of proceedings of consultations

S/N	Site Address	Issues arising from consultation	Contact persons details
1.	Labi Stream, Moniya (Labi 1 Community)	The Chairperson and other representatives of the CDA indicated that the problem was more than just dredging. We were taken round areas where portions of the community had been split and the road link was no longer existent as the linking culvert across the stream had been damaged. Although the dredging would be a temporary palliative, a long-term solution would require the construction of culverts at a minimum of two points. Plates 5.1 to 5.4 show portions of the community where these issues exist.	Mrs. Adekunle (CDA Chairperson) – 08038563965 Mr. Amudipe – 08062990731 Mrs. Oyewale - 07067374030
2.	Omolewa to UCH Road	The people are very receptive to the planned project. However, they claim that the issues are more because of improper disposal of excavated materials during the construction of the road in the area, recently completed. This blocked existing natural drainage and thus led to ponding in the area. Therefore, beyond clearing the drainage, they expect that some efforts must be made to restore the natural drainage, so as to prevent flooding in the area.	Idowu Fagbiyan – 08072170281 Ishola Jelili – 08058418331

S/N	Site Address	Issues arising from consultation	Contact persons details
3	Inalende-Atowoda	The residents complained about the size of the pipe culvert in the area. They attributed incessant flooding events to this crossing structure. The residents stated that it was difficult to stop the deposition of waste by residents of the upland areas of the neigbourhood but that if the culvert was improved to a higher capacity structure, it would be able to accommodate more stormwater irrespective of the human activity producing the solid waste. The residents also expressed their readiness to ensure the security of the operations of the contractor despite the presence of restive youths in the area.	Mr. Raheem Adebayo – 08028794941 Mr. Sefiu Imran – 070056942823 Mr Tosin Taofeek – 08052149366 Mr Saheed Ayuba – 08032505621 Hon. Liadi Ajibola – 08056982299 Mr Akolade Ganiyu – 07066648200
4	Bethel Stream, Bode Igbo, Abeokuta Road.	The chairman of the landlords association explained the several efforts of the community to control the meandering of the river beyond its course. They expressed their desire to conduct community self-monitoring during the proposed dredging works to ensure that the ponds in the area are protected against deposition of silt.	Mr Fasoyin Oladimeji (Chairman, Bethel Estate Landlords Association) – 08033727446 Mr. Popoola Olusayo (Vice Chair) – 08054541783 Mr. Aborisade Olajide (Asst Secretary) – 08033769991
5	Ahoyaya River, Off Kumapayi, Olodo Area	Some of the executives of the landlords association in the area explained the need for the dredging activity. They informed the team that the meandering of the strm of its normal course due to siltation accounted for several episodes of flooding. They also showed the team how they have developed adaptive mechanisms through the construction of concrete barriers at the entrance of their buildings. They specifically requested that the dredging should lean more towards the other side of the stream where there were no buildings.	Chief (Mrs) Titilayo Windapo (Landlady/Resident) – 07034856546 Mr Oyebade (Landlord) – 08128904022 Dr. Oladele Windapo (Chairman, Landlords Association) – 08030528808
6	Akuru Eleta stream, Ekebu Area	The community members expressed their joy for the proposed intervention. The stated the series of previous community efforts that had led to the construction of the crossing that currently connects the Akuru and Eleta communities. They also expressed their readiness to monitor the proposed works such as not to negatively affect the people in the area.	Mr Ewetola a.k.a Baba Express (Vice Chairman and initiator of community-led culvert construction) - 08054744528 Ponle Ojoogun (Resident/Landlord) – 08051980367
7	Apata – Benbow Road	The residents of the area and a few Okada riders informed our team that the blockage of the drains on the LHS of the stream is the major causal factor for flooding of the road. A trader in the Apata market informed the team of the procedures adopted by market traders to keep the drains in their market free of debris. Another trader indicated that this efforts were sustained through the supervisory work of the Environmental Health Officers from the Ibadan SW LGA They also narrated the difficulties faced by motorists due to the inundation of the road by stormwater. They requested for the inclusion of youths in the area in the clearing of the debris and also suggested that excavated silt should be used to fill up the eroded areas of the road.	Mr Emmanuel (Apata Market Trader) – 08132413301 Alhaji Wasiu Apata Market Trader) – 081857892 Prince Adesida (Roadside Furniture Maker) – 08168800768 Adeola Fatoye (Youth/Okada Rider) – 08104072549
8	Atumini Stream, Alesulo-Atagba	The community lamented the lsses that they had experienced due to the overtopping of the culvert which includes the loss of lives. They also narrated their previous and ongoing efforts to improve the flow capacity of the culvert. They solicited the help of the IUFMP to train the river in a way as to ensure it can discharge water through the box culvert constructed through communal efforts.	Mr Babajide I.A (General Chairman, Irewolede Estate, Alesulo-Atagba Landlords association) – 08034950204 Mr. Adeyemo R. (08039199245 Muritala Adebimpe

S/N	Site Address	Issues arising from consultation	Contact persons details
		They expressed their readiness to support and monitor the project as they had done previously with illegal sand-miners in the area.	(08154306673) Chief Olabamiji Adejumo (08055676664)
9	Gbanamu Stream, Behind Scout Camp, Felele	The community members interviewed stated that the community was flood free before the construction of a new culvert in the area. The culvert was not properly terminated and discharges water into the otherwise peaceful Gbanamu stream therefore raising the total water volume and flooding the downstream neighbourhoods. They asked for help on the issue from government through IUFMP.	Mr. Akinyemi Olabode (Landlord/Resident) – 08054280578) Dr. Vincent Ayodeji (08033462141) Alhaji Alidu (08038109357) Mrs Akinyera (08132347051)
10	Odo Oba Elere	The leaders of the community who received the IUFMP team, explained that the major reason for the inundation of their homes during storm events was the meandering of the river due to siltation of the normal river course. They were optimistic that the training of the river and removal of silt would protect the neighbourhood especially with the return of the rains.	Mr Kudus Moyosore (Resident) – 08055852206 Mr Yusuf Babatunde (08070506262) Mr Kayode Oyatayo (08038095937)
11	Oke Ayo Stream, Apata Gada Area	People living on the flood plain in this area (the spiritual leaders of CCC Oke Majemu Parish) explained how the high level of the downstream section of the river was higher than the upstream location. Due to this problem, the stream usually backflows when there is high rainfall. The requested that the river channel should be made to flow through a portion of land to the rif=ght of the stream. The team however informed them that it would not be necessary. They were assured that the removal of silt from the downstream section would create enough room for water to flow through during flood events.	Most Superior Evangelist Ogunmuyiwa (Shepherd) – 08055137514 Snr Evangelist Abdul (Asst Shepherd) – 08058291582
12	Akinjole Stream, Oluwo Area	The community leaders led by the Landlords Association chairman expressed the need for a culvert or bridge at the crossing point on the Apasa stream in the area. They narrated how difficult it was to get through the stream during flood event. In response, they were informed that the current intervention was only to dredge rivers and stream in preparation for the rainy season. The culvert request can only be considered when the project is preparing other batches of long-term investments.	Elder Olufemi Ojeniran (Chairman, Ifesowapo Landlords Association) – 07030799660
13	Akinfenwa Stream, Aroye Phase 2	The leaders of the community expressed their eagerness for the commencement of the dredging due to the negative toll of incessant flooding in their area.	Alh. Mufutau Gbadamosi (Chairman, Akinfenwa Progressive Landlords Association) – 08023680989 Prince Lawrence Oyekanmi (08063245475)
14	Akilapa Stream Ogbere Babanla Area	The community leaders seen told the IUFMP team that dredging was not sufficient to deal with the inundation at the point.	Mr Akeem Olajide (08054640272) Barr Adediran (08076917686)
15.	Goodness Estate Stream	A resident indicated that her fence had been brought down by rains the previous year and that the CDA meets regularly and discusses about the need to get government support to resolve the issue of flooding	Princess Maina-Bamgboye 08057652314
16.	Kute Stream	The operator of a Petrol Station close to the site indicated that the operation would be welcome as they usually suffer serious flooding and inundation during the rains.	Mrs. Adejo 08023075539
17.	Wofun Stream	The operator of a Horticultural garden by the waterway indicated that flooding, though usuall short term after heavy rainfall, is a major issue in the area, and lauded the efforts to resolve the issue through the planned dredging.	Mr. Babatunde Tijani 08187365107

CHAPTER FIVE: SUMMARY AND RECOMMNEDATIONS

Generally, the study has indicated that the proposed project is desirable and will not cause significant adverse effects on the existing environmental, social and health situations of project sites, as well as safe conditions of the people, locally. Although a number of adverse impacts are anticipated, they can be reasonably mitigated using simple and cost-effective measures.

The successful application of the mitigation measures is hinged on stringent monitoring and enforcement of the ESMP. The PIU, working in consonance with the State Ministry of Environment and Water Resources must ensure that the project is properly monitored during its implementation.

ANNEXES

ANNEX 1: RESULTS OF IN-SITU AIR MEASUREMENT

S/N	Site Name	Noise Levels (dB)	Air Quality				
			TSP ($\mu g/m^3$)	CO	SO_2	NO_2	HC
				(ppm)			
1.	Onilu Stream, Asamajana, Moniya	**40**	24.5	0.3	ND	ND	ND
2.	Elebu Stream, Asamajana	50	19.7	0.2	ND	ND	ND
3.	Odo Eran, Moniya	55	23.4	0.2	ND	ND	ND
4.	Labi Stream, Moniya	60	17.6	0.4	ND	ND	ND
5.	IITA Power Line	67	24.6	0.3	ND	ND	ND
6.	IITA, Downstream Ona River	60	31.0	0.1	ND	ND	ND
7.	Goodness Estate Stream	68	28.6	ND	ND	ND	ND
8.	Akobo Estate Stream	64	41.8	0.2	ND	ND	ND
9.	Sooko stream, Akobo Ojurin	50	36.4	0.1	ND	ND	ND
10.	Kute Stream	70	36.7	0.2	ND	ND	ND
11.	Wofun Stream	45	44.0	0.1	ND	ND	ND
12.	Oganla Stream, Olodo Bank Area	19	32.5	ND	ND	ND	ND
13.	SPAC AOFunmi tream, Poly Road, Sango	65	27.8	0.2	ND	ND	ND
14.	Gbenla-Oje Road	78	30.7	0.1	ND	ND	ND
15.	Temidire-Oje Road	60	54.6	0.2	ND	ND	ND
16.	Agbadagbudu-Adeoyo	55	72.3	0.1	ND	ND	ND
17.	Total Garden-Adeoyo Road	50	65.8	0.3	ND	ND	ND
18.	Omolewa-UCH Road	58	55.5	0.1	ND	ND	ND
19.	Parliamentary Road, by Secretariat	50	57.3	ND	ND	ND	ND
20.	Popoyemoja to Oke Ado Road	60	24.5	0.2	<0.01	<0.01	<0.01
21.	7th Day to Iyaganku	42	19.7	0.1	<0.01	<0.01	<0.01
22.	J. Allen to Dugbe Alawo	57	23.4	0.2	<0.01	<0.01	<0.01
23.	Salvation Army	54	17.6	0.1	<0.01	<0.01	<0.01
24.	Mokola- Ode Oolo	67	24.6	0.2	<0.01	<0.01	<0.01
25.	Awolowo Road, Bodija	60	31.0	0.2	<0.01	<0.01	<0.01
26.	Awolowo Junction to Secretariat	68	28.6	0.3	<0.01	<0.01	<0.01
27.	Govt House-Officer's Mess-Customs.	64	41.8	0.2	<0.01	<0.01	<0.01
28.	Atowoda, Inalende (Wrongly labelled Afonoda)	58	36.4	0.3	<0.01	<0.01	<0.01
29.	ANCE-Aleshinloye-Iyaganku	70	36.7	0.3	<0.01	<0.01	<0.01
30.	Onireke Junction/Magazine Road	75	44.0	0.1	<0.01	<0.01	<0.01
31.	Sango-UI Road	60	32.5	0.2	<0.01	<0.01	<0.01
32.	UI to Ojoo Junction	65	27.8	0.2	<0.01	<0.01	<0.01
33.	UI to Agbowo	78	30.7	0.1	<0.01	<0.01	<0.01
34.	BOVAS-FLYOVER MOKOLA	60	54.6	0.2	<0.01	<0.01	<0.01
35.	APATA BENBOW ROAD	79	72.3	0.1	<0.01	<0.01	<0.01
36.	APATA OLUYOLE ESTATE RING ROAD	48	65.8	0.2	<0.01	<0.01	<0.01
37.	STATE HOSPITAL ROAD, OFF RING ROAD	58	55.5	0.2	<0.01	<0.01	<0.01
38.	IJOKODO JUNCTION-WAEC POLY	54	57.3	0.2	<0.01	<0.01	<0.01
39.	BENJAMIN-ELEYELE-OLUSEYI ROAD	60	41.8	0.2	<0.01	<0.01	<0.01
40.	ORITA CHALLENGE-ODO ONA ELEWE	78	50.8	0.3	<0.01	<0.01	<0.01

S/N	Site Name	Noise Levels (dB)	Air Quality				
			TSP ($\mu g/m^3$)	CO	SO_2	NO_2	HC
				(ppm)			
41.	OREMEJI AGUGU-ATOLU OGBERE	70	66.7	0.3	<0.01	<0.01	<0.01
42.	HOPE ROAD-GBAREMU JUNCTION	60	58.2	0.1	<0.01	<0.01	<0.01
43.	FELELE STRAIGHT	68	57.5	0.2	<0.01	<0.01	<0.01
44.	MUSLIM MOSFALA-PEGBA ROAD	70	65.6	0.2	<0.01	<0.01	<0.01
45.	MUSLIM ODINJO-ELETA ROAD	60	48.6	0.2	<0.01	<0.01	<0.01
46.	OLODE-ABATITI-KUKUMADA JUNCTION	50	51.8	0.1	<0.01	<0.01	<0.01
47.	ALAKIA-ISEBO-IYANA CHURCH	82	50.2	0.2	<0.01	<0.01	<0.01
48.	OKE AYO RIVER-ODO ONA-GADA AREA	60	51.0	1.1	<0.01	<0.01	<0.01
49.	APATA PETE STREAM- CELE APATA	65	56.0	1.3	<0.01	<0.01	<0.01
50.	ALARO DOWNSTREAM OLUYOLE AREA	65	56.8	1.2	<0.01	<0.01	<0.01
51.	AKURU/ELETE STREAM ELEBU	50	49.7	1.1	<0.01	<0.01	<0.01
52.	BETHEL STREAM-BODE IGBO	55	54.5	1.2	<0.01	<0.01	<0.01
53.	ATUNMINI STREAM-ATAGBA	70	53.6	2.5	<0.01	<0.01	<0.01
54.	AKILAPA STREAM OGBERE BABANLA AREA	67	63.5	2.3	<0.01	<0.01	<0.01
55.	AKINFENWA STREAM-AROYE PHASE II	75	54.3	2.2	<0.01	<0.01	<0.01
56.	**AYEDADE OROGUN STREAM**	50	57.0	1.1	<0.01	<0.01	<0.01
57.	GBANAMU STREAM FELELE	64	58.3	1.2	<0.01	<0.01	<0.01
58.	ELERE STREAM (BESIDE TAMOIL)	50	51.2	1.4	<0.01	<0.01	<0.01
59.	AJOFEEBO STREAM-SOKA AREA	75	24.5	1.3	<0.01	<0.01	<0.01
60.	GBARO AJIMOSUN STREAM	75	19.7	0.1	<0.01	<0.01	<0.01
61.	AJOFEEBO STREAM-SOKA AREA	60	23.4	0.3	<0.01	<0.01	<0.01
62.	GBARO AJIMOSUN STREAM	65	17.6	0.2	<0.01	<0.01	<0.01
63.	OKE-OMI PHASE II OGUNGBADE	78	24.6	0.2	<0.01	<0.01	<0.01
64.	AKINJOLE STREAM-OLUWO AREA	60	31.0	1.1	<0.01	<0.01	<0.01
65.	PEACE ESTATE STREAM KUKUMADA	55	28.6	1.2	<0.01	<0.01	<0.01
66.	AHOYAYA RIVER-OLODO AREA	50	41.8	1.5	<0.01	<0.01	<0.01
67.	YOKELEPEKUN STREAM PHASE II	58	36.4	0.3	<0.01	<0.01	<0.01

ANNEX 2: IN-SITU WATER MEASUREMENTS AT STREAMS AND CHANNELS

Sampling Code	pH	Cond mS/cm	TDS mg/l	Salinity ‰	Turbidity NTU	Temp °C	DO mg/l
GOODNESS ESTATE STREAM	6.2	0.02	52	0	450	28.9	3.5
LABI STREAM (POWER LINE MONIYA)	6.4	0.04	47	0	500	29.1	5.5
ODO ERAN STREAM, MONIYA/ISEYIN	6.5	0.06	48	0	490	28.8	5.1
ELEBU STREAM, ASANMAJANA	6.3	0.07	46	0	540	29.7	4.5
ONILU STREAM, ASANMAJANA	6.6	0.03	49	0	455	28.5	4.3
UNDER POWER LINE IITA	6.4	0.04	51	0	495	28.8	4.0
IITA DOWN STREAM - ODO ONA	6.5	0.02	56	0	510	29.5	4.1
OKE-OMI PHASE II OGUNGBADE	6.2	0.04	55	0	620	29.2	4.6
AKINJOLE STREAM-OLUWO AREA	6.4	0.03	50	0	545	28.9	4.7
PEACE ESTATE STREAM KUKUMADA	6.3	0.06	47	0	455	29.3	51
AHOYAYA RIVER-OLODO AREA	6.4	0.04	55	0	497	28.9	5.4
YOKELEPEKUN STREAM PHASE II	6.3	0.03	51	0	500	28.5	5.5
INALENDE AFONODA	6.2	0.07	46	0	505	29.3	4.8
SPAC/AOFUNMI STREAM POLY ROAD	6.3	0.04	48	0	451	29.7	4.3
OGUNPA TRIBUTARY STREAM, SALAMI ESTATE	6.4	0.02	49	0	471	29.5	3.8
GBANAMU STREAM FELELE	6.6	0.08	65	0	483	25.4	4.7
ELERE STREAM (BESIDE TAMOIL)	6.6	0.12	91	0	475	29.7	4.8
AJOFEEBO STREAM-SOKA AREA	6.2	0.07	58	0	450	27.0	4.8
GBARO AJIMOSUN STREAM	6.2	0.06	47	0	521	27.8	6.5
OKE AYO RIVER-ODO ONA-GADA AREA	6.2	0.06	49	0.0	459	26.0	5.5
APATA PETE STREAM- CELE APATA	6.3	0.07	46	0	470	29.7	5.5
ALARO DOWNSTREAM OLUYOLE AREA	6.6	0.03	49	0	455	28.5	5.9
AKURU/ELETE STREAM ELEBU	6.4	0.04	51	0	495	28.8	6.3
BETHEL STREAM-BODE IGBO	6.5	0.02	56	0	470	29.5	5.7
OGANLA STREAM-OLODO BANK AREA	6.2	0.04	55	0	460	29.2	5.8
WOFUN STREAM	6.4	0.03	50	0	455	28.9	6.1
KUTE STREAM	6.3	0.06	47	0	455	29.3	6.3
AKOBO ESTATE STREAM	6.4	0.04	55	0	483	28.9	6.5
SOOKO STRAM, AKOBO OJURIN	6.3	0.03	51	0	475	28.5	5.9
ATUNMINI STREAM-ATAGBA	6.2	0.07	46	0	450	29.3	6.0
AKILAPA STREAM OGBERE BABANLA AREA	6.3	0.04	48	0	521	29.7	6.2
AKINFENWA STREAM-AROYE PHASE II	6.4	0.02	49	0	459	29.5	6.1
AYEDADE OROGUN STREAM	6.6	0.08	65	0	470	25.4	4.7

ANNEX 3: PHOTO VIEW OF VARIOUS LOCATIONS

Views of Odo Eran Stream Moniya and abandoned structures due to incessant flooding


Labi Stream and collapsed culvert at Moniya


Goodness Estate Stream clogged with vegetation and a collapsed fence nearby due to flooding impacts


Kute Stream clogged by vegetation and solid wastes


Drainage at Gbenla blocked by waste and collapsed portion of drainage structure

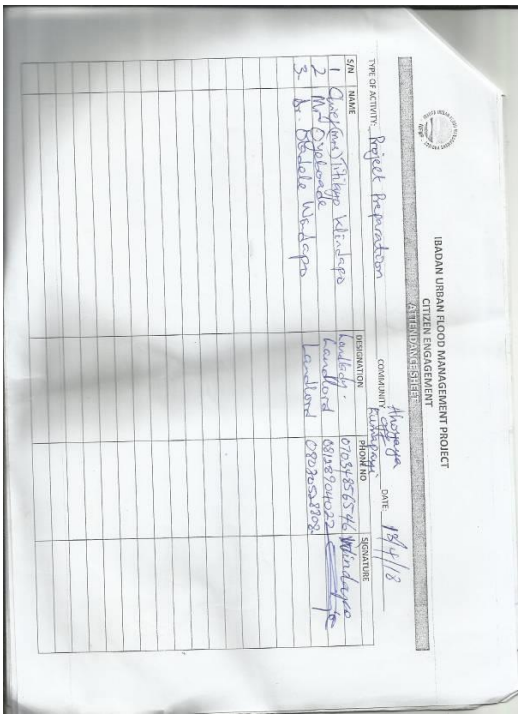

Drainage along Temidire blocked by silt and vegetal growth

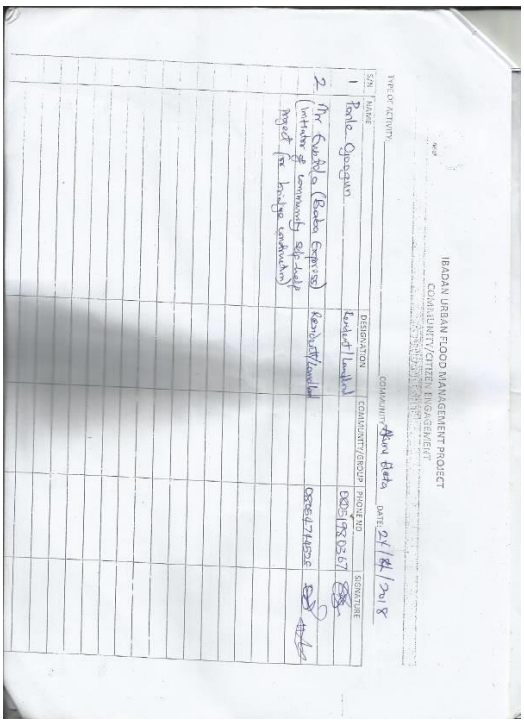


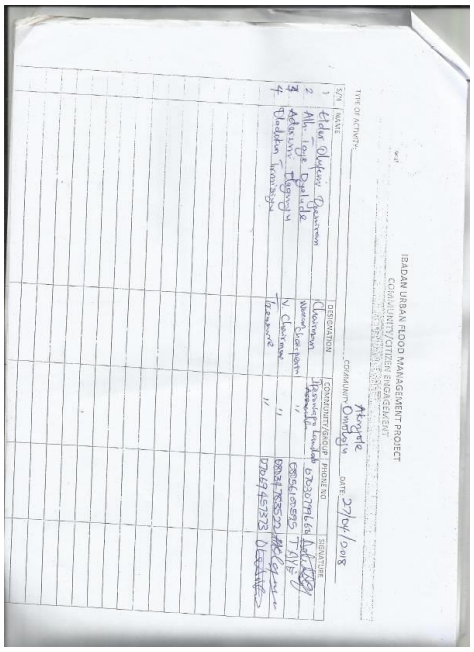
Blocked drainage around UCH


Blocked drainage along Total Garden to Adeoyo Road.

ANNEX 4: ATTENDANCE SHEETS AND PHOTOGRAPHIC RECORDS FROM SOME STAKEHOLDER CONSULTATIONS







IBADAN URBAN FLOOD MANAGEMENT PROJECT
COMMUNITY/CITIZEN ENGAGEMENT

TYPE OF ACTIVITY: _____ COMMUNITY: _____ DATE: 27/04/18

S/N	NAME	DESIGNATION	COMMUNITY/GROUP	PHONE NO	SIGNATURE
1	Alh. Mufiliou Olaolomoso	Chairman	Mufiliou Ayeni Landlords Assoc.	08036109859	
2.	Pastor Lawrence Ogbonnaya	Landlord	"	08034994736	
3	Adejoro Christopher	"	"	08105755713	

IBADAN URBAN FLOOD MANAGEMENT PROJECT
CITIZEN ENGAGEMENT
ATTENDANCE SHEET

TYPE OF ACTIVITY: Project Inspection COMMUNITY: Alaseelu DATE: 13/4/18

S/N	NAME	DESIGNATION	PHONE NO	SIGNATURE
1.	Mr Kehinde Adebayo	Resident	08287149441	
2.	Mr Segun Lawal	Resident	07056942823	
3.	Mrs. Josiah Taofeek	Trader	08054749366	
4.	Mr. Sedueed Jimoh	Resident	08032505621	
5.	Hon. Fatai Alaseelu	Community leader	08056232279	
6.	Mr Afolabi Yusuf	Mechanic	07066443808	

IBADAN URBAN FLOOD MANAGEMENT PROJECT
COMMUNITY/CITIZEN ENGAGEMENT

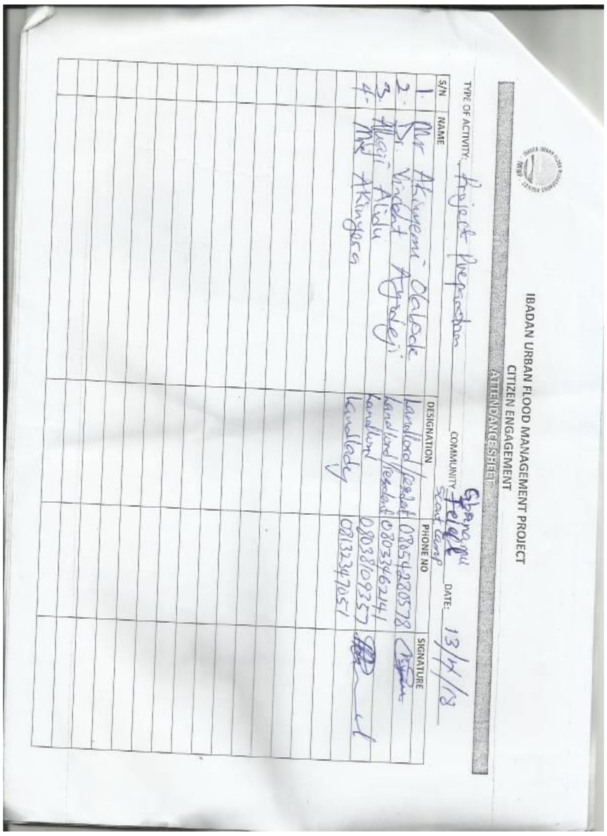
TYPE OF ACTIVITY: _____ COMMUNITY: Alaseelu DATE: 25/04/2018

S/N	NAME	DESIGNATION	COMMUNITY/GROUP	PHONE NO	SIGNATURE
1	Mr. Bankole T. A	Board Chairman	Landlords Assoc.	08034750294	
2.	Mr Adejumo R.	Landlord	"	08039019245	
3	Mumeh Adebimpe	"	"	08154320673	
4	Engr Olaleye Adejumo	"	"	08056176642	

IBADAN URBAN FLOOD MANAGEMENT PROJECT
COMMUNITY/CITIZEN ENGAGEMENT

TYPE OF ACTIVITY: _____ COMMUNITY: _____ DATE: _____

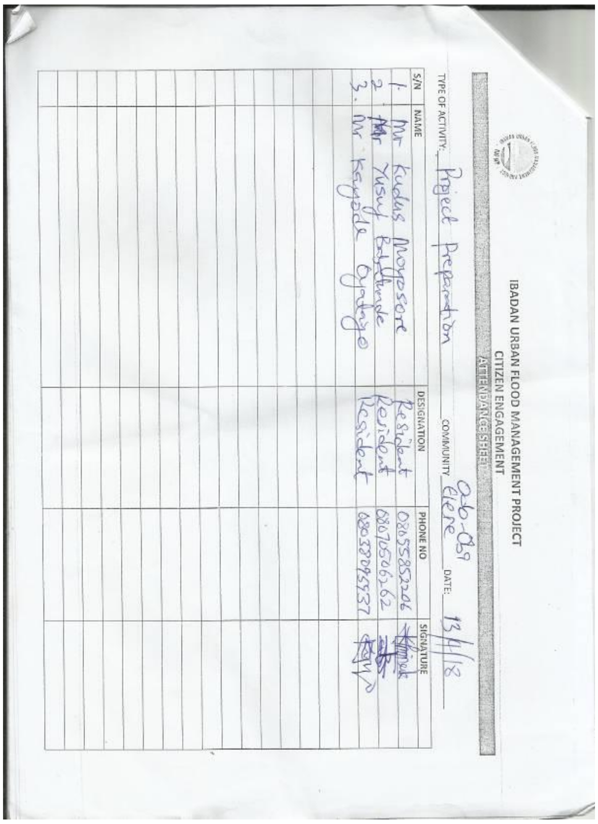
S/N	NAME	DESIGNATION	COMMUNITY/GROUP	PHONE NO	SIGNATURE
1	Mr Fasoyin Oladunjoye	Chairman	Bello Est. Landlords Assoc.	08032722744	
2.	Mr Popoola Olusoyo	V. Chairman	"	08054547783	
3	Mr Akinsade Opeyemi	Asst Secretary	"	08032769791	



IBADAN URBAN FLOOD MANAGEMENT PROJECT
CITIZEN ENGAGEMENT
ATTENDANCE SHEET

TYPE OF ACTIVITY: Project Preparation COMMUNITY: [illegible] DATE: 13/4/18

S/N	NAME	DESIGNATION	PHONE NO	SIGNATURE
1.	Mr Akinyemi Oladele	Landlord/Resident	08054280578	[signature]
2.	Dr. [illegible] Agbaje	Landlord/Resident	08033462441	[signature]
3.	Alhaji Alidu	Landlord	08038108357	[signature]
4.	Mrs Akinyosoye	Landlady	08133417051	[signature]



IBADAN URBAN FLOOD MANAGEMENT PROJECT
CITIZEN ENGAGEMENT
ATTENDANCE SHEET

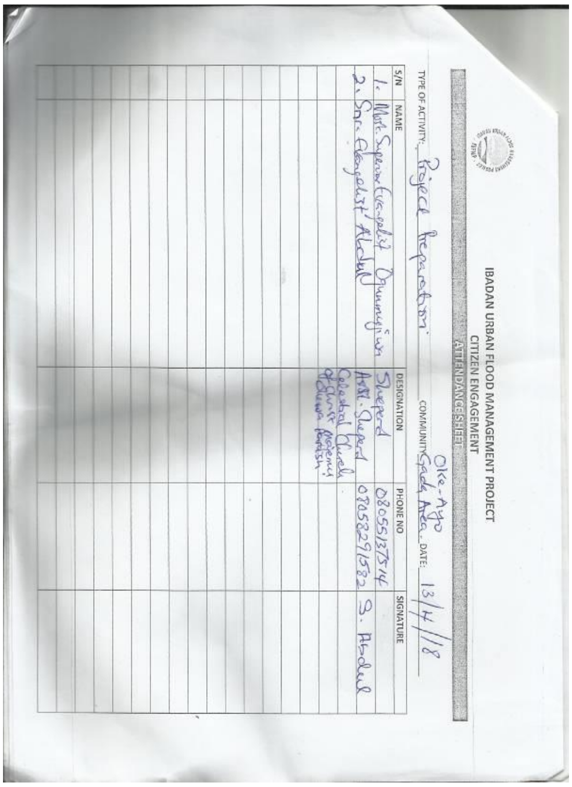
TYPE OF ACTIVITY: Project Preparation COMMUNITY: Odo-Ogo Elere DATE: 13/4/18

S/N	NAME	DESIGNATION	PHONE NO	SIGNATURE
1.	Mr Kudus [illegible]	Resident	08055852206	[signature]
2.	Mr Yusuf Babatunde	Resident	08070506262	[signature]
3.	Mr Kayode Oyatoye	Resident	08032098537	[signature]

IBADAN URBAN FLOOD MANAGEMENT PROJECT
COMMUNITY/CITIZEN ENGAGEMENT

TYPE OF ACTIVITY: COMMUNITY: [illegible] DATE: 27/4/2018

S/N	NAME	DESIGNATION	COMMUNITY/GROUP	PHONE NO	SIGNATURE
1	Mr Akeem Olayide	Resident/landlord		08054140772	
2	Dare Adedoun	Resident/landlord		08076917886	[signature]



IBADAN URBAN FLOOD MANAGEMENT PROJECT
CITIZEN ENGAGEMENT
ATTENDANCE SHEET

TYPE OF ACTIVITY: Project Preparation COMMUNITY: Oke-Ayo [illegible] DATE: 13/4/18

S/N	NAME	DESIGNATION	PHONE NO	SIGNATURE
1.	Most Senior Evangelist Ogunmujiun	Shepherd	08055137874	
2.	Snr. Evangelist Abdul	Asst. Shepherd, Celestial Church of Christ [illegible]	07058291582	S. Abdul

PIU Team with community leaders around Ahoyaya River

IUFMP Consultant and leaders of the Akinjole community

With community members at Akinfenwa Stream, Aroye Phase 2

Engagement at Atowoda Ogunpa

Consultations with Labi Community, Moniya

Discussions with Occupants of Odo-Eran, Moniya

ANNEX 5: TOR FOR THE ESMP OF THE DREDGING AND CLEARING OF BLOCKED DRAINAGES WORKS IN IBADAN

FOR THE PREPARATION OF AN ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE DREDGING AND DE-SILTING OF SELECTED RIVERS & DRAINS IN IBADAN CITY UNDER THE IBADAN URBAN FLOOD MANAGEMENT PROJECT (IUFMP)

1.0 Background

The World Bank 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.

Specifically, the Bank's support will finance some priority investments related to improving the infrastructure of Ibadan City, especially those destroyed by August 26, 2011 floods. The Bank's support will help Ibadan reduce flood risks, improve waste collection and treatment, while developing and improving the quality of existing infrastructural assets.

The project would be designed to keep a good balance between urgent post disaster needs (dredging, reconstruction of bridges, roads, etc.) and medium-to-long term needs (institutional support, upgrading existing and building new infrastructure to upgrade services and mitigate future risks). Selected sub - projects should comply with regional and local government plans, address critical issues described above to integrate planning and operational aspects that maximize the benefits of infrastructure investments to the beneficiary communities in the long run. The Project Development Objective (PDO) is to "improve the capacity of Oyo State to manage flood risk and to respond effectively and promptly to flooding in the city of Ibadan".

In Oyo State, IUFMP activities involve medium-sized civil works such as construction of infrastructure and/or stabilization or rehabilitation in and around the Ibadan city. These could result in environmental and social impacts thus triggering the World Bank's Safeguard Policies including Environmental Assessment OP 4.01; Involuntary Resettlement OP4.12; Natural Habitats OP 4.04; Physical Cultural Resources OP 4.11, and Safety of Dams OP 4.37 and Public Disclosure OP 17.60.

The environmental and social safeguards concerns are being addressed through the national instrument already prepared under the project: an Environmental and Social Management Framework (ESMF). This framework instrument need to be translated into specific cost, measurable, and monitorable actions for specific intervention sites through the preparation of site-specific management and action plans.

ESMF: In general, the ESMF specifies the procedures to be used for preparing, approving and implementing:

(i) Environmental and Social Assessments (ESIA) and or
(ii) Environmental and Social Management Plans (ESMPs) for individual civil works packages developed for each project. ESMPs are essential elements for Category B projects.

2.0 SPECIFIC OBJECTIVES:

The specific objective is for the consultant to assist Oyo State to undertake the necessary studies and prepare an Environmental and Social Management Plan (ESMP) for the Dredging and De-Silting of Selected Rivers & Drains in Ibadan City in compliance with the World Bank environmental, social safeguards policies and procedures as well as the Oyo State Ministry of Environment and Water Resources and the Federal Ministry of Environment guidelines and procedures.

This Terms of Reference (TOR) is to request a consultant with extensive experience and skill in the preparation of ESMP for Dredging and clearing Activities in selected sites in Ibadan Metropolis. The Terms of Reference (TOR) defines the scope of work and core tasks to be undertaken by the Consultant. The Consultant is expected to make reference to the on the spot assessment/feasibility study report and engineering designs of the proposed Dredging and De-Silting of Selected Rivers & Drains in Ibadan City. The documents should be obtained from the Project Implementation Unit (PIU).

3.0 GOAL OF THE WORK

The proposed Dredging and De-Silting of Selected Rivers & Drains in Ibadan City will improve the capacity of Oyo State to manage flood risk.

The identified sub-projects are classified as **category "B"** project according to the World Bank categorization and a category II project according to the FMEnv categorization. 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 measures. The nature of the project is such that it will not represent a large-scale intervention in the various site and will not fundamentally change the environment if adequately mitigated.

4.0 RATIONALE OF DREDGING ACTIVITIES IBADAN METROPOLIS IN SELECTED SITES

The PIU over the last few months had received intervention requests from various communities in Ibadan to assist them in dredging major rivers and de-silting of drains that could possibly cause flooding during the approaching rainy season. In addition, the Oyo State Ministry of Environment also compiled and forwarded to IUFMP some silted drains and rivers that needed adequate dredging and/or de-silting attention to obviate the effect of possible flood incidents that might arise during the rainy season in Ibadan metropolis.

The technical team of the PIU & representatives of the Ministry of Environment jointly visited the identified sites to carry out on the spot assessment for purpose of validation and prioritization. And based on the joint assessment report, selected drains and rivers were listed as priority to be given attention and same forwarded to the Honourable Commissioner for Finance and Budget for internal approval.

5.0 DESCRIPTION OF THE PROPOSED INTERVENTION

Generally, the proposed intervention works include:

- Excavation of all classes of soil, except rock from the Channel, not exceeding 1m deep and form into embankments at distances of not less than three meters (3m) from the banks or as may be directed by the Engineer.
- Excavation in all classes of soil, sediment, silt, shrub, vegetation and other blockages which reduce the quantity of impoundment in the lake up to an avg. depth of 5m and stockpile at a safe distance from the bank preparatory to carting away
- Clearing culverts of all debris, blockages and other encumbrances which impede free flow of run-off and dispose off
- Remove and replace R.C Cover in the course Of the project.

Table 1 and 2 below shows the proposed intervention sites.

Table 1: Proposed dredging intervention sites:

S/N	RIVERS/STREAMS	LENTH/WIDTH
1	Dredging of Odo-Oba Elere, Stream, Elere, Ibadan.	L = 2,500M; Width=6m
2.	Dredging of Ajofeebo Stream, Inu-Ewe, Soka Area, Ibadan.	L = 1,500M; Width=6m
3.	Dredging of Atunmini Stream, Atagba, Ibadan.	L = 2,000M; Width=6m
4.	Dredging of Kute Stream, Kute, Ibadan	L = 2,000M; Width=6m
5.	Dredging of Peace Estate Stream, Kukumanda, Ibadan.	L = 1,500M; Width=6m
6.	Dredging of YokelePekun Stream Phase ii, Old Ife-Road, Ibadan.	L = 500M; Width=5m
7.	Dredging of Alaro Down Stream, Oloyele Area, Ibadan	L = 2,500M; Width=7m
8	Dredging of oke Ayo River, Odo-Ona, Gada Area, Ibadan	L = 2,000M; Width=8m
9.	Dredging of Bethel Stream, Bode-Igbo Area, Ibadan.	L = 2,500M; Width=6m
10.	Dredging of Akinfewa Stream, Aroye Phase ii, Ibadan.	L = 2,000M; Width=6m
11.	Dredging of Kulodi Stream, Oluwa Area, Ibadan.	L = 3,500M; Width=6m
12.	Dredging of Ahoyaya River, Olodo Area, Ibadan.	L = 2,500M; Width=7m
13.	Dredging of Oganla Stream, Olodo Bank Area, Ibadan.	L = 2,500M; Width=6m
14.	Dredging of Elebu Stream, Asanmajana Area, Ibadan.	L = 2,500M; Width=8m
15.	Dredging of Onilu Stream, Asanmajana Elebu Area Munya, Ibadan.	L = 2,000M;Width=8m
16.	Dredging of Labi Stream, Power Line Moniya Area, Ibadan.	L = 1,500M; Width=6m
17.	Dredging of Oke-Araro River, Area One, Oluyele Extension, Akala way Ibadan, Ibadan.	L = 1,500M;Width=8m
18.	Dredging of Oke-Omi River Phase ii Ogungbade, Ibadan	L = 2,000M; Width=8m
19.	Dredging Sooko Stream, AkoboOjurin, Ibadan	L = 2,000M; Width=6m
20.	Dredging Of Igisogba River Phase Ii Omi-Adio, Ibadan.	L = 2,500M; Width=8m
21.	Dredging of Apata Pete Stream, Cele, Apata, Ibadan	L = 2,500M;Width=6m
22.	Dredging of Akinjole Stream, Oluwo Area, Ibadan.	L = 2,000M; Width=6m
23.	Dredging of Wofun Stream, Wofun, Ibadan.	L = 2,000M; Width=6m
24.	Dredging of Inalende Tributary, Atowoda Ogunpa, Ibadan.	L = 136M; Width=6m
25.	Dredging of Akuru/Eleta Stream, Elebu, Ibadan.	L = 1,500M; Width=6m
26.	Dredging of Gbaro-Ajimosin Stream, Ago Olunde, Ibadan.	L = 2,000M; Width=6m
27.	Dredging of Akilapa Stream, Ogbere Babanla Area, Ibadan.	L = 1,000M; Width=5m
28.	Dredging of Onipepeye River, Old Ife Road, Ibadan.	L = 2,500M; Width=7m
29.	Dredging of Ogbere River, Abayomi Section, Ibadan.	L = 1,000M; Width=6m
30.	Dredging of Gbanamu Stream, Felele, Ibadan.	L = 750M; Width=5m
31.	Dredging Goodness Estate Stream, off Arulogun Road, Ojoo, Ibadan.	Length =2,500m, Average Width = 7m
32.	Dredging of Ogunpa Tributary Stream, Oluga Bridge, Salami Estate, New Bodija, Ibadan.	Length =1,000m, Average Width = 7m
33.	Dredging of Ogbere Pegba River, Oke Ogbere, Egbeda M- Ituba, Muslim Road,	Length =2,000m, Average Width = 6m
34.	Dredging of Akobo Estate Stream, Akobo Area, Ibadan	Length =700m, Average Width = 6m
35.	Dredging of Odo-Eran Stream, Moniya/Iseyinn Road, Moniya, Ibadan.	Length =2,000m, Average Width = 7m
36.	Dredging of Spac/Ayofunmi Stream, Poly Road, Sango Ibadan.	Length =1,500m, Average Width = 6m
37.	Dredging and De-Silting of Ogunpa Reservoir (Agodi Lake), Ibadan.	Area = 51, 817 sq.m, Average depth = 5m
	TOTAL	

Table 2: Proposed clearing intervention sites:

S/N	CLEARING	LENTH/WIDTH/DEPTH
1.	Clearing Of Blocked Drain Along Popoyemoja-Oke Ado Road, Ibadan	Length =5,200m, Average Width = 0.8 Average depth = 0.35
2.	Clearing Of Blocked Drain along Adeoyo – Agbadagbudu – Beere, Ibadan	Length =1,100m, Average Width = 0.8 Average depth = 0.3
3.	Clearing of Blocked Drain Along Bus Stop – Gbenla – Oje -Temidire, Ibadan	Length =3,200m, Average Width = 0.8 Average depth = 0.3
4.	Clearing of Blocked Drain Along Temidire – Beere – Oja'ba - Bode, Ibadan	Length =6,200m, Average Width = 0.8 Average depth = 0.3
5.	Clearing of Blocked Drain Along Felele Straight, Ibadan	Length =2,800m, Average Width = 0.6 Average depth = 0.3m
6.	Clearing of Blocked Drain Along Awolowo Junction – Secretariat Roundabout Ibadan	Length =1,600m, Average Width = 0.6m; Average depth = 0.2m
7.	Clearing of Blocked Drain Along Government House – Officer's Mess – Costom Office, Ibadan	Length =5,600m, Average Width =0.6m Average depth = 0.3m
8.	Clearing of Blocked Drain Oke Bola – Seventh Day – Iyaganku Road, Ibadan	Length =1,800m, Average Width = 0.9m Average depth = 0.4m
9.	Clearing of Blocked Drain Along Yemetu – Omolewa – Uch Road, Ibadan	Length = 800m, Average Width = 0.6m Average depth = 0.4m
10.	Clearing of Blocked Drain Along Queen Elizabeth Road, Ibadan.	Length = 4, 800m, Average Width = 0.8m Average depth = 0.2m
11.	Clearing of Blocked Drain Along Bovas F. Station – Fly Over Mokola, Ibadan	Length =493m, Average Width = 0.8 Average depth = 0.3
12.	Clearing of Blocked Drain Along Ance Building – Alesinloye – Iyanganku Junction, Ibadan	Length = 2, 200m, Average Width = 1m Average depth = 0.3m
13.	Clearing of Blocked Drain Along Onireke Junction – Magazine Road – Rail Crossing – Dugbe, Ibadan.	Length = 3, 000m, Average Width = 1m Average depth = 0.2m
14.	Clearing of Blocked Drain Along J.Allen – Ido Gate – Dugbe –Alawo – Queen Cinema, Ibadan	Length =1,500m, Average Width = 0.8m Average depth = 0.3m
15.	Clearing of Blocked Drain Along Sawo Close, Salvation Army Road - Ekotedo, Ibadan	Length =270m, Average Width = 1.6m Average depth = 1m
16.	Clearing of Blocked Drain Along Ago-Taylor, - Odo Ona Road, Ibadan	Length =2,600m, Average Width = 0.9 Average depth = 0.6M
17.	Clearing of Blocked Drain Along Orita Challenge – Odo Ona Elewe, Ibadan	Length =3,600m, Average Width = 0.9m Average depth = 0.6M
18.	Clearing of Blocked Drein Along Sango – Elewure – U.I Junction, Ibadan	Length =5,000m, Average Width = 1m Average depth = 0.45M
19.	Clearing of Blocked Drain Along U.I Junction – Ojoo Junction, Ibadan	Length =6,700m, Average Width = 0.7m Average depth = 0.3M
20.	Clearing of Blocked Drain Along Total Garden – Adeoyo, Ibadan	Length =2,500m, Average Width = 0.8m Average depth = 0.3m
21.	Clearing of Blocked Drain Along Alakia – Isebo – Iyana Church, Ibadan	Length =7,200m, Average Width = 0.8m Average depth = 0.4M
22.	Clearing of Blocked Drain Along Salvation Army Road, Ibadan	Length =1,200m, Average Width = 0.8m Average depth = 0.4m
23.	Clearing of Blocked Drain Along Hope Road – Gbaremu Junction, Ibadan	Length =3,600m, Average Width = 0.7m Average depth = 0.35M
24.	Clearing Of Blocked Drain Along Apata – Oluyola Estate – Ring Road, Ibadan	Length =10,600m, Average Width = 1.1m Average depth = 0.4m
25.	Clearing of Blocked Drain Along Apata – Benbow Road, Ibadan	Length =5,200m, Average Width = 0.9m Average depth = 0.5m
26.	Clearing of Blocked Drain Along Muslim – Mosfala - Pegba Road, Ibadan	Length = 7,000m, Average Width = 1.1m Average depth = 0.3m
27	Clearing of Blocked Drain Along Muslim – Odinjo - Eleta Road, Ibadan	Length = 4,600m, Average Width = 1m Average depth = 0.4m
28.	Clearing of Blocked Drain Along Mokola – Ode Oolo – Abebi Road, Ibadan	Length = 5,000m, Average Width = 1.8m Average depth = 0.4m
29.	Clearing of Blocked Drein Along Adegbayi – Olode – Abatiti – Kukumada Junction, Ibadan	Length = 4,600m, Average Width = 0.7m Average depth = 0.4m
30.	Clearing Of Blocked Drain Along parliamentroad,Ibadan	Length = 2,000m, Average Width = 0.7m Average depth = 0.3m
31	Clearing of Blocked Drain Along Oke Adu Junction – Aremo – oritaaperin – Olorunsogo Bridge, Ibadan.	Length = 7,600m, Average Width = 0.8m Average depth = 0.3m
32.	Clearing of Blocked Drain Along Oremeji – Agugu – Atolu – Ogbere Idi Osan, Ibadan.	Length = 8,800m, Average Width = 0.6m Average depth = 0.3m

33.	Clearing of Blocked Drein Along Awolowo Road, Bodija, Ibadan	Length = 3,200m, Average Width = 0.6m Average depth = 0.4m
34.	Clearing of Blocked Drain Along State Hospitalroad, Off Ring Road Ibadan.	Length = 4,200m, Average Width = 0.8m Average depth = 0.4m
35.	Clearing of Blocked Drein Along Agbowo – U.I Junction – Ibadan/Lagos Expressway, Ibadan.	Length = 9,200m, Average Width = 0.9m Average depth = 0.4m
36.	Clearing of Blocked Drain Along Benjamin – Eleyele – Oluseyi Road, Ibadan	Length =6,800m, Average Width = 1.1m Average depth = 0.5m
37.	Clearing of Blocked Drain Along Ijokodo Junction –WAEC – The Polytechnic Second Gate, Ibadan.	Length = 3,600m, Average Width = 1.1m Average depth = 0.5m

6.0 SCOPE OF WORK

The objective of the consulting services is to prepare an ESMP for the proposed Dredging and De-Silting of Selected Rivers & Drains in Ibadan City itemized above. The ESMP should consist of a well-documented set of mitigation measures, 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 required to implement these actions, addressing the adequacy of the monitoring and institutional arrangements at upstream and downstream in the intervention site as well as present an indicative cost for ESMP implementation.

The consultant is expected to work in close collaboration with the engineering design consultants and IUFMP Project Implementation Unit (PIU) safeguards team, and with other actors and consultants as directed by the PIU. The consultant will obtain a copy of 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.

6.1.0 THE CORE TASKS FOR THE CONSULTANT

These shall include:

- Review existing documentation of the IUFMP , all relevant safeguards documents and the PAD, PIM, and ESMPs prepared for the IUFMP;
- 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
- Assess the capacity available to implement the proposed mitigation measures, and suggest recommendation in terms of training and capacity building, and estimate their costs.
- 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) a calendar for 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 include in the final ESMP report.

- Preparing the ESMP according to the generic contents presented hereafter.

6.1.1 The following socio-economic issues shall be addressed in the ESMP:

- Establish social baseline information before project intervention
- Determine the project's social impacts on health and social well-being ; quality of the living environment; economic material well-being ;Family and community ; and gender relations
- A summary of the impacted communities for the project: location, access, population (number, demographic and social characteristics); economy (employment rate, income distribution); services (types, capacity, and adequacy) and housing. Concern is the ability to provide work force, service new development and absorb and adjust to growth (worker/family).
- The report should identify and assess social impact identified during the public consultation process and those that, based on consultant's experience, are also likely to occur. In some instances the affected communities may not be aware of or be in a position to identify all the social impact that may occur. However, this does not mean that they will not occur. In such cases the consultant should use his/her experience to identify additional social impact that have not been raised by the public. A summary of the views of the population including vulnerable groups, determined through thoroughly documented discussions with local communities. These meetings and discussions must be documented and should show how issues and problems raised are or will be resolved

- Pay particular attention to the impacts of the project on vulnerable and marginalized individuals and groups (including but not limited to mobility impaired individuals and groups and People Living with Disabilities)
- Detail measures that will need to be taken to mitigate the negative social impact identified and the procedures for their implementation;
- Identify key uncertainties and risks**:** Identify and communicate any key uncertainties and risks associated with the accuracy of the findings of the social assessment, as well as of the proposed project. Some sources of uncertainty and risk commonly associated with projects are linked to: (a) Lack of adequate information at the community level; (b) Creation of employment and business opportunities for members from the local, historically disadvantaged communities; (c) The influx of job seekers and construction workers to the area and the impact on services; etc.
- Assess the impact of the civil works on individuals and groups whose livelihoods are tied to the route/road (motor cycle taxi and tricycle operators etc.). As part of consultations, the ESMP should identify the potential negative impact on the livelihoods of these individuals and groups and propose appropriate mitigation measures
- Assess potential impact of the project on property access and suggest measures to minimize the effects on property access
- Information will be gathered from field surveys and secondary data sources (interviews, structured questionnaires, in-depth interviews and focus group discussions).

6.2.0 CONTENT OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The ESMP Report shall be presented in a concise format containing all studies, processes, analyses, tests and recommendations for the proposed intervention. The report shall focus on the findings, conclusions and any recommended actions, supported by summaries of the data collected and citations for any references used. The ESMP report will include the following topics:

Preliminary pages

- Cover page
- Table of contents
- List of acronyms and their definitions
- Executive Summary

Chapter 1: Introduction

- Description of the proposed intervention
- Objectives of ESMP
- Rationale for ESMP
- Relevant Maps

Chapter 2: Description of Baseline Conditions

- Description of the area of influence and environmental baseline conditions
- Analysis of existing livelihoods opportunities, income, gender characteristics, age profile, health, transport access, existing community structures.

Chapter 3: Environmental and Social Management and Monitoring Plan (including:

- Discussion of the potentially significant adverse environmental and social impacts of the proposed project
- The proposed mitigation measures Institutional Responsibilities for Implementation;
- Monitoring programs;
- Institutional responsibilities for the implementation and monitoring of mitigation measures;
- ESMP Training requirements
- Indicative budget for ESMP implementation

Chapter 4: Public Consultation with Stakeholders

- This chapter shall summarize the actions undertaken to consult the groups affected by the project, as well as other concerned key stakeholders including Civil Society Organizations. The detailed record of the consultation meetings shall be presented in annex to the ESMP.

Chapter 5: Summary and Recommendations
Annexes

- Annex 1: Terms of Reference
- Annex 2 : List of Stakeholders consulted
- Annex 3: Summary of World Bank Safeguard Policies
- Annex 4: General Environmental Management Conditions for Constructions/Civil Works.
- Annex 5: References
- Annex65: Photos
- Annex 7 Questionnaire

The main text of the ESMP should focus on findings, conclusions and recommended actions, supported by summaries of data collected and citations for any references used in interpreting those data. It should provide a description of the specialist studies undertaken and the report should include a

bibliography, maps, photographs, diagrams and any other diagrammatic representation required to facilitate understanding of the main text, detailed data should be presented in annexes or a separate volume. Unpublished documents used in the assessment should also be included or referenced in an appendix and the location of the originals of such documents indicated.

7.0 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.

7.1.0 Deliverables and timing:

- **Inception reports:** Inception reports should be submitted about one week after awarding/signing of contract. The PIU shall double-check and ensure that the consultant has actually commenced work and that the consultant understands tasks.
- **Week 2:** A draft ESMPs will be submitted for comments in **Two weeks** from the date of signing the contract. It will identify all the areas, the mitigation measures, and the environmental and social issues associated with the site intervention sub-projects, as well as the adequacy of the monitoring and institutional arrangements in the intervention site.
- **Week 3:** The draft final ESMP Reports will take into account all comments, and will be submitted to the PIU at the end **of Three weeks** after commencement of contract.
- **Week 4:** The Final ESMPs will be submitted to the PIU **Four weeks** after commencement of the consultancy.
- The consultant will submit six (6) hard copies and a soft copy of the respective reports at each stage of the report for the specific sites.

Activities	Week 1	Week2	Week3	Week4
Contract Signing	X			
Submission of Inception Reports	X			
Meeting with the PIU		X		
Submission of Draft Reports		X		
Submission of Draft Final Reports			X	
Submission of Final Reports				X

7.2.0 Responsibilities of IUFMP

- The Consultant shall report to the Project Coordinator of the Project Implementation Unit of IUFMP.
- The PIU would review and discuss the Inception reports with the Consultant and necessary adjustment will be embarked upon.
- The Consultant would especially carry the PIU along in the Stakeholders consultative forum.
- The Consultant may seek Technical assistance from the PIU Specialists, especially the Safeguards Specialists of the PIU.
- The Draft Reports and Draft Final Reports would be reviewed by the PIU and relevant MDAs.
- In addition to the supervision and other responsibilities contained in the contract for this consultancy, the IUFMP shall provide the consultant with the following:
    - All relevant project instruments ;
    - Project Appraisal Document
    - Project Implementation Manual
    - World Bank safeguards policies;
    - Intervention design ;
    - Access to relevant officials, groups and communities

7.3.0 Payment Schedule

10% of Contract sum on submission of inception report
30 % of Contract sum on submission of Draft Report
40% of Contract sum on submission of Draft Final Report
20% of Contract sum of submission and Acceptance of Final Report

ANNEX 6: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS FOR CONSTRUCTION CONTRACTS

The document below presents a general overview of general environmental and social management conditions for typical construction/civil works contracts handled by the PIU under the purview of the World Bank.

A1.1 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 fulfil 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.

A1.2 Worksite/Campsite Waste Management

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

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.

A1.3 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 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.

A1.4 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.

A1.5 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.

A1.6 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.

A1.7 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.

A1.8 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.

A1.9 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.

A1.10 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.

A1.11 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.

A1.12 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.

A1.13 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 fulfil 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).

A1.14 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.

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.

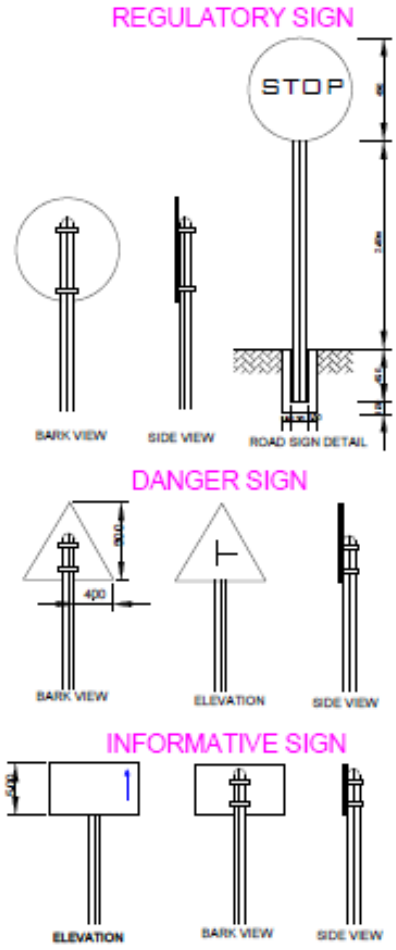
Signature (Name, Title Date):

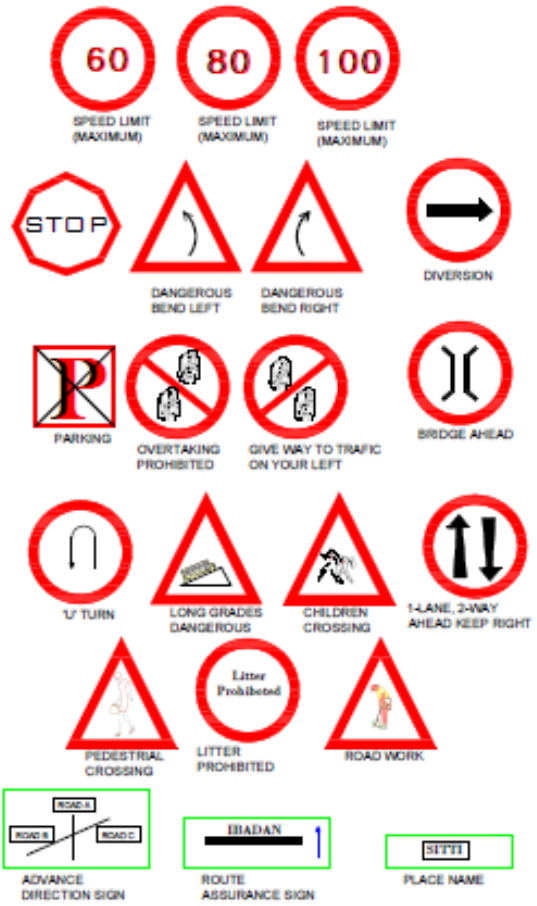
Contractor Representative

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 7: ROAD SIGNS AND MARKS





ANNEX 8: GRIEVANCE UPTAKE CHANNELS INFORMATION SHEET

In spite of all the care planned for implementing this project, it is possible that some people may be affected, and will wish to complain. In such a case, a Grievance Redress Mechanism (GRM) will be provided. The Grievance Mechanism will ensure that the IUFMP is responsive to any concerns and complaints particularly from affected stakeholders and communities. In addition, the HSE Supervisor, who will be on site mostly, will be empowered to listen to, and escalate grievances that may be reported to him on the field, in the course of project implementation.

The following timeframe will apply:

- Written acknowledgement of receipt of the grievance: within 48 hours of receiving the grievance
- Proposed resolution: Immediately, with the knotty issues expected to be resolved within 3 days of receiving the grievance.

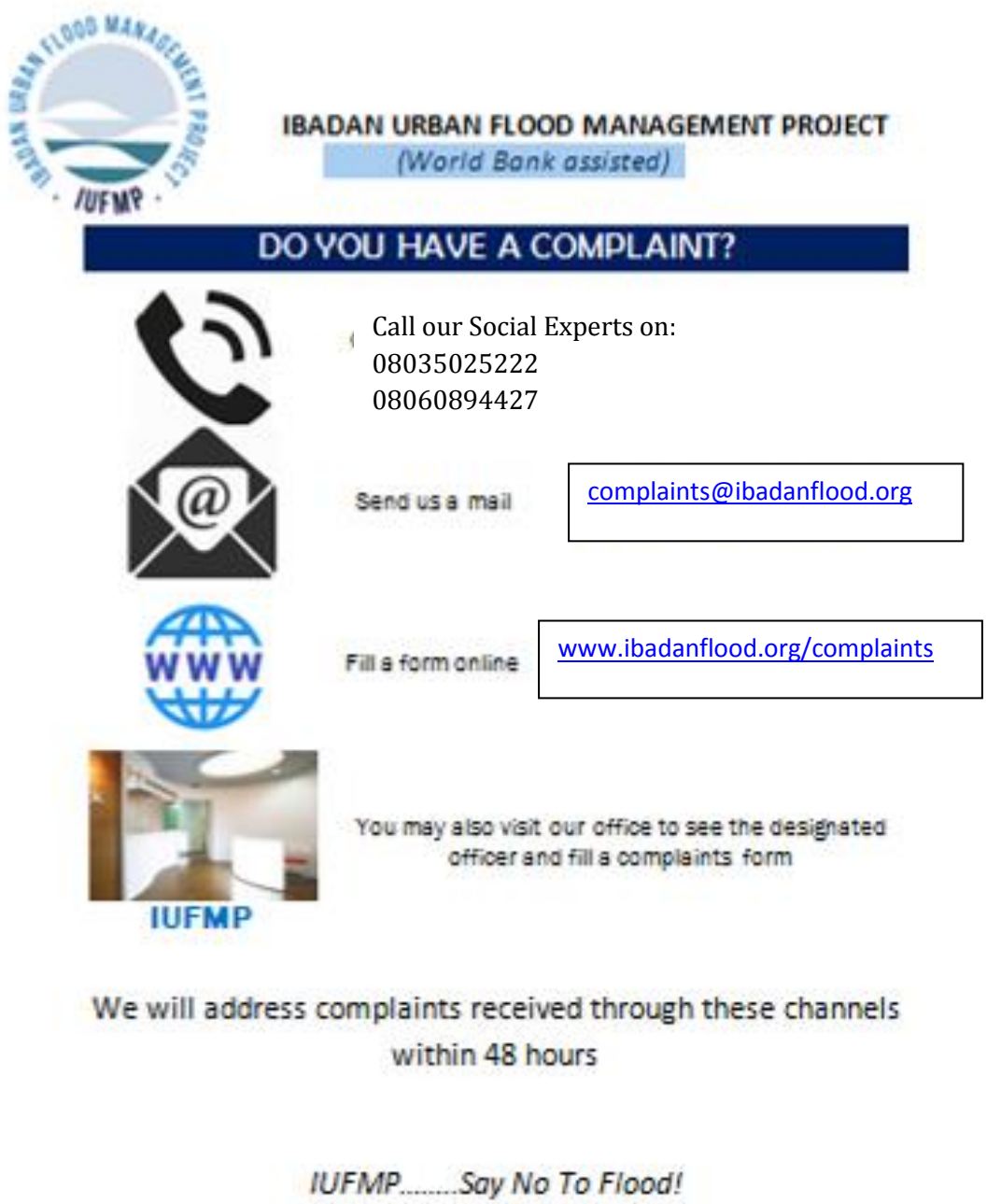
The GRM complaints form that will be provided for those who may wish to formally write in their grievances is provided below, while Figure 1 (also below) provides contact details for all grievances.

GRIEVANCE FORM

<table>
<tr><td colspan="3">Project: Dredging of Streams and Channels, and Clearing of Blocked Drains around Ibadan, Oyo State for 2018 by the Ibadan Urban Flood Management Project (IUFMP):
GRIEVANCE FORM</td></tr>
<tr><td colspan="3">INFORMATION ABOUT THE PERSON SUBMITTING THE GRIEVANCE</td></tr>
<tr><td colspan="3">We would like you to provide your name, address and email if possible, so we can keep you informed about future developments with the Project. However, if you wish to remain anonymous this is not a problem - please just enter ANONYMOUS in the box below– your grievance will still be considered by the IUFMP.</td></tr>
<tr><td colspan="2">Name:</td><td rowspan="4">Internal use only: how was the grievance lodged:
□ In person
□ By Phone
□ At reading room
□ By Mail
□ By email
□ Other (please describe)
……</td></tr>
<tr><td colspan="2">Date lodged:</td></tr>
<tr><td colspan="2">Recorded by:
□ Person submitting grievance □ Other (please specify who)
…….</td></tr>
<tr><td colspan="2">Address:</td></tr>
<tr><td colspan="2">Email address:</td><td>Do you wish to be kept informed of Project developments? □ Yes □ No</td></tr>
<tr><td colspan="2">Neighbourhood/Locality:</td><td rowspan="2">Internal use only: Confirm that the Grievance has been acknowledged and a copy of this form provided to the complainant?
□ Yes. Date: ……</td></tr>
<tr><td colspan="2">Signature of Complainant confirming receipt of completed Grievance Form copy:</td></tr>
<tr><td colspan="3">INFORMATION ABOUT GRIEVANCE</td></tr>
<tr><td colspan="3">Describe the Grievance:</td></tr>
<tr><td colspan="3">INTERNAL USE ONLY: RECORDING AND RESPONSE</td></tr>
<tr><td colspan="2">Grievance Reference Number:</td><td>Date logged in Grievance Log</td></tr>
<tr><td colspan="2">Name of staff member recording the grievance:</td><td rowspan="2">Copies provided to:
□ Responsible party's office, (Original)
□ Person lodging grievance/ Complainant (Copy 1)
□ IUFMP (Copy 2)</td></tr>
<tr><td colspan="2">Action required (to be updated as needed as the grievance is progressed):</td></tr>
<tr><td colspan="3">Deadline for reporting back to Complainant on progress (to be updated as necessary):

Date: ……</td></tr>
<tr><td colspan="3">INTERNAL USE ONLY: STATUS OF GRIEVANCE</td></tr>
<tr><td>Date:</td><td colspan="2">Status of Grievance (add further rows as needed):</td></tr>
<tr><td>Grievance Closed:</td><td>Date:</td><td>Signed off:</td></tr>
</table>

Figure 1: Contact Details for GRM



ANNEX 9: TRAFFIC MANAGEMENT PLAN (TMP)

TRAFFIC MANAGEMENT PLAN FOR PROPOSED DREDGING OF STREAMS/CHANNELS AND CLEARING OF BLOCKED DRAINAGES AT SELECTED LOCATIONS IN IBADAN

1.0 BACKGROUND AND INTRODUCTION

This traffic management plan has been prepared for the specific purpose of handling potential traffic issues that may be associated with the proposed dredging of streams and channels. The Traffic Management Plan (TMP) became necessary in view of the fact that at various stages of the proposed dredging and clearing of drains, there is a high likelihood for disruption of normal traffic to occur, if project activities are not properly planned and undertaken. This document therefore highlights the areas and periods where traffic impacts are anticipated and the management plans that will apply for minimizing traffic impacts.

2.0 OVERVIEW OF AREAS WHERE TRAFFIC ISSUES ARE ANTICIPATED

The proposed dredging and clearing of blocked drains will take place around 12 different Local Government Areas (LGAs) of Oyo State, with most of them centred around Ibadan and its outskirts. The LGAs are: Ibadan North, Ibadan North-East, Ibadan North-west, Ibadan South-East, Ibadan South-West, Iddo, Oluyole, Egbeda, Akinyele, Lagelu, Afijio and Ona Ara.

Because all the channels planned for dredging are not navigable, it is impossible to mobilize dredgers to site using the waterways. Therefore, they will have to be mobilized to site by road. The use of large haulage trucks is therefore inevitable. Mobilizing these dredgers to site by trucks is bound to have some traffic impacts, which need to be planned for.

Similarly, virtually all the drains planned for clearing are located in built up residential, commercial or mixed areas. Clearing the drains may infringe on regular usage of the roads, during clearing and afterwards (if materials cleared from the drains are dumped by the roadside,

As such, during these various stages, there is a need to put in place a comprehensive plan to effectively manage transportation and traffic in the various areas for the project duration. Therefore, a detailed TMP is presented in the next section of this document,

3.0 TRAFFIC MANAGEMENT PLAN

The management of traffic during the various activities mentioned above is premised on a series of activities. These activities will minimize, if not completely eliminate the occurrence of disruptions to normal traffic flow in areas where works are taking place. The plans will be designed for the various phases/activities for this project and will consist of the following:

3.1 Traffic Management During Mobilization and Demobilization of Dredgers to the Various Streams/Channels

In order to effectively manage traffic during mobilization of dredgers to the various sites, the following shall be undertaken:

a. Dredging contractor shall be mandated to submit a Mobilization and Demobilization Plan, which shall indicate the origin and destination of the dredger they plan to use for the works.
b. The plans shall be discussed and approved by the Oyo State Transport Management Agency (OYTRMA)
c. Mobilization will only take place during off peak traffic periods. It is therefore necessary to ensure that the OYTMA gives inputs on peak and off-peak periods in the various areas from which the various dredgers will mobilize and the routes they will follow to their work sites
d. Officers of the OYTMA shall be co-opted to coordinate traffic movement during mobilization and demobilization

3.2 Traffic Management During Dredging of Channels/Streams

During the dredging activities, tipper trucks may be mobilized to evacuate dredge spoils to designated dump sites in areas where the spoil are mostly municipal solid wastes. This is particularly applicable to places like Sooko Akobo Ojurin and Onilu Stream, Moniya. If their movement is not properly planned, it could result in disruption of regular traffic in the various areas. Therefore, the following measures shall be instituted.

a. The movement of tipper trucks to and from dredging sites and the dump sites shall be planned for off peak periods in each location

b. No truck movement will be allowed during peak traffic periods. To this end, night movement of trucks, where feasible, shall be encouraged
c. Adequate signage such as those in Appendix 1 to this document shall be provided at regular intervals to work sites, starting from a minimum of 50ms from the site
d. Personnel of the OYTMA shall be drafted to participate in traffic management activities
e. Strict Speed Limits shall be enforced on all truck drivers working on this project and non-compliances shall be met with very strict punishment, which may include eviction of infringing driver(s) from the work site

3.3 Traffic Management Plan for Clearing of Blocked Drainages

Most of the drainages to be cleared are located in built up areas and are too shallow and narrow to be cleared mechanically, thus manual clearing will be used extensively. To this end, the following actions will be taken during this phase of works

a. Adequate signage shall be provided at strategic points before and after work zones
b. Personnel of the OYTMA shall be co-opted to oversee traffic movement around work sites
c. Work periods at these locations shall be timed for off-peak periods
d. Where feasible, night works for clearing of drains shall be greatly encouraged, to minimize or completely avoid disruption of regular traffic.
e. At Market areas, night clearing works will be applied, or during the weekly market sanitation exercise. There will be NO WORK during market hours.

3.4 Traffic Management During Evacuation of Wastes from Cleared Drains to Dump Sites.

Materials cleared from the drains cannot be dumped by the road side as they could be washed back into the drains or constitute blockage to existing road traffic, thus obstructing free flow of traffic. As such they must be carted away to designated dump sites. During carting away, the following measures shall be instituted:

a. The movement of tipper trucks to and from areas where clearing of drains is taking place and the dump sites shall be planned for off peak periods in each location

b. No truck movement will be allowed during peak traffic periods. To this end, night movement of trucks, where feasible, shall be encouraged
c. Adequate signage such as those in Appendix 1 to this document shall be provided at regular intervals to work sites, starting from a minimum of 50m from the site
d. Personnel of the OYTMA shall be drafted to participate in traffic management activities
e. Strict Speed Limits shall be enforced on all truck drivers working on this project and non-compliances shall be met with very strict punishment, which may include eviction of infringing driver(s) from the work site

4.0 Conclusion

While it is essential that the planned works are undertaken, to alleviate flooding issues in Ibadan, it is equally crucial to ensure that the activities are undertaken in a sustainable manner, which does not affect existing traffic and transportation activities. The Traffic Management Plan (TMP) shall be instituted to manage traffic during works for this project. Where necessary, other agencies such as the Traffic Division of the Nigeria Police Force, and the Federal Road Safety Corps (FRSC) shall be co-opted to support traffic control during works.

It is believed that the above plans will ensure the project works are undertaken without impacts on traffic movements.

Appendix 1: Sample Road Signs that can be used at Work Sites


VectorStock


CAUTION
MEN AT
WORK

ANNEX 10: WASTE MANAGEMENT PLAN

WASTE MANAGEMENT PLAN FOR THE PROPOSED DREDGING OF STREAMS AND CHANNELS, AND CLEARING OF BLOCKED DRAINS AROUND IBADAN, OYO STATE

1.0 BACKGROUND

The Ibadan Urban Flood Management Project (IUFMP) is desirous of undertaking the dredging of streams and channels around Ibadan, as well as clearing/desilting of blocked drainages within and around the city, to alleviate flooding issues during the rainy season of year 2018. The proposed works will involve the generation of large quantities of dredge spoil, silt materials and solid waste.

In view of the importance of waste management for the sustainability of the proposed activities, it was deemed necessary to develop a waste management plan that will ensure that all wastes generated as a result of the planned project are properly handled and disposed of. This document therefore presents an overview of the plan for managing wastes emanating from the planned dredging and clearing of blocked drainages.

2.0 TYPES OF WASTES ANTICIPATED

Generally, wastes anticipated to emanate from the proposed activities will be in two parts:

a. Direct Wastes: Wastes that will be generated directly as a result of the planned activities. These will be largely silt materials/dredge spoil mixed with solid wastes (paper, cans, polythene bags, textile materials, etc). These materials will be relatively large in quantity across the designated work areas.
b. Indirect Wastes: These are mostly hazardous materials like waste oils, spent oil filters, etc. and domestic wastes such as tins, cans, waste food, etc.

All of these wastes must be properly handled and disposed, to engender sustainability.

3.0 PLANS FOR MANAGEMENT OF SOLID WASTES FROM DREDGING AND BLOCKED DRAINAGE CLEARING WORKS FOR 2018

Waste management is premised on certain principles, which include avoidance, minimization, reuse/recycle, and proper disposal. For the current project, waste generation shall be limited to the lowest possible.

3.1 Avoidance/Minimization

It is impossible to avoid generation of wastes since the wastes must, of necessity, be generated, to achieve the desired goal of creating adequate channels for floodwater runoff, and thus prevent flooding and banks overflow. To this effect, dredging will only take place around designated points and will not exceed such areas, in order to limit the volume of wastes generated. The supervising engineer attached to the project shall ensure that dredging does not take place outside of designated areas. This will ensure that dredging activities are limited only to designated areas, thus minimizing the generation of wastes

3.2 Disposal

The wastes that will be generated from the dredging/drain clearing activities cannot be reused without extensive treatment and/or conversion, therefore, the most crucial aspect of waste management for the purpose of this project is proper disposal. Spoil and other wastes generated from dredging of channels/streams and the clearing of blocked drainages shall be dumped a minimum of 5m from the river bank. The spoils will be dropped in discontinuous heaps along the banks, with adequate care taken to avoid destruction of farmlands, blocking of natural runoff routes and blocking of footpaths to the stream/channel. Apart from ensuring that wastes removed from the drainage are not washed back into the channel (preventing quick re-siltation), it will also ensure that other issues associated with waste generation are avoided.

However, in cases where a lot of the wastes (more than 50%) are municipal solid wastes such as textile and leather materials, tins and cans, polythene, plastics, etc., rather than silt, they will have to be carted away to recommended disposal sites particularly if such locations are close to residential/commercial areas. Basically, this type of situation will occur around locations such as Akobo Ojurin, Aleshinloye Market, Iyaganku, etc.

There are four (4) designated/approved dump sites around Ibadan. An overview of the locations and brief descriptions of these sites are presented in Table 1 below, while figure 1 shows the relative locations of the different dump sites.

Table 1: Location and Description of Municipal Solid Waste dumpsites in Ibadan

S/N	Site Name	Coordinates	General Description
1	Aba Eku	N07°19 E03°59	The Aba-Eku (also referred to as Afonfura dumpsite) is located along Amuloko-Akanran road at Aba Eku village in Ona-Ara LGA and covers an area of over 10 hectares. The dumpsite is in operation since 1994. The site is located on a hillside, declining towards the northeast, and is surrounded by residential houses on all sides.
2	Ajakanga	N07°18' E03°50'	Ajakanga dumpsite was opened in 1997 and is located over an approximately 10 hectares of land off Odo-Ona Elewe road. The site is located on a hilltop, partly surrounded by residential houses and loose dwellings with gardens, located around the foot of the hills to the north, east and west. Large quantities of poultry waste from chicken farms are also disposed at Ajakanga.
3	Lapite	N07°34 E03°54	Lapite dumpsite is situated over approximately 10 hectares of land at Moniya, along Ibadan-Oyo road. This facility was opened in 1998. The site is located in a rural, agricultural and woodland area with only very few residential houses nearby. The topography is slightly undulating and almost flat at the dumpsite.
4	Awotan	N07°27 E03°50	Awotan dumpsite is situated along Akufo-Ibadan Polytechnic road over an approximately 15 hectares of land area. It was opened in 1998. Currently, approximately half of the land is being used for refuse dumping. The site is located on a hilltop, slightly tilted, and surrounded by residential houses and loose dwellings with gardens, located around the foot of the hills on all sides.

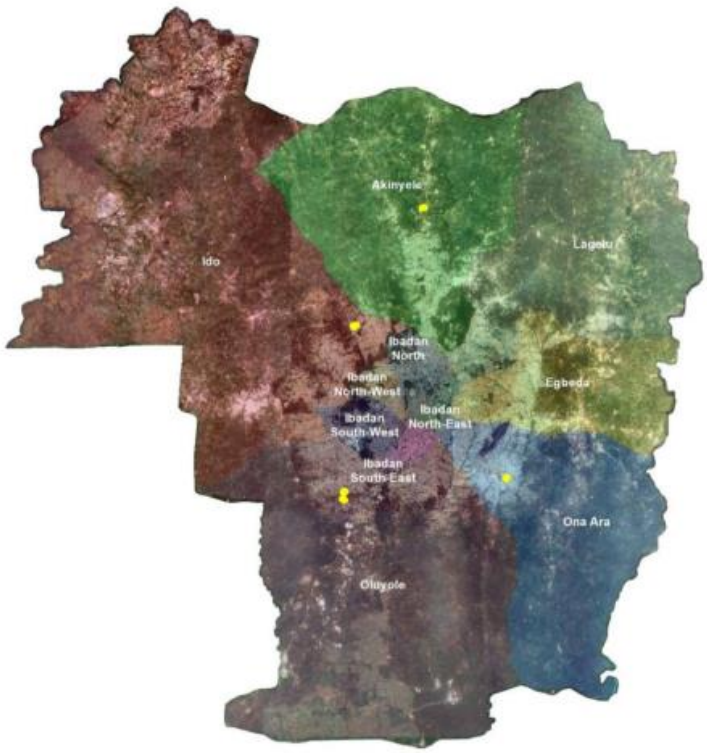


Figure 1: Relative locations of designated disposal sites around Ibadan

Given the foregoing, a cost-effective disposal plan, based primarily on contiguity has been evolved for wastes generated from the dredging and blocked drain clearing project for 2018. This plan involves the disposal of wastes from the proposed activities at the waste dumps

closest to the work sites. An overview of the proposed disposal plans for wastes is shown in Table 2 below.

Table 2: Waste Dumps around Ibadan and Designated for dumping of wastes from this project

S/N	Site Name	Coverage LGAs
1	Aba Eku	Ona-Ara, Egbeda, Ibadan NE, Ibadan North
2	Ajakanga	Oluyole, Ibadan SE, Ibadan SE
3	Lapite	Akinyele, Lagelu
4	Awotan	Iddo, Ibadan North, Ibadan North-East

4.0 CONCLUSION

The waste management plan iterated above has been prepared with a view to ensuring that ALL wastes generated from the clearing of blocked drains are effectively disposed. For the dredging activities, most wastes will be carefully dumped by the channel bank. However, where there are situations of excessive solid wastes over dredge spoil/silt, they will be carted away also. The effectiveness of the plan is premised on a number of factors, including, prompt and timely carting away of the wastes and using the right materials and equipment. To this end, waste disposal will be carried out only by contractors certified/approved by the Oyo State Waste Management Authority (OYOWMA). In addition however, adequate supervision shall be provided by the PIU and the Oyo State Ministry of Environment and Water Resources.

ANNEX 11: PHYSICAL AND CULTURAL RESOURCES MANAGEMENT PLAN

PHYSICAL AND CULTURAL RESOURCES MANAGEMENT PLAN FOR THE PROPOSED DREDGING OF STEAMS AND CHANNELS, AND CLEARING OF BLOCKED DRAINS AROUND IBADAN, OYO STATE

1.0 INTRODUCTION

This document has been prepared to guide the activities of the contractors that will handle the dredging of streams and channels around Ibadan, for flood control. The aim of the document is to provide guidelines for the handling of chance finds of physical and/or cultural resources.

2.0 PROCEDURE FOR HANDLING CHANCE FINDS

Based on observations in the course of field/site visits for the purpose of preparing this ESMP document, it is not expected that any cultural resources will occur within the work zones. However, the following measures shall be applicable, in the event of a “chance find”.

1. Upon discovery of a cultural resource, all works around the site shall stop immediately
2. The supervising engineer and the HSE supervisor shall be contacted with immediate effect.
3. The above shall establish contact with the Oyo State Ministry of Information and culture, for further action.
4. No further works shall be done at the site until all necessary precautions have been taken and an all-clear is issued by the concerned authorities.