Kenya Informal Settlements Improvement Program (KISIP)

Component 3: Infrastructure and Service Delivery

Consultancy services for socio-economic surveys, infrastructure upgrading plans and detailed engineering designs in informal settlements
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Front cover photos:
Kaptemwbo settlement centre with floodlight, electrical connections, existing drainage and road.
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</tr>
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<td>Assignment Name</td>
<td>Consultancy for socio-economic surveys, infrastructure upgrading plans and detailed engineering designs in informal settlements</td>
</tr>
<tr>
<td>Lead Implementing Agency</td>
<td>Ministry of Housing</td>
</tr>
<tr>
<td>Funding Agencies</td>
<td>Government of Kenya, World Bank, AFD, SIDA</td>
</tr>
<tr>
<td>Consultants</td>
<td>POYRY, GA Consultants, Pamoja Trust</td>
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<tr>
<td>Start Date</td>
<td>February 20, 2012</td>
</tr>
<tr>
<td>Completion Date</td>
<td>February 19, 2013</td>
</tr>
<tr>
<td>Team Leader</td>
<td>Robert Zwahlen, POYRY</td>
</tr>
<tr>
<td>Deputy Team Leader</td>
<td>Steve Ouma, Pamoja Trust</td>
</tr>
<tr>
<td>Target settlements</td>
<td>Nakuru Municipality– Gilani, Kaptembwo, Kwa Rhonda</td>
</tr>
</tbody>
</table>
DOCUMENT AUTHENTICATION

This Environmental and Social Impact Assessment Project Report is prepared for:

The Ministry of Housing
P.O. Box
Nairobi

Signed by…………………………………………………………….

Position……………………………………………………………..

Signature……………………………………………………………

Date……………………………………………………………..

I,…………….., a registered Lead EIA Expert by the National Environment Management Authority (License No. …), confirm that the contents of this report are a true representation of the Environmental and Social Impact Assessment Project Report of the proposed infrastructure upgrading in Gilani, Kaptembwo and Kwa Rhonda informal Settlements within Nakuru Municipality.

Signed by the Lead of EIA Expert:

Name: ……… (License No….)

Signature: ………………………………………………………......

Date: ………………………………………………………………..
EXECUTIVE SUMMARY

This document is the Environmental and Social Impact Assessment (ESIA) Report for the informal settlements in Nakuru Town selected for the KISIP program. It identifies adverse environmental and social impacts which might be caused by the projects selected for implementation in these settlements and develops, where required, suitable mitigation measures. Environmental measures are described in the present document, while social issues (physical or economic displacement of persons, compensation issues) are dealt with in the RAP, which is a separate document.

The ESIA report is based upon the previously submitted reports related to works carried out in Nakuru municipality:

- Socio-economic report: based on survey works carried out in each of the settlements.
- Conceptual design report: which includes a preliminary environmental and social checklist as well as a community consultation report.
- Draft Settlement Upgrading Plan report (Feasibility study): which includes a cost benefit analysis to the choice of variants in which environmental and social parameters are taken into account.
- Detailed Design report: which is being prepared simultaneously to this ESIA and includes the final design of the infrastructure components.

The infrastructure components taken into account in this ESIA are presented in the following table.

<table>
<thead>
<tr>
<th>Settlement</th>
<th>Scope of works</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gilani</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>D1 – Rehabilitation of 800 m of main city drainage canals in Gilani settlement</td>
</tr>
<tr>
<td>1.2</td>
<td>R1 – Construction of 1958 m of main settlement access roads (R1016, R1003)</td>
</tr>
<tr>
<td>1.3</td>
<td>R2 - Construction of 1680 m of main internal access roads</td>
</tr>
<tr>
<td>1.4</td>
<td>R3 - Construction of 1298 m of secondary internal access roads (potential PHASE 2)</td>
</tr>
<tr>
<td>1.5</td>
<td>R4 – Construction of 960 m of secondary internal access roads (potential PHASE 2)</td>
</tr>
<tr>
<td>1.6</td>
<td>R5 - Construction of 861 m of footpaths</td>
</tr>
<tr>
<td>1.7</td>
<td>S1 – Rehabilitation of 2100 m of sewerage network in Gilani settlement and implementation of a maximum of 1200 household connections to the sewerage network.</td>
</tr>
<tr>
<td>1.8</td>
<td>L1 - Construction of 2 No. high mast lighting structures</td>
</tr>
<tr>
<td>2. Kaptembwo</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>D1 – Rehabilitation of 546 m of main city drainage canals in Kaptembwo settlement</td>
</tr>
<tr>
<td>2.2</td>
<td>D2 – Construction of 3019 m of settlement level main drainage canals in Kaptembwo settlement</td>
</tr>
</tbody>
</table>
2.3 D3 – Slope stabilisation measures
2.4 R1 – Construction of 3258 m of main settlement access roads (R1001, R1002)
2.5 R2 - Construction of 1040 m of main internal access roads
2.6 R3 - Construction of 5243 m of secondary internal access roads (potential PHASE 2)
2.7 R4 - Construction of 6597 m of secondary internal access roads (potential PHASE 2)
2.8 L1 - Construction of 2 No. high mast lighting structures

3. Kwa Rhonda
3.1 D1 – Rehabilitation of 3806 m of main city drainage canals in Kwa Rhonda settlement
3.2 D3 – Slope stabilisation measures
3.3 R1 – Construction of 4204 m of main settlement access roads (R1009, R1011, R1014))
3.4 R2 - Construction of 7429 m of main internal access roads
3.5 R3 - Construction of 15421 m of secondary internal access roads (potential PHASE 2)
3.6 R4 - Construction of 3327 m of secondary internal access roads (potential PHASE 2)
3.7 L1 - Construction of 2 No. high mast lighting structures

The (few and generally minor) negative environmental impacts that the selected projects can have will manifest themselves mainly or exclusively during construction. Likewise, mitigation measures will have to be implemented during this period. The following table summarises the key impacts (both positive and negative) identified.

<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Current situation</th>
<th>Project specific impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Physical Environment</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **1.1 Climate** | | **All components:**
| | Projects not in any way related to or causing impacts on climate. |
| **1.2 Air quality** | | |
| **1.2.1 Dust** | • Many unpaved roads can lead to high dust especially during the dry season. | **All components:**
| | • Possibility of slight increase during construction. |
| | • Decrease once roads are upgraded due to improved surfacing. | |
| **1.2.2 Exhaust gases from traffic and industries** | • No high traffic concentrations, no other major polluting sources nearby; no big concern. | **All components:**
| | • Possibility of slight increase during construction. | |
| **1.2.3 Cooking fires (indoor pollution)** | • Various fuels used for cooking. | **All components:**
<p>| | • The project has no impact on fuel use (or use of energy in general). | |</p>
<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Current situation</th>
<th>Project specific impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.4 Smell (from solid waste transfer stations)</td>
<td>• Solid wastes are currently dumped in the settlements, as well as in the existing town dump site which has reached</td>
<td>SWM component: • No transfer stations planned in infrastructure package</td>
</tr>
<tr>
<td>1.3 Noise</td>
<td>• Noise is generally not perceived as a problem; any noise emission which might exist is in no way related to the project.</td>
<td>All components: • Some noise will be caused by construction activities. • Impact mainly on construction workers.</td>
</tr>
<tr>
<td>1.4 Water</td>
<td>• Storm water • Drinking water • Waste water</td>
<td>All components: • Impacts depend on site situation and on project type selected: see next sections of component breakdown.</td>
</tr>
<tr>
<td>1.4.1 Surface and ground water, water quality (drainage component)</td>
<td>• Currently drainage and flooding has a high impact in the settlements with destruction of property and loss of lives recorded. • Water drains through the settlements and is contaminated by solid and liquid waste. Water then flows into Lake Nakuru National Park. • The impact of increased urbanisation of Nakuru and the National Park and the water quality in the lake has been recorded. • Stagnating surface water (rain water as well as household grey water) has been observed in all settlements and has a sanitary impact on the local population.</td>
<td>Drainage component: • By improving the overall drainage in the settlements and wastewater management, the project will have an overall positive impact on surface water. • There is a risk of contamination of surface water during construction activities. In light of the natural drainage pattern, all contamination will drain towards the National Park. • The inexistence of a town wide drainage plan means that the overall infrastructure is designed with an important degree of uncertainty. Though the project option is deemed to be a better solution to the no project option.</td>
</tr>
<tr>
<td>1.4.2 Surface and ground water, water quality (sewerage component)</td>
<td>• Waste water flowing off uncontrolled and without being treated constitutes a major risk for soils, surface and ground water quality, and for human health. • Untreated wastewater flows into the drainage systems and into Lake Nakuru, impacting on water quality in the National Park • Latrines are the majority sanitation infrastructure in Kaptembwo and Kwa Rhonda settlements, which results in contamination of groundwater. • Latrines also have a tendency to cave in due to soil conditions, and available land to open new pits is limited.</td>
<td>Sewerage component: • By rehabilitating the existing network into Gilani settlement, the project will increase the usage of the existing WWTP infrastructure with positive outcomes on wastewater management. The current WWTP infrastructure in the town is underused.</td>
</tr>
<tr>
<td>1.4.3 Surface and ground water, water quality (Road Component)</td>
<td>• Roads are mostly dirt roads.</td>
<td>Road component: • Some, although limited risk of water contamination during construction.</td>
</tr>
<tr>
<td>Environmental aspect</td>
<td>Current situation</td>
<td>Project specific impacts</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>1.4.4 Surface and ground water, water quality (Lighting component)</td>
<td>• Inadequate lighting, security problem.</td>
<td>Lighting component: • No impact on water.</td>
</tr>
<tr>
<td>2. Natural (biological) environment</td>
<td>• Places of intervention (selected settlements) do not comprise any natural habitats.</td>
<td>All components: • No direct impacts. • In specific cases risk of impact on habitats downstream.</td>
</tr>
<tr>
<td>2.1 Vegetation and flora</td>
<td>• No natural vegetation present.</td>
<td>All components: • None.</td>
</tr>
<tr>
<td>2.2 Terrestrial fauna</td>
<td>• Project sites are no habitat for wildlife.</td>
<td>All components: • None.</td>
</tr>
<tr>
<td>2.3 Aquatic fauna</td>
<td>• No habitats for aquatic fauna.</td>
<td>All components: • None.</td>
</tr>
<tr>
<td>2.4 Important habitats and protected areas</td>
<td>• Settlements located in drainage basin of lake Nakuru – runoff of drainage water and waste water which contaminates Lake Nakuru</td>
<td>Drainage and sewerage components: • Water related projects (drainage, sewerage) can have indirect impact on these important habitats.</td>
</tr>
<tr>
<td>3. Human environment</td>
<td>• Often precarious living conditions, • Exposure to environmental hazards (including flooding, lack of water, bad hygienic conditions).</td>
<td>All components: • Aims at improving situation. • Negative side effects can arise.</td>
</tr>
<tr>
<td>3.1 Resettlement</td>
<td>• Project areas are densely populated (urban informal settlements). • Some residents have encroached on public right-of-ways (street way leave).</td>
<td>All components: • Encroachment on Part Development Plan road platforms and on infrastructure way leaves will have to be dealt with prior to construction.</td>
</tr>
<tr>
<td>3.2 Local economy</td>
<td>• Unemployment is very high in the informal settlements. • The program aims at improving living conditions in the settlements, but is not a directly income generating program.</td>
<td>All components: • Temporary jobs may be created during construction. • Maintenance of the systems installed will be necessary, could create some permanent jobs. • Otherwise no direct income-generating effects. • Potential permanent employment for management of ablution blocks. • Overall infrastructure improvements will positively impact socio-economic conditions in the settlements.</td>
</tr>
<tr>
<td>3.3 Services</td>
<td>• Infrastructure and services are often lacking • The program aims at improving services in the settlements</td>
<td>All components: • Potential interference with access to or disruption of services during construction phase • Improved community life and services</td>
</tr>
</tbody>
</table>
Environmental aspect | Current situation | Project specific impacts | All components:
--- | --- | --- | ---
3.4 Health | • Malaria is a high risk in all settlements. Eliminating mosquito breeding sites is one basic way to reduce this.  
• Risk of diarrhoea, dysentery or even cholera is high. Improving hygiene is important. | | • Drainage and sewerage improve the situation by eliminating temporary (or sometimes permanent) pools of stagnant contaminated water, thus reducing risks of water related diseases.  
• Sewerage and drinking water supply improve hygiene, and in this way also reduce risk of water related diseases.  
• Pavement of roads reduces dust and thus the risk of respiratory problems.  
• Construction works and pavement of roads could lead to increased number of road accidents |

Overall, it can be concluded that the proposed projects:

• have considerable positive effects on the inhabitants of the selected settlements;
• respond to immediate needs felt and expressed by them;
• have considerable positive effects on the environment;
• and have negative environmental impacts which can easily be mitigated.

The projects will also decrease the overall impact of Nakuru Town on the Lake Nakuru National Park, which is a fragile ecosystem that is currently under threat from the increased urbanisation of the town.

The main recommendation is that implementation of the projects, i.e. the construction phase, will be closely followed and monitored in order to make sure that the mitigation measures identified and recommended are being taken. All contracts for construction of any of the proposed projects must stipulate the responsibilities of the contractor for implementing these measures.

In this regards, an Environmental and Social Management Plan has been developed within this report to take into account the impacts of construction and of the operation phases of the infrastructure components. Responsibilities to the implementation of the ESMP have been allocated.

The projects will develop their full benefits only if they remain fully operable in the long term. This means that maintenance of all of these projects is essential to make them sustainable. Maintenance mainly requires two things, namely (i) availability of staff capable of carrying out all surveillance and work required for guaranteeing full functionality of the systems, and (ii) availability of sufficient funding for carrying out any maintenance or repair work which might be required. KISIP will be well advised to undertake efforts in this direction.
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LIST OF ACRONYMS AND ABBREVIATIONS

AFD  Agence Francaise de Developpement
CEMP  Community Environmental Management Plan
EA  Environmental Assessment
EIA  Environmental Impact Assessment
EMCA  Environmental Management and Coordination Act (No. 8 of 1999)
EMP  Environmental Management Plan
ESIA  Environmental and Social Impact Assessment
ESMF  Environmental and Social Management Framework
GoK  Government of Kenya
HH  Household
HIV/AIDS  Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
KENSUP  Kenya Slum Upgrading Program
KES  Kenya Shillings
KISIP  Kenya Informal Settlements Improvement Program
LA  Local Authority
MoH  Ministry of Housing
MoL  Ministry of Lands
NEMA  National Environmental Management Authority
OP  Operational Policy
PAD  Project Appraisal Document
PAP  Project Affected Person
PPE  Personal Protection Equipment
RAP  Resettlement Action Plan
SIDA  Swedish International Development Agency
SUP Settlement Upgrading Plan
ToR Terms of Reference
WB World Bank
WWTP Wastewater treatment plant
1 INTRODUCTION

1.1 Scope

This document is the Environmental and Social Impact Assessment (ESIA) Report for the informal settlements in Nakuru Town selected for the KISIP program. It identifies adverse environmental and social impacts which might be caused by the projects selected for implementation in these settlements and develops, where required, suitable mitigation measures. Environmental measures are described in the present document, while social issues (physical or economic displacement of persons, compensation issues) are dealt with in the RAP, which is a separate document.

The ESIA Report builds on the preliminary screening check that was prepared by the Consultant during an earlier project phase. This document is presented in Annex 1 of the ESIA Report.

Note: some of the relevant texts usually use the terms Environmental Assessment (EA; see WB OP 4.011) or Environmental Impact Assessment (EIA; see EMCA2). However, since both include the necessity of a social impact assessment as well, the term Environmental and Social Impact Assessment (ESIA), which is by now generally adopted, is used.

1.2 Project Background

This assignment, Consultancy services for socio-economic surveys, infrastructure upgrading plans and detailed engineering designs in informal settlements, is part of the preparation of the Kenya Informal Settlements Improvement Project’s (KISIP) Component 3: Infrastructure and Service Delivery. Component 3 supports investment in settlement infrastructure. Other KISIP components address institutional capacity, land tenure and urban planning issues.

KISIP is funded by the Government of Kenya (GoK), the World Bank, the French Development Agency (AFD) and the Swedish International Development Agency (SIDA). The Ministry of Housing (MoH) of Kenya is the lead implementing agency (hereafter referred to as the ‘Client’). Local authorities are expected to work closely with the Consultant on community mobilization and consultation and they will later supervise the implementation of upgrading works in their jurisdictions.

The types of infrastructure that are eligible for funding under KISIP include: rehabilitation of roads, bicycle paths, pedestrian walkways; installation of street and security lighting, vending platforms; improvement of solid waste management, storm water drainage, water and sanitation systems, electrification, public parks and green space. Social infrastructure such as schools, recreation centers and health clinics are not eligible for funding under KISIP. A separate government program, KENSUP (Kenya Slum Upgrading Program), provides funding for these types of social infrastructure in the informal settlements, in addition to basic infrastructure such as roads, water, sanitation and security lighting.

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1 World Bank OP 4.01, Available from: http://go.worldbank.org/K7F3DCUDD0
2 Environmental Management and Co-Ordination Act 1999
1.3 Consultancy services objectives

KISIP’s overall development objective is to improve living conditions in Kenya’s informal settlements.

The precise aim of this 12-month assignment (hereafter referred to as ‘the Project’) is to work with communities in 10 informal settlements of 3 municipalities, their corresponding Local Authorities and the Client to prioritize and design infrastructure improvements in select settlements within a pre-defined budget (i.e. a cost cap per hectare).

Further objectives of the Project include:

(i) to limit resettlement,
(ii) to mitigate any negative environmental and social impacts,
(iii) to maximize positive environmental and social impacts, and
(iv) to maximize synergies with other development projects and plans.

During the 12-month project period the Consultant will produce a series of documents covering all 10 settlements, including:

- a baseline socio-economic report to provide a basis for discussion with communities and to be able to evaluate the investment’s impact,
- conceptual designs for settlement upgrading plans (SUPs) to begin to visualize the community’s priorities, as a tool in community consultations aimed at reaching a consensus, and to guide the later engineering work, and
- detailed engineering designs to produce bidding documents so that once the Consultant has completed the assignment a contractor may implement the works.

- ESIA reports for approval of the project by NEMA

The Consultant will also support the three Local Authorities (LA) in the tender process for selection of contractors.

1.4 ESIA objectives

The ESIA shall achieve the following objectives:

1. Identify and analyse environmental and social issues that may affect the project.
2. Establish the environmental and social baseline in the targeted settlements, and identify any significant environmental and social issues.
3. Assess impacts of the project, and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures.
4. Integrate the environmental and social issues into project planning and design.
5. Develop appropriate management plans for implementing, monitoring and reporting of the suggested environmental and social mitigation and enhancement measures.
1.5 Previous reports

The ESIA builds on the previously developed reports related to works carried out in Nakuru municipality:

- **Socio-economic report**: based on survey works carried out in each of the settlements, this is a thorough socio-economic analysis of the settlements concerned by the project.

- **Conceptual Design report**: which includes a preliminary environmental and social checklist as well as a community consultation report.

- **Draft Settlement Upgrading Plan report** (Feasibility study): which includes a cost benefit analysis to the choice of variants in which environmental and social parameters are taken into account.

- **Detailed Design report**: which is being prepared simultaneously to this ESIA and includes the final design of the infrastructure components.

These reports can be made available at the Ministry of Housing for consultation.

1.6 Structure of the Report

As far as applicable, the Report follows the structure as outlined in Section 2.8 EMCA.
2 PROJECT DESCRIPTION

The following provides a concise description of the projects proposed for implementation.

For more details on the Nakuru project, the reader is directed to the following reports, that can be consulted at or made available by the Ministry of Housing:

- Draft Settlement Upgrading Plan Report (Feasibility Study) for Nakuru settlements
- Detailed Engineering Design for Nakuru settlements

2.1 The Settlements

In Nakuru municipality, the following informal settlements were selected and included in the KISIP program:

- Gilani settlement: 17.22 ha, population estimated at 3’608 inhabitants in 2012
- Kaptembwo settlement: 289 ha, population estimated at 76’200 inhabitants in 2012
- Kwa Rhonda settlement: 312 ha, population estimation at 32’496 inhabitants in 2012.

Figure 1: Location of settlements in Nakuru Municipality
2.2 The Proposed Projects

2.2.1 Project Selection Process

As mentioned above, the types of infrastructure that are eligible for funding under KISIP include: roads, bicycle paths, pedestrian walkways, street and security lighting, vending platforms, solid waste management, storm water drainage, water and sanitation systems, electrification, public parks and green space.

The specific projects that are actually proposed for implementation, and for which a conceptual and then a detailed design was done, were selected on the basis of the results of field work. Two main criteria were used in the process of selecting these projects, namely:

- The need for specific projects as expressed by the residents of the different settlements during the socio-economic survey and the community consultations carried out (see section 6.3 Conclusions to the Consultation process and the Conceptual Design Reports for specific settlements).
- The assessment carried out by the Consultant, taking into account, apart from priorities as expressed by residents, usefulness of the measure, urgency of its implementation, eligibility within the KISIP framework, the engineering principles outlined in the Conceptual Design Core Report, as well as technical feasibility and budgetary considerations (feasibility within given budget).

2.2.2 Types of Projects Considered

This section describes, in a general manner, the types of projects considered for implementation. A site specific description giving more details follows in the next section.

2.2.2.1 Storm Water Drainage

Insufficient drainage, often causing floods, was considered as a major problem in some of the settlements included in this study.

Typically, a project for storm water drainage will consist of the following main elements:

- Upgrading, improving and/or enlarging, if required, existing drainage channels.
- Construction of new drains along roads if required.
- Upgrading or construction of culverts etc.
- Construction of a main drainage channel which collects storm water from the settlement.
- Maintaining crossings and integrity of road network.

The following issues have to be considered:

- Inflow of surface runoff water from higher lying ground outside of the settlement. This could potentially affect the situation and the effectiveness of the measures significantly and needs to be taken into account.
• Settlement catchment: this will increase as a result of the proposed developments/interventions, which will increase covered surface area and thus the runoff.

• Outflow of the drainage water from the settlement through the main channel: it has to be made sure that this will not cause problems downstream of the selected settlement, e.g. in a lower lying community.

• Maintenance of the system: site inspection has shown that at least in some instances the immediate problem is not the lack of drains, but rather the fact that they are blocked by sediment. The combination of waste (plastic bags to a large extent) and sand can completely clog culverts and drains. Maintenance of the new structures will be essential, and a good solid waste management should be implemented in order to reduce this problem.

Expected main effects:

• Improved drainage within the settlement.
• Reduction of the risk of flooding.
• Positive effect on health by reducing or preventing the formation of temporary stagnant water pools, in this way reducing exposure of the population to water related diseases.
• Increased volume into the river outfall.

2.2.2 Sewerage

Field work has shown that very few, if any, of the houses are connected to a sewerage system. In some instances there is no sewage infrastructure at all and where it exists, it is plagued by blockages and is not functional. Uncontrolled runoff of sewage can affect the quality of soils, surface and ground water, and can constitute a major health risk. A sewerage project usually consists of the following main parts:

• Settlement level: sewage channels or ducts.
• Trunk sewage channel or duct leading to a waste water treatment plant (WWTP).
• Construction of a WWTP if connection to an existing one is not possible.
• Provision of alternative sanitation infrastructure such as communal ablution blocks.

Issues to be considered:

• Quality of treated sewage water flowing out (and usually into a river) must meet applicable standards.
• Maintenance of the system will be essential for the sustainability of the project. This has to include information/education of inhabitants, e.g. to reduce the risk of sewage drains blocked by solid waste.

Expected effects:

• Reduction of impacts of sewage on soils, surface and ground water.
• Improvement of hygiene and therefore reduction of the risk of water related diseases.

2.2.2.3 Drinking Water Supply

In a considerable number of settlements included in the study, drinking water is a problem. While the infrastructure of pipes may be available, there are issues concerning supply (rationing/peak demands not being met), quality and cost of the product).

A drinking water supply system will usually consist of the following main parts:

• Identification of a suitable source (quantity, quality, distance).
• Construction of a reservoir (water tower or similar) and main ducts to the settlement.
• Distribution system (to houses, standpipes etc.).

Issues to be considered:

• Depending on the source available, treatment of the water might be required prior to its distribution.
• Availability of water in sufficient quantities and close to the houses (or even as tapped water within the houses) will lead to a higher water consumption and therefore inevitably to larger amounts of waste water. For this reason, drinking water supply must be combined with a sewerage system (see above for details).

Expected effects:

• Availability of sufficient quantities of good quality drinking water.
• Reduction of health risks (water related diseases) associated with contaminated drinking water.
• Considerable reduction of time required for getting water; this will improve the situation mainly of women, who are generally in charge of providing water for the household.

2.2.2.4 Roads

In many of the settlements, roads are largely unpaved dirt roads. Road improvement was considered a priority in some settlements.

Where this option was chosen, the project will consist of improvement of existing roads (surfacing) as delineated in the Part Development Plans. No construction of new roads networks is proposed in the framework of this program.

Issues to be considered:

• Management of potential encroachment in the right-of-way
• Public safety during construction phase
• Management of borrow sites for road construction materials
• Contractors’ compliance with environmental practices during construction phase (health/safety, air, water, noise pollution, runoff)
Expected effects:

- Improved conditions for road traffic of any type.
- Reduction in dust during the dry season and mud during the rainy season.
- As a side effect, surfacing of roads will reduce the amount of sediment washed into storm water drains and also increase the volume of surface runoff.

2.2.2.5 **Floodlighting**

Providing of street or flood lighting in public spaces, such as public transport terminals, markets, schools, social halls, police posts, playing fields and walking routes as a measure to improve security within the settlements. Minimal environmental and social issues are expected as a result of the implementation of this type of projects, while many positive impacts are expected.

2.2.3 **Specific Projects Proposed for Nakuru municipality**

The following table presents the final Draft SUP infrastructure component choices which will be implemented in Nakuru.

The different infrastructure components and sub-components are shown on the plans attached to this document in Annex 5, which can also be consulted at or made available by the Ministry of Housing.

<p>| Table 1: Draft SUP infrastructure components chosen for Nakuru municipality settlements |</p>
<table>
<thead>
<tr>
<th>Settlement</th>
<th>Scope of works</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Gilani</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>D1 – Rehabilitation of 800 m of main city drainage canals in Gilani settlement</td>
</tr>
<tr>
<td>1.2</td>
<td>R1 – Construction of 1958 m of main settlement access roads (R1016, R1003)</td>
</tr>
<tr>
<td>1.3</td>
<td>R2 - Construction of 1680 m of main internal access roads</td>
</tr>
<tr>
<td>1.4</td>
<td>R3 - Construction of 1298 m of secondary internal access roads (potential PHASE 2)</td>
</tr>
<tr>
<td>1.5</td>
<td>R4 – Construction of 960 m of secondary internal access roads (potential PHASE 2)</td>
</tr>
<tr>
<td>1.6</td>
<td>R5 - Construction of 861 m of footpaths</td>
</tr>
<tr>
<td>1.7</td>
<td>S1 – Rehabilitation of 2100 m of sewerage network in Gilani settlement and implementation of a maximum of 1200 household connections to the sewerage network.</td>
</tr>
<tr>
<td>1.8</td>
<td>L1 - Construction of 2 No. high mast lighting structures</td>
</tr>
<tr>
<td>5. Kaptembwo</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>D1 – Rehabilitation of 546 m of main city drainage canals in Kaptembwo settlement</td>
</tr>
<tr>
<td>2.2</td>
<td>D2 – Construction of 3019 m of settlement level main drainage canals in Kaptembwo settlement</td>
</tr>
<tr>
<td>2.3</td>
<td>D3 – Slope stabilisation measures</td>
</tr>
<tr>
<td>2.4</td>
<td>R1 – Construction of 3258 m of main settlement access roads (R1001, R1002)</td>
</tr>
</tbody>
</table>
2.5  R2 - Construction of 1040 m of main internal access roads
2.6  R3 - Construction of 5243 m of secondary internal access roads (potential PHASE 2)
2.7  R4 - Construction of 6597 m of secondary internal access roads (potential PHASE 2)
2.8  L1 - Construction of 2 No. high mast lighting structures

6. Kwa Rhonda

3.1  D1 – Rehabilitation of 3806 m of main city drainage canals in Kwa Rhonda settlement
3.2  D3 – Slope stabilisation measures
3.3  R1 – Construction of 4204 m of main settlement access roads (R1009, R1011, R1014)
3.4  R2 - Construction of 7429 m of main internal access roads
3.5  R3 - Construction of 15421 m of secondary internal access roads (potential PHASE 2)
3.6  R4 - Construction of 3327 m of secondary internal access roads (potential PHASE 2)
3.7  L1 - Construction of 2 No. high mast lighting structures

It is underlined that the Bidding process to the above infrastructure components has been split into a two-phase approach as follows:

- Phase 1: Drainage Component (D1, D2, D3), Road Component (R1, R2, R5), Sewerage Component (S1) and Lighting Component (L1)
- Phase 2: Road Component (R3, R4)

These infrastructure components are detailed hereafter.

2.2.3.1 Drainage Component

The drainage component can be summarised as follows:

- **Project Type:** Rehabilitation and implementation of stormwater drainage in all three settlements in Nakuru municipality

- **Reasons for selection:** In the public hearings/social survey drainage was systematically chosen in the top 5 infrastructure priorities. This was confirmed during community consultations, where drainage was declared the top priority in each settlement. In light of the impact of flooding in the settlements, the Consultant has agreed with this component choice and has prioritised the drainage component.

  Furthermore, drainage is closely linked to the second priority infrastructure component, the Road component.

- **Main objectives:** The actions under this infrastructure component aim at reinforcing the overall drainage system through the three settlements, in parallel to the standard drainage infrastructure to be implemented under the road component. Works will therefore focus on rehabilitating and implementing main drainage canals through the settlements, which aim at draining previously
identified flooding hotspots. This notably includes upgrading a main town wide drain that runs through all three settlements and drains water from the area upstream from the settlements.

- **Description**: Major settlement drains are Major drains boxed concrete pipes of 2m wide and 1.2m height. The bottom has allowance to allow for low volume flows.

- **Conflict**: Potential conflicts are listed hereafter:
  
  o **Land requirements**: the main town drainage canals that will pass through the settlement are planned in the settlement Part Development Plan. However, encroachment of the way leave by residents has been observed during field investigations.
  
  o **Other development plans**: In area where the drainage infrastructure does not have a specifically defined way leave, the routes will follow the road network. This may impact the road network platform and the drainage infrastructure will have to be placed below ground.
  
  o **Influence from outside**: A key limiting factor to the design of the Town wide drainage canals is the inexistence of a town wide drainage master plan, which means that runoff calculations from surfaces upstream from the settlements are estimated without a clear understanding of the overall town wide drainage system.
  
  o **Influence from outside**: The efficient operation of the drainage canals demands that solid waste management be implemented in and upstream from the settlements. The Nakuru municipal council has been developing a solid waste management plan, though the plan has not been made available to the Consultant.
  
  o **Influence on surroundings**: Drainage water is channeled to the Njoro River, which then flows into Lake Nakuru. The project will not modify the existing drainage patterns and therefore, there will not be an increase in overall flow rates into the Njoro River.
  
  o **Influence on surroundings**: At the outlet of these drains, trash racks will be constructed to filter the debris and dead animals from getting into the river. Three trash racks will be constructed, two at Kaptembwa and one at Kwa Rhonda. The sizes of these trash racks will be the same as that of the drain. This measure is taken to ensure that River Njoro is safe for the users downstream. The maintenance of this trash racks will be the responsibility of the NMC, to ensure that they are cleaned at least twice per week.

- **Construction**: The overall construction period is defined as 18 months. The works linked to the drainage components will need to be carefully planned between the main rainy seasons.

### 2.2.3.2 Road Component

The road component can be summarised as follows:
• **Project Type:** Rehabilitation of main settlement access and internal feeder roads based upon the relevant settlement Part Development Plan road network.

• **Reasons for selection:** In the public hearings/social survey improvements to the road infrastructure was systematically chosen in the top 5 infrastructure priorities. This was confirmed during community consultations, during which road was declared the 2<sup>nd</sup> placed priority in each settlement. In light of the linkages between the road and the drainage components, as well as the overall observed state of the road network in the settlements, the Consultant has agreed with this component choice and has prioritised the road component.

• **Main objectives:** Based upon the settlement PDPs, the upgrading of key settlement access roads (in coordination with the Kenya Urban Roads Authority (KURA) as well as key internal feeder roads will be carried out. This will facilitate access to and within the settlements, which will impact the overall socio-economic development of these areas and better integrate them within the overall urban tissue.

• **Description:** In coordination with KURA Nakuru and in light of the predominant soil conditions found in Nakuru, all roads will be upgraded to the following specifications: **Wearing course 50mm type 1 asphaltic concrete, Base 150mm 3 percent stabilized murram from Bahati borrow pit. Sub grade natural soil compacted to 95 percent MDD.**

• **Conflicts:** Potential conflicts are listed hereafter:
  - **Land requirements:** the planned road upgrading will follow the respective settlement PDPs. No new roads are to be built and therefore, the land required for the road platform is clearly defined. However, site reviews have shown that encroachment on the road platforms by local residents (extension of housing limits, extension of shop fronts, use of the road platform for market stands, etc.) is an issue.
  - **Other development plans:** the road component has been closely coordinated with KURA Nakuru and takes into account the planned KURA main road linkages. Therefore the component is in line with other planned projects.
  - **Influence from outside:** the component requires coordination with KURA Nakuru. Until now, KURA has been involved in the overall project design. However, it is vital that KURA accepts to operate and manage the roads that are to be implemented within this component. It is also for this reason that the road design needs to follow standard KURA specifications.
  - **Influence on surroundings:** upgrading of roads will have an impact on surface runoff within the settlements. However, since the road component is coupled with the drainage component, this will help improve overall drainage in the settlements.

• **Construction:** The overall construction period is defined as 18 months. As to all road upgrading projects, the impacts during construction works will be felt within the settlements, particularly regarding reduced traffic flow and access, as
well as temporary noise and air pollution. The construction of this Component has been split into two distinctive bidding phases, as described previously.

2.2.3.3 Sewerage Component

The sewerage component can be summarised as follows:

- **Project Type:** Rehabilitation of the existing sewerage network in Gilani settlement.

- **Reasons for selection:** The initial socio-economic results showed varied response to the need to implement a sewerage component in the settlements, due notably to the fact that the difference between the evacuation of sewerage and drainage water was not known to many residents. Further consultants however cleared this up and sewerage was systematically a top 5 priority. A part of the Gilani settlement is services by the town wide sewerage network, whilst due to topography, the extension of the network to Kaptembwo and Kwa Rhonda is particularly difficult. In both these settlements, the vast majority of residents report using unimproved pit latrines (88% and 84% respectively). However, projects are already being established in Kaptembwo and Kwa Rhonda settlements to reinforce communal sanitation infrastructure.

- **Main objectives:** The objective is therefore to rehabilitate the existing town sewerage network in Gilani settlement without major investments (pumping stations, new WWTP, etc.). This has been chosen in light of the current difficulties of the service provider (NAWASCO) to operate and maintain the existing network. In both Kaptembwo and Kwa Rhonda, since projects are currently being implemented to strengthen communal sanitation infrastructure in the settlements, this subcomponent has been removed from KISIP financing.

- **Description:** The rehabilitation of the existing network will follow NAWASCO specifications to network design.

- **Conflicts:** Potential conflicts are listed hereafter:

  - **Land requirements:** the existing sewerage network either follows the road network or specific way leaves. In Gilani, it has been observed that access to the sewerage network has been rendered difficult in light of encroachment on the road platform and on way leaves.

  - **Influence from outside:** the connection of both Kaptembwo and Kwa Rhonda to the existing town wide sewerage network was reviewed at feasibility level and would have been the ideal solution. However, such a project requires important investments as well as a plan to support NAWASCO during O&P phases. This is not in the scope of the KISIP project.

- **Construction:** The overall construction period is defined as 18 months. The rehabilitation of the sewerage network needs to be done in coordination with the road upgrading works.

2.2.3.4 Street Lighting Component

The street lighting component can be summarised as follows:
• **Project Type:** Implementation of flood lights in selected areas of the settlements.

• **Reasons for selection:** The initial socio-economic results cleared showed that improvements to public lighting are required in the settlements. In Gilani and Kwa Rhonda where public lighting is inexistent, the component was selected as the top priority, whilst in Kaptembwo where floodlights have been installed the component was selected as the 2nd priority. The component was maintained in the public consultation phase of works and therefore has been integrated into the design recommendations.

• **Main objectives:** In light of the success of the installation of floodlights in settlements throughout Kenya, the objective is to equip key areas of the Nakuru settlements in floodlights.

• **Description:** The settlements will be equipped with a total of 6 floodlights, 2 in Gilani, 2 in Kaptembwo and 2 in Kwa Rhonda.

• **Conflicts:** Potential conflicts are listed hereafter:
  
  o **Land requirements:** Whilst floodlights do not occupy a large surface of land, their positioning requires available (public) land.

  o **Influence from outside:** operation of floodlighting requires that the Municipality pays for resultant electricity consumption costs. Discussions with MCN have resulted that the Municipality will look to placing advertisements on the floodlights, in order to pay for electrical bills.

  o **Influence on surroundings:** improvement to lighting means an increase in security in the surrounding areas, as well as increasing socio-economic activity.

• **Construction:** The overall construction period is defined as 18 months, though the installation of floodlights will require less time. No major construction impacts are foreseen during the construction phase.
3 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Requirement to carry out an ESIA

3.1.1 KISIP ESMF

An Environmental and Social Management Framework (ESMF) was prepared for KISIP (GoK 2011). This ESMF is the basis for the environmental assessment of all programs and projects to be carried out in the framework of KISIP. The ESMF is available in World Bank InfoShop.

Basically, the ESMF provides a global overview of potential environmental and social impacts of all KISIP projects and defines and describes the procedures to be applied.

When comparing the ESMF to the present Report it has to be kept in mind that the ESMF was done for the entire KISIP program, however, without detailed information on site specific projects to be implemented in any of the settlements chosen in a total of 15 municipalities (as the specific projects were not identified at the project preparation stage), while the present ESIA Report deals with a defined number of very specific projects to be implemented in the selected settlement of one municipality.

Finally, it is important to note that the overall KISIP has been classified as environmental category B and under an Environmental and Social Management Framework (ESMF) has been prepared in compliance with OP 4.01. This means that projects which are likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented, and which have been classified as Category A, are not eligible for financing under KISIP.

3.1.2 EMCA

EMCA is the Act which regulates the EIA procedure in Kenya. In its Annex (Schedule 2) it provides a list of projects for which carrying out an EIA process is mandatory. In Table 17 in Annex 2, this list is shown along with comments concerning the relevance of these categories for the projects to be implemented within the framework of KISIP.

The Table shows that none of these categories is clearly applicable, since the projects are small in size, projects generally recognised as improving the environment (or in many cases actually environmental protection measures proposed and adopted in the framework of larger projects which do require a full ESIA), and with very limited, if any, adverse environmental impacts.

3.1.3 WB Operational Policies

WB classifies its projects into four categories according to the likely impacts on the environment they will have. This classification is as follows (only main conditions mentioned):

(a) Category A: A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts.

(b) Category B: A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural
habitats—are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects. **KISIP (including these subprojects) has been categorized as B.**

(c) Category C: A proposed project is classified as Category C if it is likely to have **minimal or no adverse environmental impacts.** Beyond screening, no further EA action is required for a Category C project.

(d) Category FI: A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts; this case, in any way, is not applicable to the KISIP project.

Most of the proposed specific projects are in the areas of water supply, storm water drainage and sewerage, with road upgrading and floodlighting in some of the settlements. All of them will have significant positive effects on the environment and on the living conditions of the residents in these settlements. Adverse effects, if any, will be limited (some minor and temporally limited noise and dust during construction). Only where drainage and sewage is concerned, measures will have to be taken to prevent indirect adverse effects; such effects could be outside of the project sites, i.e. the selected settlements, in the downstream area, to which drainage water and sewage will flow. Such effects can clearly be identified during the screening process and mitigated as described in ESMP.

3.1.4 Conclusions

Given the size and nature of the specific projects proposed for implementation in the selected settlements of Nakuru municipality, and considering the explanations given above concerning project categories and expected impacts, it could be argued that a full EIA procedure is not required for any of them; however, environmental screening will be applied to all subprojects and a simple EA and/or ESMP will be developed, where needed. Regardless of the type of the project, environmental protection measures to mitigate any impact which might arise would still be required.

However, since in the ESMF, which is binding for all projects under KISIP, the entire program was identified as a Category B project (and in accordance with EMCA), an EIA process is being applied. According to the specifications given in OP 4.01 on ESIA for Category B projects, the ESA/ESMP Reports will be short, concise and focusing on the identified impacts, while aspects which according to the Screening are not affected will not be dealt with.

3.2 Institutional Framework

3.2.1 Institutional Framework to ESIA in Kenya

The institutional framework for environmental management in Kenya is provided for in the Environmental Management and Coordination Act (EMCA), 1999. EMCA, 1999, creates the National Environment Management Authority (NEMA) to provide coordination and supervision of all matters relating to the environment and to be the principal instrument of government in the implementation of environmental policies.
The implementation of KISIP projects will be subject to NEMA’s supervision and regulation. In particular to ensure that the projects conform to:

1. General principles of EMCA that guarantee a clean and healthy environment for all

2. Principles of sustainable development as espoused by section 5 of EMCA, 1999


4. Part V on protection and conservation of the environment


To facilitate coordination of environmental matters at District level, EMCA 1999 creates the District Environment Committees (DEC) chaired by respective District Commissioners and coordinated by District Environment Officers who are empowered to oversee environmental matters at District level. The membership of these committees is established by law and includes government agencies and non-state actors. The Local authorities are members of these Committees. The DECs play a central role in the approval of EIAs for projects. Within this framework, the DECs will be linked to KISIP implementation through the respective screening and EIA cycles while at Ministry level; NEMA has seconded an officer to support the PCT in mainstreaming environmental and social issues into project development.

Legal requirements regarding the procedure and conduct of Environmental Impact Assessment (EIA) and Environmental Audits (EA) is provided for under Legal Notice No. 101 (Environmental Impact Assessment and Audit Regulations, 2003). All KISIP projects are subject to these regulations.

3.2.2 KISIP Institutional Set up

The main KISIP institutional Stakeholders and their organisation are described in the following chapter, based upon the institutional arrangements described in the KISIP Environmental and Social Management Framework.

3.2.2.1 The Ministry of Housing

The Ministry of Housing is mandated to facilitate provision of housing for low and middle-income households, spearheading development of new/ revised policies for housing and delivery of serviced land etc. Within the MoH, KISIP operates under the overall supervision of the Permanent Secretary but routine implementation of project activities is overseen by the Project Coordination Team (PCT) comprising of diverse components namely: Social and Community Development, Monitoring and Evaluation, Finance, Procurement, Institutional Development, Tenure Security, Environment, Infrastructure; and Planning for pro-poor growth.

3.2.2.2 The Ministry of Lands

Under the provisions of the Local Government Act of 1977, the Minister of Local Government (MoLG) has jurisdiction and power to establish and extinguish local
authorities, provision of policy oversight, approval of operating procedures; by-laws, staffing, administration, operations, budgets and financial management among others. Other sector ministries also directly interface with operation of local authorities particularly in the areas of security, health, education, water and roads.

3.2.2.3 The Ministry of Local Government

Under the provisions of the Local Government Act of 1977, the Minister of Local Government (MoLG) has jurisdiction and power to establish and extinguish local authorities, provision of policy oversight, approval of operating procedures; by-laws, staffing, administration, operations, budgets and financial management among others. Other sector ministries also directly interface with operation of local authorities particularly in the areas of security, health, education, water and roads.

3.2.2.4 Municipal Council of Nakuru

Local authorities in Kenya are created and supervised by the Minister in charge of Local Government under Cap 265 and charged with the responsibility of providing services such as health, primary education, refuse collection, water and sanitation, and fire protection services etc. within areas of jurisdiction.

The City and Municipal Councils are led by a mayor whereas the Town and County Councils fall under the leadership of a Chairperson elected along Committee Chairpersons from councillors. Full Councils are constituted by councillors, two-thirds of whom are directly elected in single-member wards for a five-year term, with the rest one third being nominated by the Minister of Local Government from lists proposed by political parties on the basis of their representation within each council. Senior staff of the MoLG is recruited through the Public Service Commission (PSC), with the Minister of Local Government having full discretion over the most senior appointments. A Town Clerk appointed by the PSC oversees routine operations of LAs.

Councils conduct their business through Standing Committees which make recommendations for deliberation in Full Council Meetings and approved through a Council Minute.

3.2.2.5 KISIP Program organogram

The following Figure 2 presents the general Organogram to the KISIP program.
3.3 Legal Framework

The EIA process in Kenya is defined and described in the Environmental Management and Co-Ordination Act of 1999 (EMCA). This, as well as the other legal texts of relevance for an ESIA in the framework of KISIP, is described below, following the ESMF document.

3.3.1.1 Constitutional Provisions

According to the new Constitution of Kenya (2010), with regard to the environment, Section 42 of the Constitution states as follows:

*Every person has the right to a clean and healthy environment, which includes the right:*
(a) To have the environment protected for the benefit of present and future
generations through legislative and other measures, particularly those
contemplated in Article 69; and

(b) To have obligations relating to the environment fulfilled under Article 70.

In Sections 69 and 70, the Constitution has inter alia identified National Obligations in
respect of the environment and Enforcement of Environmental Rights respectively as
follows:

Section 69

1) The State shall—

(a) ensure sustainable exploitation, utilization, management and conservation of
the environment and natural resources, and ensure the equitable sharing of
the accruing benefits;

(b) work to achieve and maintain a tree cover of at least ten per cent of the land
area of Kenya;

(c) protect and enhance intellectual property in, and indigenous knowledge of,
biodiversity and the genetic resources of the communities;

(d) encourage public participation in the management, protection and
conservation of the environment;

(e) protect genetic resources and biological diversity;

(f) establish systems of environmental impact assessment, environmental audit
and monitoring of the environment;

(g) eliminate processes and activities that are likely to endanger the
environment; and

(h) utilise the environment and natural resources for the benefit of the people of
Kenya.

2) Every person has a duty to cooperate with State organs and other persons to
protect and conserve the environment and ensure ecologically sustainable
development and use of natural resources.

Section 70 provides for enforcement of environmental rights thus:

1) If a person alleges that a right to a clean and healthy environment recognized
and protected under Article 42 has been, is being or is likely to be, denied,
violated, infringed or threatened, the person may apply to a court for redress in
addition to any other legal remedies that are available in respect to the same
matter.

2) On application under clause (1), the court may make any order, or give any
directions, it considers appropriate—

(a) to prevent, stop or discontinue any act or omission that is harmful to the
environment;

(b) to compel any public officer to take measures to prevent or discontinue any
act or omission that is harmful to the environment; or
(c) to provide compensation for any victim of a violation of the right to a clean and healthy environment.

3) For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury.

Essentially, the new Constitution has embraced and provided further anchorage to the spirit and letter of EMCA 1999 whose requirements for environmental protection and management have largely informed Sections 69 through to 71 of this document. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law.

3.3.1.2 The Environmental Management and Coordination Act (EMCA) 1999 and its tools

The most pertinent and overriding statute that will be evoked is the Environmental Management and Coordination Act (EMCA 1999). EMCA 1999 was enacted in 2000 to harmonize environmental legislation previously scattered among 77 national laws. As the principal environmental legislation in Kenya, EMCA sets the legal framework for environmental management basically as follows:

Requirement for Environmental Impact Assessments for all new projects

Section 58 of the Environmental Law requires that an Environmental Impact Assessment (EIA) study precede all development activities proposed to be implemented in Kenya. The Act further requires that EIA studies so designed, be executed in accordance with the Guidelines for Conduct of EIAs and Environmental Audits (Kenya Gazette Supplement No. 56 of 13th June 2003) as published by the National Environmental Management Authority (NEMA).

Requirement for Annual Environmental Audits

In order to mitigate and control environmental damage from ongoing projects, Sections 68 and 69 of the EMCA require that all ongoing projects be subjected to annual environmental audits as further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003.

3.3.1.3 Inter-Sectoral Coordination in Environmental Protection

Among other functions, EMCA mandates NEMA to regularly review and gazette standards and regulations for environmental quality as a way of guiding activity in all sectors. Further, in recognition that EMCA is an umbrella law coordinating diverse sectoral statutes, all of which are still in force, the Legal Notice 101 of EMCA requires that the respective sector ministries be consulted as ‘lead agencies’ in making decisions pertaining to environmental assessment for projects in respective sectors. Therefore, to ensure that NEMA does not approve projects that contradict sector policies and legislation, all EIA reports are subjected to review by the relevant sector ministries in their capacity as lead agencies whereby, their opinions have a strong bearing on the final decision arrived at by NEMA.

Going by EMCA requirement for investments to comply with sectoral laws, all KISIP projects are to be subjected to EIA Studies in line with Section 58 of EMCA and its Legal Notice 101. As part of the EIA, all lead agencies will be consulted as per requirements of LN 101 in order to ensure that sectoral concerns are taken care of in the
relevant EMPs. Requirements of the GOK statutes deemed relevant to KISIP are briefly highlighted in sections below.

**The Local Government Act:**

The Local Government Act Cap 265 is relevant to the KISIP as the principal legislation under which local authorities (LAs) are created and function. Approval of the KISIP projects will have to go through the approval process at council meetings. Cap 265 also empowers LAs to act in the protection of the environment. This Act empowers the LAs to provide and maintain sanitation and sewerage services and to take measures to control or prohibit factories and industries from emitting smoke, fumes, chemicals, gases, dust, smell, noise, vibrations or any danger, discomfort or annoyance to the neighbourhood. LAs are empowered to take punitive action against offenders within areas of jurisdiction.

**Public Health Act Cap 242**

The Public Health Act provides for the protection of human health through prevention and guarding against introduction of infectious diseases into Kenya from outside, to promote public health and the prevention, limitation or suppression of infectious, communicable or preventable diseases within Kenya, to advise and direct LAs in regard to matters affecting the public health to promote or carry out research and investigations in connection with the prevention or treatment of human diseases. This Act provides the impetus for a healthy environment and gives regulations to waste management, pollution and human health.

Under Cap 242, LAs enjoy Delegated Authority from the Minister for Public Health to provide all services allowed for under this Act.

**Kenya Roads Board Act:**

The Kenya Roads Board was established in July 2000 by the Kenya Roads Board Act, Act No. 7 of 1999. The main object for which the Board was established is to oversee the road network in Kenya and thereby co-ordinate its development, rehabilitation and maintenance and to be the principal adviser to the Government of the Republic of Kenya on all matters related thereto. The Board has the responsibility of managing revenues arising from the Roads Maintenance Levy Fund (RMLF).

**Roads Act 2007:**

The legal and institutional aspects of the new road sub-sector policy were subsequently incorporated in the Kenya Roads Act 2007 which provides for the establishment of three independent Road Authorities namely:

(i) Kenya National Highways Authority (KeNHA) responsible for the administration, control, development and maintenance of all class A, B and C roads in Kenya.

(ii) Kenya Rural Roads Authority (KeRRA) responsible for rural and small town roads including class D, E roads and Special Purpose Roads.

(iii) Kenya Urban Roads Authority (KURA) is significant for KISIP as it is in charge of all city and municipal roads. This is the Authority that LAs will co-ordinate with in the design and implementation of investments targeting improvement of roads.
The Authorities fall under the Ministry of Roads, which will retain the role of policy formulation, and general oversight of public roads, including regulatory aspects such as technical standards.

**Legislations pertaining to land reservation and Ownership:**

The entire regime of laws relating to Land have been explored under the Resettlement Action Plan forming a separate volume to this Report.

**Public Procurement and Disposal Act 2005:**

The purpose of this Act is to establish procedures for procurement and the disposal of unserviceable, obsolete or surplus stores and equipment by public entities to achieve the following objectives -

(i) to maximize economy and efficiency;

(ii) to promote competition and ensure that competitors are treated fairly;

(iii) to promote the integrity and fairness of those procedures;

(iv) to increase transparency and accountability in those procedures; and

(v) to increase public confidence in those procedures;

(vi) to facilitate the promotion of local industry and economic development.

All procurement under KISIP will be subject to this statute.

### 3.4 International Standards

Like in any project financed by, or with financial participation of, the World Bank, the environmental and social safeguards as defined in the Bank's Operational Procedures (OPs) have to be respected. The following Table lists these OPs and identifies their applicability in this case.
Table 2: Applicability of WB OPs

<table>
<thead>
<tr>
<th>OP No.</th>
<th>Title</th>
<th>Dated</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.01</td>
<td>Environmental Assessment</td>
<td>Jan. 1999</td>
<td>Applicable. The project was identified as a Type B project.</td>
</tr>
<tr>
<td>4.04</td>
<td>Natural Habitats</td>
<td>Jun. 2001</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.09</td>
<td>Pest Management</td>
<td>Dec. 1998</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.10</td>
<td>Indigenous Peoples</td>
<td>Jan. 2005</td>
<td>Not applicable. The population of the project area is not considered - and does not consider itself - as an ethnic minority, or otherwise fitting the criteria outlined in OP 4.10.</td>
</tr>
<tr>
<td>4.11</td>
<td>Physical Cultural Resources</td>
<td>Jan. 2006</td>
<td>Not applicable. Site visits and inventories have not indicated the presence of any cultural (historical, archaeological) sites in the sample settlements. All construction sites aim at rehabilitation of existing infrastructure in an urbanised area.</td>
</tr>
<tr>
<td>4.12</td>
<td>Involuntary Resettlement</td>
<td>Dec. 2001</td>
<td>Potentially applicable. Some land use issues might arise during project development where necessity and entitlement for compensation will have to be checked, and it cannot be excluded that for some of the specific projects relocation of a small number of households might be required.</td>
</tr>
<tr>
<td>4.36</td>
<td>Forests</td>
<td>Nov. 2002</td>
<td>Not applicable. The selected settlements are not located in forested areas, and no forests are directly or indirectly affected by the project.</td>
</tr>
<tr>
<td>4.37</td>
<td>Safety of Dams</td>
<td>Oct. 2001</td>
<td>Not applicable. No dam or similar structure will be developed for this project.</td>
</tr>
<tr>
<td>7.50</td>
<td>Projects on International Waterways</td>
<td>June 2001</td>
<td>Not applicable. While some specific projects (sewerage) might have effects on rivers, none of them is an international one.</td>
</tr>
<tr>
<td>7.60</td>
<td>Projects in Disputed Areas</td>
<td></td>
<td>Not applicable. The project is not located in internationally disputed area.</td>
</tr>
</tbody>
</table>

The programme ESMF only identified OPs 4.01 (EIA) and 4.12 (Resettlement) as being triggered by KISIP. However, in the context of the specific projects and settlements covered in the present study, in some cases OP 4.04 (Natural Habitats) might be applicable as well.
4 BASELINE INFORMATION

4.1 Introduction

As stated above, the project sites are informal settlements in Nakuru Municipality (see following Table).

Table 3: Settlements included in this assessment

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Settlement</th>
<th>Size (ha)</th>
<th>No. of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nakuru</td>
<td>Gilani</td>
<td>17</td>
<td>1155</td>
</tr>
<tr>
<td></td>
<td>Kaptembwo</td>
<td>289</td>
<td>25400</td>
</tr>
<tr>
<td></td>
<td>Kwa Rhonda</td>
<td>312</td>
<td>8124</td>
</tr>
</tbody>
</table>

Given this nature of the project areas, the relevant part of the environment to deal with is the human environment (i.e. the settlements with their resident population and their socio-economic conditions. This was the subject of the field work and especially of the socio-economic surveys carried out. This is described in detail in the Socio-Economic Reports which were prepared in the framework of this study.

On a whole, the biological environment (biodiversity in terms of vegetation and flora, terrestrial and aquatic fauna, natural habitats and protected areas) is of no direct importance, since the project sites do not contain any relevant natural habitats. Nevertheless, it has to be kept in mind that especially where water and water management projects are concerned, the selected settlements drain into other areas (rivers, lake or coastal areas) which in this way may be affected indirectly. This is particularly the case of Nakuru, where water flowing from the Njoro River enters into Lake Nakuru and therefore into the Lake Nakuru National Park. Where this is the case, potential impacts have to be considered and measures have to be taken to mitigate the impacts. However, it has to be pointed out that no specific field work in such areas was carried out as part of this assignment.

The one relevant component of the physical environment is water. The importance of water is as follows:

- **Precipitation, storm water:** due to insufficient drainage in many of the selected settlements, heavy rains can lead to the formation of temporary pools of stagnant water and even to flooding.

- **Drinking water:** access to drinking water is limited and often difficult for the inhabitants. Supply is often insufficient. Getting water is a very time consuming activity, affecting mainly the women.

- **Waste water:** in the absence of a sewage system, waste water is discarded into any open spaces and often runs off on the surface or accumulates in open stagnant pools.

- **Water quality:** surface water, and to some extent also ground water, is usually highly contaminated (due to solid waste not disposed of properly, lack of sewage treatment, etc.). This leads to generally precarious hygienic conditions with a high risk and a high prevalence of water related diseases (malaria and other diseased transmitted by mosquitos, diarrhoea, dysentery, typhoid fevers, cholera).
The residents are well aware of these problems. This is clearly reflected in the preference they gave to water related projects (storm water drainage, sewerage, drinking water supply), which led to the selection of specific projects to be proposed for implementation under KISIP.

The impacts of the selected projects on the environment, and namely on water and issues related to water, will be positive. As a matter of fact, it has to be pointed out that these projects in themselves are environmental protection measures.

4.2 Physical and Natural Environment

Nakuru Town is situated in an environmentally sensitive area, between the Lake Nakuru (National Park) to the South and the Menengai crater and associated volcanic landscape to the north.

The Western zone, where the project settlements are situated is characterised by an unstable geological zone experiencing frequent geological faulting. This is shown in the following map taken (Figure 3).

Soils are said to be young, poorly developed, porous, light and poorly structured.

The area is vulnerable to earthquakes, land subsidence and landslides (Figure 4).

**Figure 3: Nakuru physical environment (Mwangi 2003)**
The main element to the physical environment is Lake Nakuru. Lake Nakuru catchment occupies an area of 1800 Km$^2$. In this area agriculture (2/3 of the drainage basin), forestry and tourism are major sources of revenue and all three enterprises are heavily dependent on sound environmental management for their long-term sustainability. Most of the forests in the catchment are part of the Nakuru National Park. The large farms are among the most productive in the district and Lake Nakuru, which lies in the sump of the catchment, is for ecological and economic reasons an invaluable national asset. Over the last 30 years, the catchment basin has transformed from a sparsely settled and heavily forested area to one that is heavily settled, extensively cultivated and urbanised. Catchment maps show a progressive decline in the area of land under forest from 47% of the catchment area in 1970 to less than 10% of the catchments area in 2000, leaving behind only the barest protection for its watersheds. An extensive industrial area is rapidly growing around Nakuru Town.

The Lake Nakuru catchment is a unique ecosystem containing a variety of habitats that include the alkaline lake which is a home to millions of Flamingos, the largest Euphorbia forest stand in East Africa, a wildlife rich savannah and fragile ecosystem. The area is a rich agricultural region with a diversity of agricultural activities.

---

3 Global Risk Data Platform 2011 UNEP/GRID-UNISDR
The UNESCO World Heritage center states that the area around the lake is exclusively used for wildlife conservation while the land in the catchment area is intensively used for agriculture, forestry and ranching. The lake was established as a National Park in 1961. The park was expanded over the years to 188 km\(^2\) to provide a perimeter buffer zone to protect the lake from encroachment by settlements and to minimise the impacts of urban and agricultural development in the immediate catchment. The park was declared a rhino sanctuary in 1983. The Rhino stocking programme which ensued received white rhinos from South Africa. Currently the sanctuary has approximately 45 black and 31 white rhinoceros. The lake is also designated as a Ramsar site.

Although it is a protected area, Lake Nakuru National park is threatened by human activities both from within and outside the area. Siltation due to agricultural activities within the lake catchment is one of the major threats to the lake. Pollution from agricultural chemical such as fertilisers, pesticides, herbicides as well as industrial and domestic effluent from Nakuru town, which has a population of approximately 212,000 inhabitants, enters the lake through surface inflows. The high number of tourists visiting the Lake and the development activities accompanying it are further threatening the lake's biological resources. From historical records, the lake, dried up between 1951 and 1953, and interventions to control soda dust were initiated in 1953. The lake water is highly saline but supports a habitat rich in biodiversity including a variety of aquatic flora and fauna. The lake also is inhabited by water mammals mainly hippopotamus and clawless otters while the terrestrial part of the park supports a large number of other African plain mammals. The park is also a sanctuary of rhinoceros and the Rothschild's Giraffe (*Giraffa camelopardalis rothschildi*). The introduction of a species of salt-tolerant *Tilapiagrahami* (for mosquito control) opened the way for the colonisation of the lake by many species of fish eating birds (Cormorants, pelicans, hammercopp, etc). The park has a large reserve of over 300 species of birds.

The following figure is a screen shot taken from Nakinfo, and shows the Lake Nakuru, the Ngoro River, which runs to the south of the project settlements, which are situated in the Kaptembwo, Githima and Mwariki sublocations. Also shown are the borders of the Nakuru National Park in the vicinity of Nakuru Town.
F.K. Lelo et al., in the paper *Managing the River Njoro Watershed, Kenya* (2005), underlined the current impacts of urbanization and agricultural development on the Njoro River, stating that important resource degradation and the subsequent decline in riparian services (water quality, flood protection) was strongly affecting the River. Increased erosion, nutrient and sediment loadings, and human and animal pollution, along with damage to the integrity of the riparian corridor and changes in the hydrologic regime of the river have been observed.

The following figure shows the state of the Njoro River, on the southern extremity of Kaptembwo settlement.
4.3 Human Environment

The three target settlements selected for this first round of KISIP beneficiaries in Nakuru are Gilani, Kaptembwo and Kwa Rhonda. These settlements are adjacent to each other and located in the west and southwestern part of Town in the Location of Kaptembwo. Many of Nakuru’s settlements were previously large farms eventually incorporated into the town’s boundaries and subdivided into smaller plots.

There are pockets of low-income areas spread around the city but they are mostly found on the periphery of the town. The area of intervention (Gilani, Kaptembwo and Kwa Rhonda) together represents the highest concentration of poverty in Nakuru (see Figure 7 below).
The following table presents the overall results to the socio-economic surveys carried out in each settlement. Further information can be found in the Socio-economic report that can be consulted at or made available by the Ministry of Housing. General information is provided for each settlement in the next sections.

Table 4: Socioeconomic baseline information for each settlement

<table>
<thead>
<tr>
<th>City</th>
<th>Unit</th>
<th>Gilani</th>
<th>Kaptembwo</th>
<th>Kwa Rhonda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>ha</td>
<td>17.2</td>
<td>289</td>
<td></td>
</tr>
<tr>
<td>Subunits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Gilani 1</td>
<td>6</td>
<td>Gikomba</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gilani 2</td>
<td>Checkpoint</td>
<td>Jasho</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Githima</td>
<td>Dip</td>
<td>Market</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Honey cup</td>
<td>Ponda Mali</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nakuru west</td>
<td>Posta</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Soko Mjinga</td>
<td>Quarry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Technology</td>
<td>Sewage</td>
</tr>
<tr>
<td>Socio-economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HH (surveyed.)</td>
<td>N</td>
<td>180</td>
<td>263</td>
<td>296</td>
</tr>
<tr>
<td>Mean HH size</td>
<td>N</td>
<td>3.12</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>Inhabitants</td>
<td>N</td>
<td>3608</td>
<td>76200</td>
<td>32496</td>
</tr>
<tr>
<td>City Settlement</td>
<td>Unit</td>
<td>Gilani</td>
<td>Kaptembwo</td>
<td>Kwa Rhonda</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------</td>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Female headed HH</td>
<td>%</td>
<td>26</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Unemployment</td>
<td>%</td>
<td>26</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Land/house owners</td>
<td>%</td>
<td>18</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>Tenants</td>
<td>%</td>
<td>76</td>
<td>65</td>
<td>85</td>
</tr>
<tr>
<td>Other (occupant)</td>
<td>%</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Years resided in current settlement</td>
<td>Y</td>
<td>8.54</td>
<td>10</td>
<td>8.9</td>
</tr>
<tr>
<td>Feels tenure is secure</td>
<td>%</td>
<td>90</td>
<td>97</td>
<td>94</td>
</tr>
<tr>
<td>Have electricity</td>
<td>%</td>
<td>85</td>
<td>76</td>
<td>69</td>
</tr>
<tr>
<td>Have piped water - in-house or shared tap in compound</td>
<td>%</td>
<td>89</td>
<td>74</td>
<td>82</td>
</tr>
<tr>
<td>Households who say there is street lighting that works most of the time</td>
<td>%</td>
<td>3</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Households who say that the main access road is tarmac, gravel, murram or paved (not earth)</td>
<td>%</td>
<td>9</td>
<td>52</td>
<td>6</td>
</tr>
</tbody>
</table>

**Toilet facilities**

<table>
<thead>
<tr>
<th>No facility</th>
<th>%</th>
<th>1</th>
<th>0</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual toilet - VIP, ordinary pit, WC</td>
<td>%</td>
<td>56</td>
<td>98</td>
<td>76</td>
</tr>
<tr>
<td>Shared/public toilet</td>
<td>%</td>
<td>49</td>
<td>2</td>
<td>66</td>
</tr>
</tbody>
</table>

**Excreta disposal system**

<table>
<thead>
<tr>
<th>Formal connection to public sewer</th>
<th>%</th>
<th>34</th>
<th>6</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal connection to public sewer</td>
<td>%</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Septic tank / soak pit</td>
<td>%</td>
<td>3</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Pit latrine</td>
<td>%</td>
<td>49</td>
<td>88</td>
<td>84</td>
</tr>
</tbody>
</table>

**Drainage**

| Households with a drain outside their home | %    | 33   | 15   | 11  |

**Garbage disposal system**

<table>
<thead>
<tr>
<th>Dumping in own neighbourhood</th>
<th>%</th>
<th>7</th>
<th>12</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burning / burying / dumping in own compound</td>
<td>%</td>
<td>8</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>Organized private collection system</td>
<td>%</td>
<td>53</td>
<td>38</td>
<td>37</td>
</tr>
<tr>
<td>Municipality collection system</td>
<td>%</td>
<td>32</td>
<td>33</td>
<td>17</td>
</tr>
</tbody>
</table>

4.3.1 **Gilani**

Gilani is located in Nakuru Town constituency, Shabaab ward, Kaptembwo location, and Githima sub-location. Gilani is bordered by industries to the north, Rift Valley...
Institute of Science and Technology to the west, Shabaab Estate to the east and the settlement of Kaptembwo to its south. The settlement has a land area of 14 hectares. Gilani is about 3 km from the town centre along Kaloleni Road south of the Nakuru-Eldoret Road.

**Figure 8: Map of Gilani with verified boundaries (blue lines)**

The settlement is named after the area’s previous owner, an Asian with the family name of Gilani. His son inherited the land and subsequently subdivided and sold the plots. The MCN incorporated (i.e. ‘legalized’) the land in 1977.

Parts of the settlement were badly affected during the 2007/8 post-election violence. Evidence to this is a large area that has been vacated with houses completely razed down.
Figure 9: Homes in Gilani destroyed during the post-election violence 2007/8


The housing stock is mostly comprised of permanent structures (95%) in Gilani 1 and Gilani 2 (MajiData 2011). The picture is more mixed in Githima with 44% permanent, 40% temporary and a small number of tent-like structures (2.3%) (MajiData 2011).

4.3.1.1 Physical characteristics

The settlement of Gilani is situation on a slight slope and is subject to seasonal flooding. The settlement has sandy soil and pit latrines tend to collapse.

4.3.1.2 Clusters

The settlement is organized into three villages or clusters: (i) Gilani 1, (ii) Gilani 2, and (iii) Githima.

Figure 10: Active NGOs and CBOs in Gilani by cluster and their area of intervention

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Active CBOs</th>
<th>Active NGOs</th>
</tr>
</thead>
</table>
| Gilani 1 | • Gilani Estate Environmental Wenyewe Management Experts (GEEWME)  
  • Quit B – Muslim FBO operating private clinic  
  • QB- Muslim FBO operating private clinic  
  The group’s below focus on savings and loans for members:  
  • Boda Boda operators | • Christian Foundation for Children and Aging (CFCA) – operates a child fund for orphans and other needy children |
<table>
<thead>
<tr>
<th>Cluster</th>
<th>Active CBOs</th>
<th>Active NGOs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Jinue Women’s Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tumaini Women’s Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Umoja Women’s Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nyamarutu Women’s Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Yala Self-Help Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Kamweretho</td>
<td></td>
</tr>
<tr>
<td>Gilani 2</td>
<td>• GEEWME – solid waste</td>
<td>-</td>
</tr>
<tr>
<td>Githima</td>
<td>• GEEWME – solid waste</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Focus Group Discussions. March 27. Gilani, Nakuru.
Table 5: Infrastructure summary in Gilani by cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Water kiosk</th>
<th>Sewerage</th>
<th>Storm water drainage</th>
<th>Public lighting</th>
<th>Playground /park</th>
<th>Health facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gilani 1</td>
<td>1 kiosk</td>
<td>Partial coverage</td>
<td>• Open drain (WB funded in 1993) • Additional small section funded by LATF in 2006</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Gilani 2</td>
<td>none</td>
<td>None</td>
<td>poor</td>
<td>none</td>
<td>Large field currently used as a playground but private land</td>
<td>none</td>
</tr>
<tr>
<td>Githima</td>
<td>None⁴</td>
<td>none</td>
<td>poor</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

Source: Focus Group Discussions. March 27, Gilani, Nakuru Kaptembwo

Kaptewmbwo is located in Nakuru West constituency; and Kaptembwo ward, location and sub-location. Kaptembwo is bordered by the settlement of Gilani to the north, Kenlands Estate to the northeast, Rift Valley Institute of Science and Technology to the west, the settlement of Kwa Rhonda to the east and the River Njoro to its south. The settlement is about 1.76 km long at its longest point and approximately 1.16 km wide with a land area of 289 hectares. Kaptembwo is located 2 to 3 km from town centre.

The settlement is named after a depression known locally as Tembwo. The land on which the settlement was located was sold by a white man to a local company called Kipsigis/Tugen comprised of 100 members from the Kalenjin ethnic group. The firm’s land was incorporated (i.e. ‘legalized’) by the Municipality of Nakuru in 1981 and the members subdivided the land into individual plots. Each member was allocated 11 plots of 50 by 100 feet. A Part Development Plan (PDP) was developed in 1983. Many of the firm’s members have since sold off their plots and today the settlement is ethnically diverse.

The housing stock is mostly permanent (62%) but there are a significant number of temporary structures (30%) as well (Maji Data 2011).

4.3.1.3 Physical characteristics

The River Njoro forms the settlement’s boundary on the southern edge. There is a geological fault line traversing the settlement causing the soil to sink in the rainy seasons and resulting in deep gullies. The settlement is on a slight slope and the soil in Kaptembwo is mostly loam or sand. Pit latrines tend to collapse.

⁴ There is no water kiosk in Githima – but there is a kiosk in Kaptembwo across from Githima where Githima residents go to purchase water.
4.3.1.4 Clusters

The settlement is organized into six villages or clusters: (i) Checkpoint, (ii) Dip, (iii) Honey Cup, (iv) Nakuru West, (v) Soko Mjinga and (vi) Technology.

Figure 11: Active NGOs and CBOs in Kaptembwo by cluster and their area of intervention

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Active CBOs</th>
<th>Active NGOs</th>
</tr>
</thead>
</table>
| Checkpoint     | • NAROKA – water supply & public toilet/bathhouse  
• Kaptembwo Football Club  
• Faith Women’s Group – savings and loan  
• St. Joseph – garbage collection                                                            | • Kenya Women’s Finance Trust (KWFT) - microfinance  
• Red Cross – health  
• Catholic Diocese of Nakuru  
• Umande Trust - sanitation                                                                 |
| Dip            | • NAROKA – solid waste, water supply  
• Pamoja – water supply  
• Faith Women’s Group – savings and loan                                                                 | • Little Sisters of St. Francis – health, education  
• Christian Foundation for Children and Aging (CFCA) – supports children and elderly                                                    |
| Honey Cup      | • NAROKA – solid waste, water supply  
• Maendeleo Women’s Group – savings and loans                                                                 | • Kenya Women’s Finance Trust (KWFT) - microfinance  
• Faulu Kenya – microfinance  
• Smith – microfinance  
• Africa Circle – microfinance  
• K-REP - microfinance                                                                                                         |
| Nakuru West    | • ANFOLD – garbage collection  
• Women’s groups (e.g. merry-go-rounds)                                                                                                           | NA                                                                                                                                                                                                  |
| Soko Mjinga    | NA                                                                                                                                                                                                       | NA                                                                                                                                                                                                  |
| Technology     | • Upendo wa Jirani Self-help Group – housing finance with NACHU  
• ANFOLD – solid waste                                                                                                                                  | NA                                                                                                                                                                                                  |

Table 6: Infrastructure summary in Kaptembwo by cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Water supply</th>
<th>Sewerage</th>
<th>Stormwater drainage</th>
<th>Public lighting</th>
<th>Playground/park</th>
<th>Health facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checkpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honey Cup</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nakuru West</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soko Mjinga</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checkpoint</td>
<td>1 kiosk (NAWASCO/NAROKA)</td>
<td>Limited network</td>
<td>Poor state</td>
<td>Street lighting</td>
<td>Flood light (MCN)</td>
<td>None</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>------</td>
</tr>
<tr>
<td>Dip</td>
<td>1 kiosk (CDF)</td>
<td>None</td>
<td>Poor state</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honey Cup</td>
<td>1 kiosk</td>
<td>None</td>
<td>Poor state</td>
<td></td>
<td>Street lighting</td>
<td></td>
</tr>
<tr>
<td>Nakuru West</td>
<td>None</td>
<td>None</td>
<td>No formal drainage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soko Mjinga</td>
<td>1 kiosk</td>
<td>NA</td>
<td>Undertaken by LASDAP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>2 kiosks</td>
<td>None</td>
<td>No formal drainage</td>
<td></td>
<td>Street lighting</td>
<td></td>
</tr>
</tbody>
</table>

Source: Focus Group Discussions. March 27. Gilani, Nakuru
4.3.2 **Kwa Rhonda**

Kwa Rhonda is located in Nakuru West constituency, Kaptembwo Location, Kaptembwo sublocation and Rhonda Ward. The settlement is bordered by Kenlands Estate to the north, the settlement of Kaptembwo to the west, Lake Nakuru National Park to the east and River Njoro to the south and southeast. The settlement has a land area of 312 hectares.
Kwa Rhonda means Rhonda’s place and is named after the colonial settler of the area who had a large sisal plantation here. A part of Kwa Rhonda was incorporated (i.e. ‘legalized’) by the Municipality of Nakuru in 1971 and another part in 1995. The land has been subdivided into individual plots.

The housing stock is split almost evenly between permanent and temporary structures in Kwa Rhonda (Maji Data 2011).

### 4.3.2.1 Physical characteristics

According to the Strategic Structure Plan (1999), Rhonda is located in an area of low suitability for urban development because of its slope, soil and drainage characteristics. Rhonda has a high water table (less than 20 m) and has a high incidence of subsidence due to faulting. It also has very deep unstable soils and pit latrines tend to collapse.

### 4.3.2.2 Clusters

Kwa Rhonda is organized into seven villages or clusters: (i) Gikomba, (ii) Jasho, (iii) Market, (iv) Ponda Mali, (v) Posta, (vi) Quarry, and (vii) Sewage.

---

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Active CBOs and FBOs</th>
<th>Active NGOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gikomba</td>
<td>NA</td>
<td>● CEDDGCE – governance &amp; social auditing</td>
</tr>
<tr>
<td>Cluster</td>
<td>Active CBOs and FBOs</td>
<td>Active NGOs</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Jasho        | • Kipangare Infrastructure Self-Help Group – infrastructure (currently focusing on sewerage)  
• Kwa Rhonda Neighborhood Cooperative Society – housing  
• NACHU - housing                                   | • Practical Action - sanitation  
• Forum SYD – governance, citizen’s participation and accountability in public budgeting/management |
| Market       | • Ujurani Mwema Youth Group  
• Muungano wa Wanavijiji  
• Life Water Ministery (ALC Church)  
• Nakuru Christian Professional Doctors (ACK Church) - health | • Forum SYD – governance, citizen’s participation and accountability in public budgeting/management |
| Ponda Mali   | • ROCBO – solid waste collection                                                   | NA                                                                        |
| Posta        | NA                                                                                   | • Aphia II - health                                                        |
| Quarry       | NA                                                                                   | NA                                                                        |
| Sewage       | NA                                                                                   | • Aphia II - health                                                        |

Source: Focus Group Discussions. March 27. Gilani, Nakuru.

**Table 7: Infrastructure summary in Kwo Rhonda by cluster**

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Water supply</th>
<th>Sewerage</th>
<th>Storm water drainage</th>
<th>Public lighting</th>
<th>Playground/ park</th>
<th>Health facilities</th>
</tr>
</thead>
</table>
| Gikomba     | • No kiosks  
• house connections | None    | poor and inadequate | none            | none             | none             |
| Jasho       | • No kiosks  
• house connections | None    | poor and inadequate | none            | 1 (Mazembe Grounds) – on private undeveloped land | none             |
| Market      | • 1 kiosk  
• House connections | poor and inadequate (project under construction but looks inadequate for volume of water) | none | none | none |
| Ponda Mali  | • No kiosks  | poor and inadequate | none | none | none |
### Cluster	| Water supply | Sewerage | Storm water drainage | Public lighting | Playground/park | Health facilities |
---|---|---|---|---|---|---|
Posta | • 1 kiosk (Christian Children Fund)\(^5\)  
• 3 kiosks (NAWASCO) | • | poor and inadequate | 1 floodlight (Mulika Mwizi)\(^6\) | none | 1 hospital under construction for over 10 yrs (CDF) |
Quarry | none | None | poor & inadequate | none | none | none |
Sewage | none | None | poor & inadequate | none | none | none |

Source: Focus Group Discussions. March 27. Gilani, Nakuru.

---

\(^5\) Usually dry  
\(^6\) This means *torch the thief* in Kiswahili
5 IMPACT ASSESSMENT

In the Table on the following pages, impacts caused - or likely to be caused - by specific projects on the different parts of the environment are listed, their relevance is assessed, and measures are proposed where required.

The specific implementation measures, responsibilities and costs are described in the ESMP (see section 8).
## Table 8: Identification of impacts and measures

<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Generally expected impacts</th>
<th>Current situation</th>
<th>Project specific impacts</th>
<th>Relevance</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physical Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Climate</td>
<td>No impacts</td>
<td></td>
<td>All components:</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Projects not in any way related to or causing impacts on climate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Air quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1 Dust</td>
<td>Dust caused by construction activities (traffic, earthworks).</td>
<td>Many unpaved roads can lead to high dust especially during the dry season.</td>
<td>All components:</td>
<td>Minor importance, limited duration.</td>
<td>Construction site management (sprinkling dirt roads, cover cargos which can lead to high amounts of dust).</td>
</tr>
<tr>
<td></td>
<td>No effect during operation period.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.2 Exhaust gases from traffic and industries</td>
<td>Traffic and machines emitting exhaust gases.</td>
<td>No high traffic concentrations, no other major polluting sources nearby; no big concern.</td>
<td>All components:</td>
<td>Minor importance, limited duration.</td>
<td>Good maintenance of vehicles and machines.</td>
</tr>
<tr>
<td>1.2.3 Cooking fires (indoor pollution)</td>
<td>Electrification could improve situation (if applicable).</td>
<td>Various fuels used for cooking.</td>
<td>All components:</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>1.2.4 Smell (from solid waste transfer stations)</td>
<td>Impact of smell on households living in the vicinity of transfer stations.</td>
<td>Solid wastes are currently dumped in the settlements, as well as in the existing town dump site which has reached</td>
<td>SWM component:</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Environmental aspect</td>
<td>Generally expected impacts</td>
<td>Current situation</td>
<td>Project specific impacts</td>
<td>Relevance</td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>-----------</td>
<td>--------------------</td>
</tr>
</tbody>
</table>
| 1.3 Noise            | • Noise during construction. | • Noise is generally not perceived as a problem; any noise emission which might exist is in no way related to the project. | **All components:**  
  • Some noise will be caused by construction activities.  
  • Impact mainly on construction workers. | • Impact small, limited in time, no major concern. | • Keep machines (compressors etc.) in good shape, make sure legal standards are met.  
  • Provide personal protection equipment (PPE), like hearing protection, to workers exposed to noise. |
| 1.4 Water            | Water is an aspect of the environment which is of high relevance. | • Storm water  
  • Drinking water  
  • Waste water | **All components:**  
  • Impacts depend on site situation and on project type selected: see next sections of component breakdown. | Environmental parameter of high relevance. | Measures will usually be required. |
<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Generally expected impacts</th>
<th>Current situation</th>
<th>Project specific impacts</th>
<th>Relevance</th>
<th>Mitigation measures</th>
</tr>
</thead>
</table>
| 1.4.1 Surface and ground water, water quality (drainage component) | • Improved drainage will accelerate water runoff during rains: less formation of stagnant water pools, less flooding within settlements.  
• Potential effects downstream of improvement area (higher peak flows, more sediments and other material carried there) will have to be taken into account.  
• Situation upstream has to be considered (e.g. improved drainage there could lead to problems in selected settlement). | • Currently drainage and flooding has a high impact in the settlements with destruction of property and loss of lives recorded.  
• Water drains through the settlements and is contaminated by solid and liquid waste. Water then flows into Lake Nakuru National Park.  
• The impact of increased urbanisation of Nakuru and the National Park and the water quality in the lake has been recorded.  
• Stagnating surface water (rain water as well as household grey water) has been observed in all settlements and has a sanitary impact on the local population. | **Drainage component:**  
• By improving the overall drainage in the settlements and wastewater management, the project will have an overall positive impact on surface water.  
• There is a risk of contamination of surface water during construction activities. In light of the natural drainage pattern, all contamination will drain towards the National Park.  
• The inexistence of a town wide drainage plan means that the overall infrastructure is designed with an important degree of uncertainty. Though the project option is deemed to be a better solution to the no project option. | • High relevance, notably due to the impact of flooding the settlements, as well as the vicinity of the Lake Nakuru National Park. | • Construction site management (suitable storage of toxic products, management of drainage and wastewater).  
• Drainage improvement cannot be seen as an isolated project for the selected settlements, since there are effects from/on adjacent areas within the same drainage basin. Though  
• To ensure that River Njoro is safe for the users downstream, trash racks will be constructed to filter the debris and prevent dead animals from getting into the river.  
• **Project must be seen in a larger context.** Though this has not been possible due to the inexistence of town wide drainage plan, it has been deemed that the “project option” is a preferred solution to the “no project option”. |
<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Generally expected impacts</th>
<th>Current situation</th>
<th>Project specific impacts</th>
<th>Relevance</th>
<th>Mitigation measures</th>
</tr>
</thead>
</table>
| **1.4.2 Surface and groundwater, water quality** *(sewerage component)* | • Collection and evacuation of waste water.  
• Treatment in WTTP before restitution to river.  
• Reduction of exposure to water related diseases.  
• Improved sanitation infrastructure for local residents | • Waste water flowing off uncontrolled and without being treated constitutes a major risk for soils, surface and ground water quality, and for human health.  
• Untreated wastewater flows into the drainage systems and into Lake Nakuru, impacting on water quality in the National Park  
• Latrines are the majority sanitation infrastructure in Kaptembwo and Kwa Rhonda settlements, which results in contamination of groundwater.  
• Latrines also have a tendency to cave in due to soil conditions, and available land to open new pits is limited. | **Sewerage component:**  
• By rehabilitating the existing network into Gilani settlement, the project will increase the usage of the existing WWTP infrastructure with positive outcomes on wastewater management. The current WWTP infrastructure in the town in underused. | • High relevance, notably due to the observed limitations in current sanitation infrastructure in the settlements, as well as the vicinity of the Lake Nakuru National Park. | • Quality standards of waste water after treatment must be met. However, since the current WWTP infrastructure in the town in underused, this will be assured. |
| **1.4.3 Surface and groundwater, water quality** *(Road Component)* | • Marginal change in surface runoff.  
• Some reduction of sediment input into drains. | • Roads are mostly dirt roads. | **Road component:**  
• Some, although limited risk of water contamination during construction. | • Limited duration, small scale effect, low importance. | • Take appropriate measures for water contamination prevention during construction.  
• No other measures required. |
<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Generally expected impacts</th>
<th>Current situation</th>
<th>Project specific impacts</th>
<th>Relevance</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.4 Surface and ground water, water quality (Lighting component)</td>
<td>• No effect on water</td>
<td>• Inadequate lighting, security problem.</td>
<td>Lighting component:</td>
<td>• None.</td>
<td>• None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• No impact on water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Natural (biological) environment</td>
<td>This encompasses, vegetation and flora, terrestrial and aquatic fauna, natural habitats and protected areas.</td>
<td>• Places of intervention (selected settlements) do no comprise any natural habitats.</td>
<td>All components:</td>
<td>• None for direct impacts.</td>
<td>• None for direct impacts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• No direct impacts.</td>
<td>• Potentially important for downstream impacts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• In specific cases risk of impact on habitats downstream.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None.</td>
<td>• None for direct impacts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nil.</td>
<td>• Potentially high, permanent.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None.</td>
<td>• The Lake Nakuru National Park is in the vicinity of Nakuru town. Overall, the project will have a positive impact on the National Park.</td>
<td></td>
</tr>
<tr>
<td>2.1 Vegetation and flora</td>
<td>• None.</td>
<td>• No natural vegetation present.</td>
<td>All components:</td>
<td>• Nil.</td>
<td>• None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Terrestrial fauna</td>
<td>• None</td>
<td>• Project sites are no habitat for wildlife.</td>
<td>All components:</td>
<td>• Nil.</td>
<td>• None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Aquatic fauna</td>
<td>• None</td>
<td>• No habitats for aquatic fauna.</td>
<td>All components:</td>
<td>• Nil.</td>
<td>• None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Important habitats and protected areas</td>
<td>• No direct impacts.</td>
<td>• Settlements located in drainage basin of lake Nakuru – runoff of drainage water and waste water which contaminates Lake Nakuru</td>
<td>Drainage and sewerage components:</td>
<td>• Potentially high, permanent.</td>
<td>• Drainage projects: measures have to be taken to prevent large amounts of solid waste (plastic) to be swept into the lake (solid waste management, trashracks in main drainage channels).</td>
</tr>
<tr>
<td>Environmental aspect</td>
<td>Generally expected impacts</td>
<td>Current situation</td>
<td>Project specific impacts</td>
<td>Relevance</td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>----------------------</td>
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<td>---------------------</td>
</tr>
<tr>
<td>3. Human environment</td>
<td>Improvement of the situation of the residents in the selected settlements is the main objective of the entire program. Potential negative side effects need to be avoided to the extent possible, minimised and mitigated.</td>
<td>• Often precarious living conditions, • Exposure to environmental hazards (including flooding, lack of water, bad hygienic conditions).</td>
<td><strong>All components:</strong> • Aims at improving situation. • Negative side effects can arise.</td>
<td>• Central concern of the entire project. • Aim is to improve situation on a sustainable basis.</td>
<td>• Projects as such are measures for improving living conditions and environmental situation. • Specific measures for avoiding negative side effects required.</td>
</tr>
<tr>
<td>3.1 Resettlement</td>
<td>• Like any infrastructure measure, the proposed projects may need additional space, which can lead to a conflict with present occupation of the sites in question. • This can lead to resettlement of a number of households. • Project areas are densely populated (urban informal settlements). • Some residents have encroached on public right-of-ways (street way leave).</td>
<td></td>
<td><strong>All components:</strong> • Encroachment on Part Development Plan road platforms and on infrastructure way leaves will have to be dealt with prior to construction.</td>
<td>• Relevant, though no actual resettlement is required</td>
<td>• Efforts are made in planning to avoid resettlement, or at least to minimise it. • Where resettlement cannot be avoided, measures are specified in the RAP.</td>
</tr>
<tr>
<td>Environmental aspect</td>
<td>Generally expected impacts</td>
<td>Current situation</td>
<td>Project specific impacts</td>
<td>Relevance</td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>----------------------</td>
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<td>--------------------------</td>
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<td>---------------------</td>
</tr>
</tbody>
</table>
| 3.2 Local economy    | - Temporary jobs may be created during construction.  
- Maintenance of the systems installed will be necessary, could create some permanent jobs.  
- Otherwise no direct income-generating effects. | - Unemployment is very high in the informal settlements.  
- The program aims at improving living conditions in the settlements, but is not a directly income generating program. | **All components:**  
- Temporary jobs may be created during construction.  
- Maintenance of the systems installed will be necessary, could create some permanent jobs.  
- Otherwise no direct income-generating effects.  
- Potential permanent employment for management of ablution blocks.  
- Overall infrastructure improvements will positively impact socio-economic conditions in the settlements. | - Temporary jobs during construction will not improve the economic situation on a permanent basis, but can nevertheless be very important.  
- Permanent jobs, if occupied by residents (who must have the required qualifications) would improve the situation of a number of HH. | - Tendering documents must include the obligation of the contractor for hiring local labour whenever required qualifications are available.  
- If permanent jobs (for maintenance) are created, priority should be given to residents. |
| 3.3 Services         | - Potential interference with existing infrastructure  
- Improved service delivery | - Infrastructure and services are often lacking  
- The program aims at improving services in the settlements | **All components:**  
- Potential interference with access to or disruption of services during construction phase  
- Improved community life and services | - Potential short-term impact on services  
- Long-term gains | - Map and zone out all infrastructures for preservation.  
Budgetary allocation for replacement.  
- Communication with local communities in case of interferences |
<table>
<thead>
<tr>
<th>Environmental aspect</th>
<th>Generally expected impacts</th>
<th>Current situation</th>
<th>Project specific impacts</th>
<th>Relevance</th>
<th>Mitigation measures</th>
</tr>
</thead>
</table>
| 3.4 Health           | • Drainage and sewerage improve the situation by eliminating temporary (or sometimes permanent) pools of stagnant contaminated water, thus reducing risks of water related diseases.  
• Sewerage and drinking water supply improve hygiene, and in this way also reduce risk of water related diseases.  
• Pavement of roads reduces dust and thus the risk of respiratory problems. | • Malaria is a high risk in all settlements. Eliminating mosquito breeding sites is one basic way to reduce this.  
• Risk of diarrhoea, dysentery or even cholera is high. Improving hygiene is important. | **All components:**  
• Drainage and sewerage improve the situation by eliminating temporary (or sometimes permanent) pools of stagnant contaminated water, thus reducing risks of water related diseases.  
• Sewerage and drinking water supply improve hygiene, and in this way also reduce risk of water related diseases.  
• Pavement of roads reduces dust and thus the risk of respiratory problems.  
• Construction works and pavement of roads could lead to increased number of road accidents | • Negative impacts during construction period are small, of little significance and of limited duration.  
• Project impacts overall positive, of high relevance and, if the systems installed are properly maintained, permanent. | • Avoid or minimise negative impacts (dust, noise, road accidents) during construction period.  
• Small projects with short duration and small work force, composed of residents to a large part: no increased risk of HIV/AIDS transmission.  
• Once the systems in place, effects will depend on the quality of maintenance.  
• Speed control measures to be put in place on roads if necessary  
• For the sustainability of the projects, maintenance is essential. |
6  PUBLIC CONSULTATION

Public Consultations have been carried out throughout the course of the project definition.

Public consultations between the Consultant and the beneficiary communities were documented in the Community Consultations Report. These consultations are key to the overall planning process, as they provide the Consultant with an opportunity to hear directly from residents of the settlement their priorities for infrastructure investments and to better understand the reasons behind these choices. The consultations are also important because it provides the Consultant the opportunity to share technical knowledge with the communities and guide their choices (without shifting the underlying justification for their choice). For example, in one settlement we found that flooding was a major problem but the community seemed to be prioritizing sewerage over stormwater drainage. The Consultant helped explain to the community that sewerage is for wastewater at the household level – and stormwater drainage is for rainwater. Following this explanation, the community then decided to shift its priority from sewerage to stormwater drainage.

This back and forth exchange between the Consultant and beneficiary communities is an important part of the participatory planning process and staff of the Nakuru Municipal Council has always been present. In the sections below we describe the mobilization process and then provide the minutes of each of these meetings.

6.1 Community mobilization

The project relied heavily on the Settlement Executive Committees (SEC) in order to mobilize as many residents of the beneficiary settlements as possible for these meetings. In most settlements this worked quite well but we realized that passing messages through the enumerators was also a good idea. We already have the contact information for the enumerators we used for the household survey – and this allowed the Consultant to reach a wider network of people than if we relied solely on the SEC and helped to avoid any potential gatekeeping by SEC members.

6.2 Objectives of the different consultations

By the end of Phase 1 of the assignment the Consultant had held two different consultations in each of the three settlement in Nakuru to discuss their infrastructure priorities in detail. The information from the first consultation was used by the Consultant to prepare an initial design brief. The information from the second consultation was used by the Consultant to prepare the draft Conceptual Design.

An additional, initial community-wide meeting was organized in each of the three settlements at the beginning of the socio-economic data collection in order to present the project, the data collection process and to answer initial questions.

Further engineering field works were carried out in close coordination with the project beneficiaries, with SEC members supporting engineers during field assignments.

Finally, the preparation of the Resettlement Action Plan was also carried out in each settlement, through the organisation of community consultations which had the aim of:

- assessment of project impacts;
• resettlement strategy if any needed;
• compensation rates and eligibility for entitlements if any;
• choice of resettlement site and timing of relocation;
• development opportunities and initiatives;
• development of procedures for redressing grievances and resolving disputes; and
• Mechanisms for monitoring and evaluation and for implementing corrective actions.

This process is fully documented in the RAP report which is presented in addition to the ESIA report.

6.3 Conclusions to the Consultation process

The major conclusion is that KISIP is ensured to be well received by the communities of Gilani, Kaptembwo and Kwa Rhonda. They are impatiently awaiting these improvements to their physical environment. However, we need to continue to be aware of the social processes and organization around these physical improvements to make sure the project is implemented with ease and in continuing consultation with beneficiary communities.

A summary of the evolution of priorities for infrastructure investments in each settlement is provided in the tables below. These have changed as communities better understand the functions and benefits of the different types of infrastructure and also as they discuss amongst themselves regarding their priorities.

6.3.1 Evolution of Priorities – Gilani

Based on the HH survey and the last consultation it is clear that the top four priorities for infrastructure in Gilani are stormwater drainage, roads, lighting and sewerage. Water supply, solid waste management and open spaces are no longer in the top 4 priorities for Gilani.

Table 9: Comparison of priorities - Gilani

<table>
<thead>
<tr>
<th>Priority</th>
<th>Consultation No.1</th>
<th>HH Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority No. 1</td>
<td>stormwater drainage</td>
<td>sewerage</td>
</tr>
<tr>
<td>Priority No. 2</td>
<td>sewerage</td>
<td>roads</td>
</tr>
<tr>
<td>Priority No. 3</td>
<td>lighting</td>
<td>lighting</td>
</tr>
<tr>
<td>Priority No. 4</td>
<td>open space</td>
<td>stormwater drainage</td>
</tr>
<tr>
<td>Priority No. 5</td>
<td>-</td>
<td>water supply</td>
</tr>
<tr>
<td>Priority No. 6</td>
<td>-</td>
<td>electricity</td>
</tr>
</tbody>
</table>

The community gave their top 4 priorities during this meeting – but not necessarily in this order.
6.3.2 Evolution of Priorities – Kaptembwo

For Kaptembwo it is clear that the top 4 priorities continue to be stormwater drainage, roads, sewerage and lighting. Solid waste management, water supply and open space are not in their top 4 priorities.

Table 10: Comparison of priorities - Kaptembwo

<table>
<thead>
<tr>
<th>Priority No. 1</th>
<th>Consultation No.1</th>
<th>HH Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority No. 1</td>
<td>stormwater drainage</td>
<td>stormwater drainage</td>
</tr>
<tr>
<td>Priority No. 2</td>
<td>lighting</td>
<td>lighting</td>
</tr>
<tr>
<td>Priority No. 3</td>
<td>sewerage</td>
<td>roads</td>
</tr>
<tr>
<td>Priority No. 4</td>
<td>roads</td>
<td>sewerage</td>
</tr>
<tr>
<td>Priority No. 5</td>
<td>water supply</td>
<td>water supply</td>
</tr>
<tr>
<td>Priority No. 6</td>
<td>open spaces</td>
<td>electricity</td>
</tr>
<tr>
<td>Priority No. 7</td>
<td>SWM</td>
<td>SWM</td>
</tr>
</tbody>
</table>

6.3.3 Evolution of Priorities – Kwa Rhonda

From all three sources (two consultations plus the survey) we can be confident that roads, drainage and lighting are top priorities in Kwa Rhonda. However, in the last consultation the community said that sewerage was more important than water supply, which it had prioritized in the 1st consultation and the survey over sewerage.

Table 11: Comparison of priorities – Kwa Rhonda

<table>
<thead>
<tr>
<th>Priority No. 1</th>
<th>Consultation No.1</th>
<th>HH Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority No. 1</td>
<td>stormwater drainage</td>
<td>lighting</td>
</tr>
<tr>
<td>Priority No. 2</td>
<td>roads</td>
<td>stormwater drainage</td>
</tr>
<tr>
<td>Priority No. 3</td>
<td>water supply</td>
<td>roads</td>
</tr>
<tr>
<td>Priority No. 4</td>
<td>lighting</td>
<td>water supply</td>
</tr>
<tr>
<td>Priority No. 5</td>
<td>sewerage</td>
<td>electricity</td>
</tr>
<tr>
<td>Priority No. 6</td>
<td>SWM</td>
<td>sewerage</td>
</tr>
<tr>
<td>Priority No. 7</td>
<td>-</td>
<td>SWM</td>
</tr>
</tbody>
</table>
7 ANALYSIS OF PROJECT ALTERNATIVES

As mentioned, the individual projects were selected based on the expressed needs of the population, on technical feasibility and on eligibility within the KISIP framework (types of projects, budgetary limitations).

The individual projects were then planned with two main aims, namely:

- maximising the positive effects on the communities; and
- minimising (or avoiding, where possible) any negative impacts such a project might have; this effort mainly aimed at avoiding or minimising resettlement, i.e. conflicts with present land occupation.

These efforts culminated in the projects presented in the Feasibility Studies.

7.1 Feasibility Study project variants

Based upon works carried out during the Conceptual Design, followed by the Feasibility Study works, project alternatives were defined. There are presented in the following Table 12.

Table 12: Summary of proposed variants presented within the Feasibility study report

<table>
<thead>
<tr>
<th>Component</th>
<th>Conceptual Design Variant</th>
<th>Feasibility Study Variant 1</th>
<th>Feasibility Study Variant 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>D Drainage Component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>Rehabilitation of the main town drainage canal that passes through all three settlements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td>Rehabilitation and implementation of main settlement drainage trunk lines and discharge into the Njoro River</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3</td>
<td>Slope stabilization measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Road Component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>Upgrading of main settlement access road based upon the planned KURA urban road network.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2, R3, R4</td>
<td>Upgrading of internal settlement roads based upon the settlement PDPs: R2, R3 and R4 roads</td>
<td>Upgrading of selected internal settlement roads based upon the settlement PDPs: R2 and R3 roads in Gilani and Kaptembwo and R2 roads in Kwa Rhonda</td>
<td></td>
</tr>
<tr>
<td>R5</td>
<td>Upgrading of main settlement footpaths based upon the settlement PDPs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S Sewerage Component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>Rehabilitation of the existing sewerage network in Gilani Settlement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>Extension of sewerage network in all settlements</td>
<td>Extension of the sewerage network in Githma cluster, Gilani settlement</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>Decentralized wastewater treatment</td>
<td>Support to plot level sanitation infrastructure in Kaptembwo and Kwa</td>
<td>Implementation of ablution blocs in Kaptembwo and Kwa Rhonda</td>
</tr>
<tr>
<td>Lighting Component</td>
<td>Solid Waste Management Component</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhonda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S4</td>
<td>Facilitate household connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>Implementation of floodlights as detailed in Conceptual Design in Kaptembwo and Kwa Rhonda settlements, and 3 floodlights in Gilani</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW1</td>
<td>Implementation of solid waste management infrastructure to support CBO activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW2</td>
<td>Specific support to the CBOs (equipment, tools, capacity building)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.2 Cost-benefit analysis and economic feasibility analysis

A full project cost benefit and economic feasibility analysis was performed in order to establish a clear decision making vision for each of the different project alternatives. The cost benefit analysis was based upon:

- Benefit indicators as detailed in the results framework of the World Bank project Appraisal Document
- Social and Environmental impacts of infrastructure components
- Economic data for each infrastructure component including: total cost, cost per hectare, cost per inhabitant and yearly operation and maintenance costs

The other project alternative is the status quo, i.e. the "no project" case. From an environmental, and especially from a socio-economic point of view, the case "with project" is always preferable to the "no project" situation, given the considerable improvements of the situation which will be brought about by each of the proposed projects.

Full results of the analysis are presented in the Feasibility Report. The following section presents results for each infrastructure component as well as final evaluation of all possible variants, based upon a marking system. The following Table 13 summarises the rating of the different project variants.
<table>
<thead>
<tr>
<th>Component</th>
<th>Mark</th>
<th>Conceptual Design Variant</th>
<th>Feasibility Study Variant 1</th>
<th>Feasibility Study Variant 2</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drainage component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-economic cost benefit</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>No difference in scope of component which aims to ensure drainage for the whole settlement</td>
<td></td>
</tr>
<tr>
<td>Social and Environmental impact</td>
<td>4.8</td>
<td>4.8</td>
<td>4.8</td>
<td>Potential encroachment issues decrease social impact mark</td>
<td></td>
</tr>
<tr>
<td>Economic evaluation</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>Price is the same for all Variants</td>
<td></td>
</tr>
<tr>
<td><strong>Average Drainage Component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Road component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-economic cost benefit</td>
<td>5</td>
<td>3.5</td>
<td>3.5</td>
<td>Decreased impact since the proposed road network in smaller in Feasibility Study Variant</td>
<td></td>
</tr>
<tr>
<td>Social and Environmental impact</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>Road encroachment issues, particularly important in Conceptual Design Variant</td>
<td></td>
</tr>
<tr>
<td>Economic evaluation</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>Very high economic impact to CD variant, both in investment and O&amp;M</td>
<td></td>
</tr>
<tr>
<td><strong>Average Road Component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Sewerage component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-economic cost benefit</td>
<td>5</td>
<td>1.5</td>
<td>3</td>
<td>CD Variant total extension of network rates highly, while support to household infrastructure cannot ensure indicators are met.</td>
<td></td>
</tr>
<tr>
<td>Social and Environmental impact</td>
<td>3.3</td>
<td>4.9</td>
<td>4.5</td>
<td>High environmental and social impact to full sewerage extension and to WWTP implementation</td>
<td></td>
</tr>
<tr>
<td>Economic evaluation</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>Very high price to CD Variant</td>
<td></td>
</tr>
<tr>
<td><strong>Average Sewerage Component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Lighting component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-economic cost benefit</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>No major differences in impact of the different Variants. FS Variants propose optimized positions to</td>
<td></td>
</tr>
</tbody>
</table>
Based upon this analysis, and following the recommendations of the report, the Feasibility Study Variant 2 was defined as the preferred option to move forwards towards Detailed Design works.

### 7.3 Final Detailed Design infrastructure package

On the basis of the Feasibility Study works, the Detailed Design works resulted in the choice of a final infrastructure package, which is in line of the overall available infrastructure budget for Nakuru Municipality.

This package, as presented in the section 2 of the ESIA, is the final infrastructure package to be procured within the KISIP program in Nakuru.

The Cost Estimate to this package is presented in Annex 4 of this ESIA.
ENVIRONMENTAL AND SOCIAL MITIGATION MEASURES AND ESMP

8.1 Socio-economic Impacts and Resettlement
Impacts leading to conflicts with present land occupation, and especially those necessitating resettlement, i.e. physical relocation of households, are described in the RAP, which is provided as a stand-alone document for KISIP.

8.2 Environmental and Social Management during Construction
The (few and generally minor) negative environmental impacts that the selected projects can have will manifest themselves mainly or exclusively during construction. Likewise, mitigation measures will have to be implemented during this period.

8.2.1 Responsibilities
The responsibilities for implementing the measures are divided between the two main parties involved as follows:

- **The project proponent (KISIP):** will be ultimately responsible for an implementation of the projects according to best practice; will have to include the relevant obligations any contractor has to meet in the Tender Documents and in the contracts; will have to monitor, on a regular basis, the advancement of the work and the compliance with the adopted measures and standards.

- **The contractor:** will be directly responsible for implementing the environmental mitigation measures. For doing so, he will have to have clear instructions, personnel familiar with these conditions and will, if required, have to prepare specific implementation plans for relevant measures. The generic code of practice for contractors is included in Annex 6.

8.2.2 Environmental and Social Management Plan for the Construction Phase
The ESMF (Table 8.1, p. 51) gives a list of impacts generally associated with projects of a type as can be included in the KISIP program, along with (equally general) measures. This was used as the basis for the ESMP. For the purpose of this project, four columns are included in the ESMP, namely:

- **Impact and Relevance:** indicates the specific impacts which will or are likely to occur, and the importance this impact is likely to have.

- **Measures:** specifies the proposed mitigation measures.

- **Responsibility:** defines the stakeholder responsible for the implementation of the measure.

- **Cost:** defines potential additional costs that need to be integrated into the KISIP program.

This ESMP is provided in the Table on the following pages. A few measures for activities not listed in the ESMF were added. If these measures are implemented, the overall environmental impacts of construction activities are expected to be minor or nil.
<table>
<thead>
<tr>
<th>Activity/Task</th>
<th>Site-specific Impacts and Measures</th>
<th>Measures</th>
<th>Responsibility</th>
<th>Cost</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment of workers on site</td>
<td>Occupational Health and Safety concerns for construction crew and others.</td>
<td>Deploy sober qualified staff under competent supervision. Must provide PPEs. Provide first aid material on site and instruction in first aid to workers. Have emergency phone numbers (ambulance, fire squad) available.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction mobilisation and construction works</td>
</tr>
<tr>
<td>Deployment of workers</td>
<td>Sanitation concerns for construction crew</td>
<td>Provide onsite sanitation facilities Define &quot;code of conduct&quot; for workers.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction mobilisation and construction works</td>
</tr>
<tr>
<td>Initiation of labour intensive projects</td>
<td>Influx of speculative job seekers</td>
<td>Include obligation to recruit locally in the contracts. No on-the-spot recruiting of non-residents.</td>
<td>MoH / MCN</td>
<td>No additional costs</td>
<td>During construction mobilisation</td>
</tr>
<tr>
<td>Deployment of construction workers</td>
<td>Proliferation of social concerns (commercial sex, alcohol and drug abuse, multiple homes, etc.) Small concern, since construction sites are rather small, no living facilities for workers provided on site.</td>
<td>Local hiring of workers coupled with an awareness-raising program If required, provide transport for workers from outside to and from work site.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction mobilisation and construction works</td>
</tr>
<tr>
<td>Deployment of construction workers</td>
<td>Exposure to HIV/AIDS and other vices Small concern, since construction sites are rather small, no living facilities for workers provided on site.</td>
<td>Local hiring of workers who go home after work coupled with awareness-raising programs. If required, provide transport for workers from outside to and from work site.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction mobilisation and construction works</td>
</tr>
<tr>
<td>Activity/Task</td>
<td>Site-specific Impacts and Measures</td>
<td>Measures</td>
<td>Responsibility</td>
<td>Cost</td>
<td>Timeline</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Material borrowing and transport</td>
<td>Impacts in material borrow and transport areas Small concern, since no large quantities of material required (e.g.: no quarry needed). Material usually will be bought from suitable providers.</td>
<td>Rehabilitate to NEMA approval, if applicable.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works, if applicable</td>
</tr>
<tr>
<td>Opening up sites for construction</td>
<td>No concern: all activities in already used/degraded areas, no natural habitats or ecologically sensitive areas to be touched.</td>
<td>None.</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Excavations and demolition activity</td>
<td>Generation of debris, waste soil and rubble. Only small quantities of material to be disposed of will remain.</td>
<td>Disposal as appropriate. Reuse in civil works, landfills etc. Some material might be used locally, e.g. to fill in depressions where runoff water accumulates.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
<tr>
<td>Operation of plants, equipment and big labour force.</td>
<td>Generation of nuisances: dust, noise and vibrations. Impact will generally be small: no very large works, short duration, small work force.</td>
<td>Prior warning to residents followed by effective management to shorten period of construction activity. Wet curing to control dust. Measures for dust prevention will be important. PPE for workers exposed to noise.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
<tr>
<td>Storage of fuel oils, lubricants, chemicals and flammable materials</td>
<td>Hazards of fire outbreak, oil and chemical spills. Small concern; storage of major quantities of fuels and lubricants on site is not foreseen.</td>
<td>Follow specifications of the Occupational Health and Safety Act, EMCA 1999 and others in the development and operation of stores. Good maintenance of vehicles and machines for preventing loss of oils.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
<tr>
<td>Maintenance of plant and equipment</td>
<td>Generation of waste oil, filters and spare parts maintenance of machine / equipment.</td>
<td>All repairs in designated garages. Apply the 3Rs principle (Reduce, re-use and recycle) in waste management.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
<tr>
<td>Activity/Task</td>
<td>Site-specific Impacts and Measures</td>
<td>Measures</td>
<td>Responsibility</td>
<td>Cost</td>
<td>Timeline</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------</td>
<td>----------</td>
<td>----------------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td>Excavation, levelling and general civil works</td>
<td>Damage to existing infrastructure (water, electricity).</td>
<td>Map and zone out all infrastructures for preservation. Budgetary allocation for replacement.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction preparation and construction works</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road transport</td>
<td>Risk of accidents (especially within settlements where there is usually not much traffic). Small risk, but with potentially major consequences.</td>
<td>Impose strict traffic rules (maximum speed to be respected) on all drivers. Have emergency plan ready in case of an accident.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
<tr>
<td>General Solid waste management</td>
<td>Waste (other than surplus material) will be generated on site.</td>
<td>Waste must be disposed of properly, and recycled where feasible. Provide waste bins on site.</td>
<td>Contractor</td>
<td>Cost included in Contractor bid No additional costs</td>
<td>During construction works</td>
</tr>
</tbody>
</table>
8.3 Environmental and Social Management during Operation

During the operation of the projects, once construction is over, it is expected that they will have their anticipated positive effect on the living conditions of the local population and the environment, with very small, if any, negative impacts.

Possible effects of the different project types are described briefly here:

- **Floodlighting**: no negative effects anticipated.
- **Road improvement**: no negative effect anticipated.
- **Water related projects (drainage, drinking water supply, sewerage)**: these have major positive impacts on the environment as well as on the human population. However, malfunctioning could not only reduce the positive impact, but could have significant negative effects, as e.g.:
  - Drainage: obstruction of drainage channels can lead to accumulation of stagnant water. Missing trash racks can lead to large amounts of solid waste being carried away and ending in the receiving river and finally in lake Nakuru. Trash racks which are not maintained, i.e. from where waste is not removed frequently, will inevitably lead to blocking the drain.
  - Sewerage: blocked pipes will lead to an overflow of the system, and defect, leaking pipes to seepage of waste water, with contaminating effects.

  Pools of stagnant water are mosquito breeding places and constitute a hygienic hazard and have therefore a strongly negative impact on human health.

From this, it is obvious that the main environmental mitigation measure to be taken during operation is an **adequate maintenance of these systems**.

It will be important to define exactly who in each case is responsible for maintenance. In this regards, a detailed Operation and Maintenance plan has been prepared for the project infrastructure. It can be consulted or made available at the Ministry of Housing.

8.3.1 Environmental and Social Management Plan for the Operation Phase

As per the construction phase, the ESMF (Table 8.1, p. 51) gives a list of impacts generally associated with projects of a type as can be included in the KISIP program, along with (equally general) measures. This was used as the basis for the ESMP. For the purpose of this project, four columns are included in the ESMP, namely:

- **Impact and Relevance**: indicates the specific impacts which will or are likely to occur, and the importance this impact is likely to have.
- **Measures**: specifies the proposed mitigation measures.
- **Responsibility**: defines the stakeholder responsible for the implementation of the measure.
- **Cost**: defines potential additional costs that need to be integrated into the KISIP program.
### Table 15: ESMP for the operation phase

<table>
<thead>
<tr>
<th>Community concern</th>
<th>Site-specific Impacts and Measures</th>
<th>Measures</th>
<th>Responsibility</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insecurity</td>
<td>Possible theft of accessories of street lighting&lt;br&gt;Small concern: floodlighting planned in order to mitigate risk</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poor accessibility</td>
<td>Accidents from speeding vehicles</td>
<td>Speed control measures</td>
<td>MCN</td>
<td>Routine operating budget</td>
</tr>
<tr>
<td>Inadequate drainage</td>
<td>Hazards of accidents from open canals&lt;br&gt;Small concern: majority of main drainage canals are planned to be underground box culvert</td>
<td>Community to fence off open canals</td>
<td>Community</td>
<td>-</td>
</tr>
<tr>
<td>Lack of solid waste management</td>
<td>Lack of solid waste management leads to blockage of drainage canals and sewerage pipes&lt;br&gt;Hazards of water borne disease vectors in blocked canals</td>
<td>Communities are in charge of maintenance, ensuring that solid wastes do not cause blockages of infrastructure&lt;br&gt;A specific lump sum budget is proposed in the overall cost estimate in order to finance the capacity building of local communities, as well as organize and equip communities to carry out basic maintenance and ensure correct usage of the planned infrastructure</td>
<td>Local communities</td>
<td>KES 15 million</td>
</tr>
</tbody>
</table>
8.4 Environmental and Social Management during Decommissioning
Since the project deals with urban basic infrastructure, no decommissioning is foreseen in the programme ESMF.

8.5 Environmental and Social Monitoring
At the project level, monitoring will be conducted by:

1. The Community: it will be assisted to undertake routine monitoring of operations of their project.

2. The Municipality: The environmental officer of the Municipal PCT will be responsible for all monitoring as follows:
   - Pre-EIA Screening
   - Management of the EIA Stage to develop the EMP
   - Application of the EMP during construction
   - Overseeing statutory annual environmental auditing (undertaken under KISIP finance).

No additional costs are required for monitoring.

The Environmental and Social Monitoring Plan is presented in the table below.
### Table 16: Environmental and Social Monitoring Plan

<table>
<thead>
<tr>
<th>Issue</th>
<th>Measures</th>
<th>Monitoring/Key performance indicator</th>
<th>Methods</th>
<th>Frequency</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deployment of workers on site</strong></td>
<td>Deploy sober qualified staff under competent supervision. Must provide PPEs. Provide first aid material on site and instruction in first aid to workers. Have emergency phone numbers (ambulance, fire squad) available.</td>
<td>All occupational health and safety equipment is available. Staff is sober and uses PPE.</td>
<td>Visual inspection if necessary, alcohol tests</td>
<td>Daily</td>
<td>No death or major accident on site or related to construction work</td>
</tr>
<tr>
<td><strong>Occupational Health and Safety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sanitation</strong></td>
<td>Provide onsite sanitation facilities. Define &quot;code of conduct&quot; for workers.</td>
<td>Sanitation facilities are available. Workers are aware of &quot;code of conduct&quot;</td>
<td>Visual inspection of equipment and use</td>
<td>Daily</td>
<td>No degradation due to misuse or no use of sanitation facilities</td>
</tr>
<tr>
<td><strong>Proliferation of social concerns, exposure to HIV/AIDS and other vices</strong></td>
<td>Local hiring of workers coupled with an awareness-raising program. If required, provide transport for workers from outside to and from work site.</td>
<td>Awareness-raising program is in place</td>
<td>Inspection of awareness-raising program</td>
<td>Whenever applicable</td>
<td>No proliferation of social concerns, exposure to HIV/AIDS and other vices</td>
</tr>
<tr>
<td><strong>Influx of speculative job seekers</strong></td>
<td>Include obligation to recruit locally in the contracts. No on-the-spot recruiting of non-residents</td>
<td>Only local job-seekers are recruited</td>
<td>Inspection of recruitment records</td>
<td>Whenever applicable</td>
<td>No influx of speculative job seekers</td>
</tr>
<tr>
<td><strong>Construction site management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Generation of debris, waste soil and rubble</strong></td>
<td>Disposal as appropriate. Reuse in civil works, landfills etc. Some material might be used locally, e.g. to fill in depressions where runoff water accumulates.</td>
<td>Debris, waste and rubble is disposed of properly</td>
<td>Visual inspection</td>
<td>Daily</td>
<td>No undisposed of debris, waste or rubble</td>
</tr>
<tr>
<td><strong>Hazards of fire outbreak, oil and chemical spills</strong></td>
<td>Follow specifications of the Occupational Health and Safety Act, EMCA 1999 and others in the development and operation of stores. Good maintenance of vehicles and machines for preventing loss of oils.</td>
<td>Storage and maintenance is appropriate and follows specification. Emergency plan is in place</td>
<td>Visual inspection</td>
<td>Daily</td>
<td>No fires, oil or chemical spills</td>
</tr>
<tr>
<td>Issue</td>
<td>Measures</td>
<td>Monitoring/Key performance indicator</td>
<td>Methods</td>
<td>Frequency</td>
<td>Target</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>-----------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Generation of waste oil, filters and spare parts maintenance of machine / equipment</td>
<td>All repairs in designated garages. Apply the 3Rs principle (Reduce, re-use and recycle) in waste management.</td>
<td>Repairs only in garages Waste management plan is in place</td>
<td>Visual inspection of garages</td>
<td>Daily</td>
<td>No waste management issues due to waste oil, spare parts, and equipment</td>
</tr>
<tr>
<td>Waste (other than surplus material) generated on site</td>
<td>Waste must be disposed of properly, and recycled where feasible. Provide waste bins on site.</td>
<td>Waste bins are present and in use, contents are recycled or disposed of properly</td>
<td>Visual inspection</td>
<td>Daily</td>
<td>No undisposed of waste</td>
</tr>
<tr>
<td>Generation of nuisances: dust, noise and vibrations</td>
<td>Prior warning to residents followed by effective management to shorten period of construction activity. Wet curing to control dust. Measures for dust prevention will be important. PPE for workers exposed to noise.</td>
<td>Local population has no complaints due to excessive nuisances Workers are using PPE</td>
<td>Visual and acoustic inspection Interview local population</td>
<td>Whenever applicable</td>
<td>No excessive generation of dust, noise and vibrations</td>
</tr>
<tr>
<td>Damage to existing infrastructure (water, electricity)</td>
<td>Map and zone out all infrastructures for preservation. Budgetary allocation for replacement.</td>
<td>Preservation map and budget are available Damaged infrastructure is replaced</td>
<td>Visual inspection</td>
<td>Daily</td>
<td>Infrastructure is in the same state or a better state as before construction works</td>
</tr>
<tr>
<td>Risk of road accidents</td>
<td>Impose strict traffic rules (maximum speed to be respected) to all drivers. Have emergency plan ready in case of an accident.</td>
<td>Rules in place and communicated Number of accidents</td>
<td>Visual inspection Emergency plan is available Inspection of accident records</td>
<td>Whenever applicable</td>
<td>No road accidents on site or involving project vehicles</td>
</tr>
</tbody>
</table>
9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions
Overall, it can be concluded that the proposed projects

- have considerable positive effects on the inhabitants of the selected settlements;
- respond to immediate needs felt and expressed by them;
- have considerable positive effects on the environment;
- and have negative environmental impacts which can easily be mitigated.

The projects will also decrease the overall impact of Nakuru Town on the Lake Nakuru National Park, which is a fragile ecosystem that is currently under threat from the increased urbanisation of the town.

9.2 Recommendations
The main recommendation is that implementation of the projects, i.e. the construction phase, will be closely followed and monitored in order to make sure that the mitigation measures identified and recommended are being taken. All contracts for construction of any of the proposed projects must stipulate the responsibilities of the contractor for implementing these measures.

9.3 Sustainability
The projects will develop their full benefits only if they remain fully operable in the long term. This means that maintenance of all of these projects is essential to make them sustainable. Maintenance mainly requires two things, namely (i) availability of staff capable of carrying out all surveillance and work required for guaranteeing full functionality of the systems, and (ii) availability of sufficient funding for carrying out any maintenance or repair work which might be required. KISIP will be well advised to undertake efforts in this direction.

One additional aspect of importance is waste management. Especially where drainage systems are concerned, solid waste (plastic bags among other items) poses an elevated risk of rapid obstruction of culverts, channels and ducts, thus reducing the effectiveness of the drainage system and/or considerably increasing costs for maintenance of these systems. Therefore, even where this is not perceived as an immediate and pressing priority by the residents, it is essential that a thorough waste management system is being implemented.

9.4 Cost of the Environmental and Social Management Plan
The cost of the ESMP is mainly linked to the implementation of capacity building for local communities, to support the operation and maintenance of the planned infrastructure. This focuses primarily on solid waste management issues. The total cost is estimated to be KES 15 million.
ANNEXES
ANNEX 1: ESIA SCREENING WORKSHEET – NAKURU

Note: This ESIA Report is based upon a preliminary screening check that was prepared by the Consultant during an earlier project phase, namely for the Conceptual Design report. This ESIA preliminary screening check is annexed here in its original form.
I. Introduction

This ESIA Project Screening is a key annex to the Conceptual Design report, which details the proposed interventions. The KISIP settlements in Nakuru (Gilani, Kaptembwo, Kwa Rhonda) are adjacent to each other and are thus being treated as a single project site - and the works for the 3 settlements will be lumped into one contractor package. For this reason, one checklist and one EIA report will be produced for Nakuru and not settlement-specific reports, which would be repetitive and risks looking at the area in a disconnected fashion. Our approach will ensure that environmental impacts are treated over the project area as a whole. However, this also means that any site-specific impacts will be highlighted and addressed appropriately within the EIA and RAP.

This also implies that Nakuru interventions will be treated as a cluster application for EIA license from NEMA.

The proposed interventions in the 3 settlements are:

- Roads
- Stormwater drainage
- Sewerage
- Public lighting
- Solid waste management
## II. Checklist

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes/No</th>
<th>Comments</th>
<th>Other GoK/WB Policies applicable</th>
<th>Recommended scale of Environmental Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicability of Second Schedule of EMCA</td>
<td></td>
<td>Particularly issues surrounding water (No.5) and social considerations (No.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part A: Triggers to the EMCA (Environmental Management and Coordination Act 1999)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicability of Second Schedule of EMCA</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other GoK/WB Policies applicable</td>
<td>WB Safeguards (Operational Policies, OP) that are possibly applicable in this type of a project:</td>
<td>Category B (OP 4.01)</td>
<td>The project will improve environmental and social conditions and few negative impacts (if any) are expected; however, there may be some cases of involuntary resettlement due to buildings constructed on public way-leaves.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• OP 4.01: Environmental Assessment</td>
<td>Efforts will be made to reach amicable agreements.</td>
<td>Indications from preliminary consultations show that this should be possible.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• OP 4.04: Natural Habitats</td>
<td></td>
<td>Therefore, a ‘low-level’ EA is foreseen; since in any case resettlement will be limited, an abbreviated RAP will be prepared in accordance with WB OP 4.12, para. 25 (*impacts on the entire displaced population are</td>
<td></td>
</tr>
</tbody>
</table>
**Part B: Details of Site Location**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes/No</th>
<th>Description</th>
<th>GoK/WB Policies applicable</th>
<th>Proposed Mitigations or Enhancements</th>
</tr>
</thead>
</table>
| Is the site or proposed investment a protected or reserved site?          | No     | The settlement of Kwa Rhonda is about 800 m from the edge of the Nakuru National Park and 1.5 km from Lake Nakuru. The Park is home to the Kenyan Rhino Conservation Project. The Park has many animals, including the endangered black rhino, white rhinos, Rothschild giraffes, hippos, elands, leopards, waterbucks, warthogs, impalas, buffalos. Lake Nakuru (alkaline) is an important habitat for lesser flamingos and other water. | GoK:  
  - EIA Guidelines 2002  
  - Local Government Act Cap 265  
  - Public Health Act Cap 242  
  - Roads Act 2007  

  WB:  
  - OP 4.01  
  - OP 4.04  
  - OP 4.12 | Ensure that solid waste and untreated wastewater do not flow into the River Njoro  
  - Oil traps  
  - Screens  
  - Transferring sewerage to WWTP (either centralized or decentralized)  
  - Intermediate collection points  

  Recommendation to contain solid waste at the central dump site (avoid it flowing downstream with the rains)
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes/No</th>
<th>Description</th>
<th>GOK:</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are there threatened/rare/endangered fauna (outside protected areas)</td>
<td></td>
<td>鸟类。</td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Park has the largest euphorbia forest in Africa.</td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Area with threatened/rare/endangered flora (outside protected areas)</td>
<td></td>
<td></td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td>Reserved/Protected Forest</td>
<td></td>
<td></td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Zoological Park /Botanical Garden</td>
<td></td>
<td></td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Are there vulnerable or endangered species (terrestrial or aquatic)</td>
<td>Yes</td>
<td>Endangered black rhino in the Park.</td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>Are there natural habitats in the site? Or in its proximity</td>
<td>Yes</td>
<td>In the National Park, not on site</td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Same as above</td>
</tr>
<tr>
<td>If there are natural habitats, are they fragile, unique, limited in size?</td>
<td>Yes</td>
<td>Lake Nakuru National Park is a conservation area and a designated Ramsar site.</td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td>Are there wetlands, areas of saturated soils (permanent or temporary), or evidence of ponding (cracks, high clay content in soils, dead vegetation,)</td>
<td>Yes</td>
<td>There is serious soil erosion and gulleys on site (Kwa Rhonda and Kaptembwo)</td>
<td>GOK:</td>
<td>EIA Guidelines 2002, EIA Revised Regulations 2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gabions, pilings, improved drainage system</td>
</tr>
<tr>
<td>Water marks?</td>
<td></td>
<td>WB OP 4.01, 4.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Is the site already degraded (low groundwater, poor soil quality)?</td>
<td>Yes</td>
<td>Soil is mostly sandy</td>
<td>WB OP 4.01, 4.04</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The quarry (a degradation) could be rehabilitated to become a park</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there steep slopes in the proximity of the investment site?</td>
<td>Yes</td>
<td>There are some gulleys in the settlements (Kwa Rhonda and Kaptembwo)</td>
<td>GOK: EIA Guidelines 2002, EIA Revised Regulations 2003</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabions, pilings, improved drainage system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do people live on the proposed site?</td>
<td>Yes</td>
<td>Dense urban population</td>
<td>GOK: EIA Guidelines 2002, EIA Revised Regulations 2003</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB OP 4.01, 4.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List existing land uses (ranching, farming)?</td>
<td></td>
<td>Residential, commercial, public</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB OP 4.01, 4.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there existing site access (roads)?</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the site vulnerable to natural hazards (in floodplain, near volcano, on seismic fault, near coastline in hurricane zone)?</td>
<td>Yes</td>
<td>The site is subject to seasonal flash flooding</td>
<td>GOK: EIA Guidelines 2002, EIA Revised Regulations 2003</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improved drainage system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB OP 4.01, 4.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there land title conflicts?</td>
<td>Limited</td>
<td>Isolated cases of conflict; most owners have ownership</td>
<td>GOK: EIA Guidelines 2002</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documents</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Are there known archaeological, historical or other cultural property? Are any of these world heritage/ UNESCO designated etc</strong>&lt;br&gt;Are there known archaeological, historical or other cultural property? Are any of these world heritage/ UNESCO designated etc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| No | EIA Revised Regulations 2003  
WB OP 4.12  
GOK:  
EIA Guidelines 2002  
EIA Revised Regulations 2003  
WB OP 4.11 |
| **Do indigenous peoples live on or near the site?**<br>Do indigenous peoples live on or near the site? |
| No | EIA Revised Regulations 2003  
WB OP 4-10  
GOK:  
EIA Guidelines 2002  
EIA Revised Regulations 2003 }
### Part C: Analysis of likely physical impacts

#### (i) Scope of proposed activities

<table>
<thead>
<tr>
<th><strong>Will the investment generate an increase in solid wastes or machine wastes (oil, etc)?</strong></th>
<th><strong>Yes</strong></th>
<th><strong>Likely during construction period but not in the long-run (i.e. operational phase)</strong></th>
<th><strong>A SWM plan will be recommend to be developed by contractors</strong></th>
</tr>
</thead>
</table>

#### (ii) Water resources impacts

| **Could the investment result in a modification of groundwater levels by altering flows, paving surfaces or increasing water extraction?** | **Yes** | **Sewerage investments and improved SWM would likely improve groundwater quality** | **Drainage to run parallel to roads that are paved** |
| **Could it affect groundwater quality?** | **Yes** | **Planned investments will likely improve the quality of nearby surface waters** | |
| **Could it affect quality (through sediment, wastewater, storm discharge or solid waste) of nearby surface waters (lake, rivers, streams)?** | **Yes** | **Planned investment will increase paved surface area and thus the amount of runoff to the river** | |
| **Will it affect water quantity in nearby water bodies (lake, river, stream)?** | **Yes** | **Use of boreholes and wells on site is negligible** | |

#### (iii) Ecosystem Impacts

<table>
<thead>
<tr>
<th><strong>Could the investment affect natural habitats or areas of high</strong></th>
<th><strong>Yes</strong></th>
<th><strong>Likely positive impact</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>---------------------------</td>
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<td></td>
</tr>
<tr>
<td><strong>ecological value?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Could it affect natural characteristics of adjacent or nearby sites?</strong></td>
<td>Yes</td>
<td>Likely positive impact</td>
<td></td>
</tr>
<tr>
<td><strong>Could it affect wildlife or natural vegetation?</strong></td>
<td>Yes</td>
<td>Positive impact</td>
<td></td>
</tr>
<tr>
<td><strong>(iv) Drainage Impacts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will the investment in storm water drainage affect existing drainage patterns?</td>
<td>Yes</td>
<td>It shall improve and make existing drainage patterns more efficient.</td>
<td></td>
</tr>
<tr>
<td>Will it cause standing water, which could cause public health risks?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will erosion result in sediment discharge to nearby water bodies?</td>
<td>No</td>
<td>Investments will reduce current levels of soil erosion</td>
<td></td>
</tr>
<tr>
<td>Will surface drainage patterns be affected in borrow pits and quarries?</td>
<td>Yes</td>
<td>The natural materials to be used in improvement of the drainage patterns will be from approved borrow pits and quarries</td>
<td></td>
</tr>
<tr>
<td>Will infiltration patterns be affected?</td>
<td>Yes</td>
<td>Investment is increasing paved areas.</td>
<td></td>
</tr>
<tr>
<td><strong>(v) Socio-economic Impacts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will the project entail resettlement of population?</td>
<td>Maybe</td>
<td>Households that have encroached on the road reserve and on other public utilities will be asked to retreat to their official plot boundaries; but will not be asked to resettle.</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td>Details</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Will the project affect indigenous peoples?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will it limit access to natural resources to local populations?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will it have an impact on land use?</td>
<td>Maybe</td>
<td>The only potential land use change is if the quarry (private land) is converted to open space (public land) - but this has not yet been decided.</td>
<td></td>
</tr>
<tr>
<td>Will it induce further encroachment of nearby areas?</td>
<td>Maybe</td>
<td>It is possible that the investments will attract people to the relatively sparsely populated areas (e.g. southern section of Kwa Rhonda)</td>
<td></td>
</tr>
<tr>
<td>Will it cause any health impacts?</td>
<td>Yes</td>
<td>Positive impacts related mostly to water-borne diseases</td>
<td></td>
</tr>
<tr>
<td>Will it disturb nearby communities during construction?</td>
<td>Yes</td>
<td>This will be time-limited and the benefits are likely to outweigh the inconveniences</td>
<td></td>
</tr>
<tr>
<td>Could cultural resources be affected?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Could it affect nearby properties?</td>
<td>No</td>
<td>Drainage investments will be designed so they do not have negative impact on adjacent properties</td>
<td></td>
</tr>
</tbody>
</table>
### Part D: Analysis of Resettlement Impacts

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Remarks/identified problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of private land?</td>
<td>X</td>
<td>X</td>
<td>Private land may need to be acquired for sewage disposal and recreation areas.</td>
</tr>
<tr>
<td>Alienation of any type of government land including that owned by urban local body?</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Clearance of encroachment from government/urban local body land?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearance of squatting from Government/Urban local body?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of structures, both authorized and/or unauthorized to be acquired/cleared?</td>
<td></td>
<td>TBD during feasibility</td>
<td></td>
</tr>
<tr>
<td>Number of households to be displaced?</td>
<td></td>
<td>TBD during feasibility</td>
<td></td>
</tr>
<tr>
<td>Details of village common properties to be alienated, Pasture land(acres)cremation /burial ground and others specify?</td>
<td></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Describe existing land uses on and around the project area ( e.g Community facilities, agriculture, tourism, private property)?</td>
<td></td>
<td>Private property, government property (utility reserves, schools, administration)</td>
<td></td>
</tr>
<tr>
<td>Will the project result in construction workers or other people moving into or having access to the area ( for a long period and in large numbers</td>
<td>No</td>
<td></td>
<td>Non-resident construction workers are not likely to live in the settlements during construction. The contractor will be asked to employ residents for non-skilled positions, and in general to give priority to residents if qualifications are similar.</td>
</tr>
<tr>
<td>Compared to permanent residents?</td>
<td>Yes</td>
<td>No</td>
<td>Remarks/identified problems</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----</td>
<td>----</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Are financial compensation measures expected to be needed?</td>
<td>Maybe</td>
<td></td>
<td>For those on public way-leaves, the objective shall be amicable agreements for them to retreat to their official plot boundaries without compensation (other than the benefits of the project). In case of land acquisition (e.g. to widen drainage channel), those households would be compensated in line with IFC standards for resettlement compensation.</td>
</tr>
</tbody>
</table>

### Loss of Crops, fruit, household infrastructure and livelihood

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Remarks/identified problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the project result in the permanent or temporary loss of:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Crops?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fruit trees/coconut palms? Specify with numbers</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Household infrastructure? Specify with numbers</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Loss of agriculture land? Specify with numbers</td>
<td>X</td>
<td></td>
<td>Those structures built on public way-leaves will be asked to retreat to their official plot boundaries at their own cost.</td>
</tr>
</tbody>
</table>

### Occupational health and safety, welfare, employment and gender

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Remarks/identified problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the project likely to provide local employment opportunities, including employment opportunities for women?</td>
<td>X</td>
<td></td>
<td>The project will provide temporary employment associated with the construction phase but is not likely to provide long-term employment. Construction workers are likely to be men. There may be temporary income opportunities such as providing food for workers.</td>
</tr>
<tr>
<td>Is the project being planned with</td>
<td>X</td>
<td></td>
<td>The project is based on the community’s priorities and with the</td>
</tr>
</tbody>
</table>
### History, archaeological, or cultural heritage sites

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Remarks/identified problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical heritage site(s) or require excavation near the same?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archaeological heritage site(s) or require excavation near the same?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural heritage site(s) or require excavation near the same</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graves or sacred locations or require excavation near the same</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part D (i) : Result/Outcome of Environmental/ Social and Resettlement Screening Exercise**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Remarks/identified problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Environment Impact Assessment Required</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Impact Assessment Required</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>OP 4.12 category (S1, S2, S3)</td>
<td></td>
<td></td>
<td>Based on the preliminary findings, the project is <strong>categorized as S2</strong> (i.e. relocation is less than 200)</td>
</tr>
<tr>
<td>RAP category required</td>
<td></td>
<td></td>
<td>Abbreviated RAP according to OP 4.12, para. 25</td>
</tr>
<tr>
<td>Any special conditions</td>
<td></td>
<td></td>
<td>We will ensure to differentiate impacts during construction phase and operations (i.e. post-construction) phase</td>
</tr>
<tr>
<td>Part E : Authorisation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Screening undertaken by:</strong> Vivian Castro, POYRY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designation: <strong>Manager, Socio-economic Component</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature: [Signature]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date: October 16, 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approved by:</strong> Dr. Robert Zwahlen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designation: <strong>EIA &amp; RAP Expert / Team Leader</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature: [Signature]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date: October 16, 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PMU confirmation by .............</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designation: .................</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature: .............</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date: .................</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**ANNEX 2: PROJECTS REQUIRING ESIA ACCORDING TO EMCA**

Table 17: EIA requirements of KISIP projects

<table>
<thead>
<tr>
<th>Type of Project (according to EMCA) (^{1,2})</th>
<th>Comments (on KISIP projects)</th>
<th>Applicable</th>
</tr>
</thead>
</table>
| 1. General: –  
  a) an activity out of character with its surrounding;  
  b) any structure of a scale not in keeping with its surrounding;  
  c) major changes in land use. | Not applicable  
  a) projects are integral parts / improvements of their surroundings  
  b) scale in adapted to situation  
  c) no change in land use | No |
| 2. Urban Development including:  
  a) designation of new townships;  
  b) establishment of industrial estates;  
  c) establishment or expansion of recreational areas;  
  d) establishment or expansion of recreational townships in mountain areas, national parks and game  
  e) shopping centres and complexes. | All projects are urban development projects.  
  However, none is of the type specified in points a) to e). | No |
| 3. Transportation including  
  a) all major roads;  
  b) all roads in scenic, wooded or mountainous areas and wetlands;  
  c) railway lines;  
  d) airports and airfields;  
  e) oil and gas pipelines;  
  f) water transport. |  
  No major road projects envisaged in this program;  
  however, only existing urban roads in the settlements might be partially upgraded (or used for improving drainage systems adjacent to or integrated into them, and improved in the process, e.g. by eliminating illicit encroachment).  
  No other transportation systems in the program. | No |
| 4. Dams, rivers and water resources including  
  a) storage dams, barrages and piers;  
  b) river diversions and water transfer between catchments;  
  c) flood control schemes;  
  d) drilling for the purpose of utilising ground water resources including geothermal energy. |  
  No water resources programs of types listed in points a) to d) foreseen.  
  There will be some small scale drinking water supply systems. | No |
| 5. Aerial spraying. | No such action in the program. | No |
| 6. Mining, including quarrying and open-cast extraction of  
  items specified in categories a) to k) | No such action in the program. | No |
| 7. Forestry related activities including  
  items specified in categories a) to c) | No such action in the program. | No |
| 8. Agriculture including  
  items specified in categories a) to e) | No such action in the program. | No |
| 9. Processing and manufacturing industries including:  
  items specified in categories a) to v) | No such action in the program. | No |
| 10. Electrical infrastructure including  
  a) electricity generation stations;  
  b) electrical transmission lines;  
  c) electrical sub-stations;  
  d) pumped-storage schemes.  
  11. Management of hydrocarbons including the storage of natural gas and combustible or explosive fuels. |  
  No such action in the program.  
  Only projects related to electricity: floodlighting. | No |
<table>
<thead>
<tr>
<th>Type of Project (according to EMCA)</th>
<th>Comments (on KISIP projects)</th>
<th>Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12. Waste disposal including</strong></td>
<td>Waste management is an important issue in all settlements included in the program, although not necessarily seen as a priority by the inhabitants. However, within the program this concerns waste collection and not waste disposal. In any case, no waste disposal facilities foreseen within the settlements. Construction of sewerage systems in some of the settlements.</td>
<td>Maybe</td>
</tr>
<tr>
<td>a) sites for hazardous waste disposal;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) sewage disposal works;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) works involving major atmospheric emissions;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) works emitting offensive odours;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) sites for solid waste disposal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13. Natural conservation areas including</strong></td>
<td>No such action in the program.</td>
<td>No</td>
</tr>
<tr>
<td>a) to g) items specified in categories a) to g)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14. Nuclear Reactors.</strong></td>
<td>No such action in the program.</td>
<td>No</td>
</tr>
<tr>
<td><strong>15. Major developments in biotechnology including the introduction and testing of genetically modified organisms.</strong></td>
<td>No such action in the program.</td>
<td>No</td>
</tr>
</tbody>
</table>

1 The list shows projects to be subjected to EIA as specified in the Second Schedule of EMCA 1999
2 Note: where the main category is not applicable on any of the specific projects in KISIP, the detailed list of projects as per EMCA is not provided in this Table
ANNEX 3: REFERENCES


## ANNEX 4: NAKURU MUNICIPALITY COST ESTIMATE

<table>
<thead>
<tr>
<th>Infrastructure Type</th>
<th>Settlement Name</th>
<th>Unit</th>
<th>Quantity</th>
<th>Total Amount</th>
<th>Population</th>
<th>Cost Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roads</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>5.9</td>
<td>138'208'576.72</td>
<td>32'496.00</td>
<td>4'253.10</td>
</tr>
<tr>
<td>R1</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>1.3</td>
<td>30'452'737.25</td>
<td>42'416.00</td>
<td>717.95</td>
</tr>
<tr>
<td>R2</td>
<td>Gilani</td>
<td>Km</td>
<td>2</td>
<td>46'850'364.99</td>
<td>3'608.00</td>
<td>12'985.13</td>
</tr>
<tr>
<td>R2</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>7.4</td>
<td>161'386'241.92</td>
<td>32'496.00</td>
<td>4'966.34</td>
</tr>
<tr>
<td>R2</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>1</td>
<td>21'808'951.61</td>
<td>42'416.00</td>
<td>514.17</td>
</tr>
<tr>
<td>R3</td>
<td>Gilani</td>
<td>Km</td>
<td>1.7</td>
<td>37'075'217.75</td>
<td>3'608.00</td>
<td>10'275.84</td>
</tr>
<tr>
<td>R3</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>15.4</td>
<td>171'199'452.16</td>
<td>32'496.00</td>
<td>5'268.32</td>
</tr>
<tr>
<td>R3</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>5.2</td>
<td>57'807'667.22</td>
<td>3'608.00</td>
<td>1'362.87</td>
</tr>
<tr>
<td>R3</td>
<td>Gilani</td>
<td>Km</td>
<td>1.3</td>
<td>14'451'301.80</td>
<td>3'608.00</td>
<td>4005.52</td>
</tr>
<tr>
<td>R4</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>3.3</td>
<td>36'685'596.89</td>
<td>32'496.00</td>
<td>1'128.93</td>
</tr>
<tr>
<td>R4</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>6.6</td>
<td>73'371'193.77</td>
<td>42'416.00</td>
<td>1729.80</td>
</tr>
<tr>
<td>R5</td>
<td>Gilani</td>
<td>Km</td>
<td>1</td>
<td>111'116'847.54</td>
<td>3'608.00</td>
<td>3081.17</td>
</tr>
<tr>
<td>R5</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R5</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>3</td>
<td>124'681'565.02</td>
<td>42'416.00</td>
<td>2'939.49</td>
</tr>
<tr>
<td>R5</td>
<td>Gilani</td>
<td>Km</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Drainage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>3.8</td>
<td>152'715'082.91</td>
<td>32'496.00</td>
<td>4'999.50</td>
</tr>
<tr>
<td>D1</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>0.55</td>
<td>21'902'399.59</td>
<td>42'416.00</td>
<td>516.37</td>
</tr>
<tr>
<td>D1</td>
<td>Gilani</td>
<td>Km</td>
<td>0.8</td>
<td>32'091'427.97</td>
<td>3'608.00</td>
<td>8'894.52</td>
</tr>
<tr>
<td>D2</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D2</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>3</td>
<td>124'681'565.02</td>
<td>42'416.00</td>
<td>2'939.49</td>
</tr>
<tr>
<td>D2</td>
<td>Gilani</td>
<td>Km</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D3</td>
<td>Kwa Rhonda</td>
<td>Km</td>
<td>0.38</td>
<td>9'519'690.70</td>
<td>32'496.00</td>
<td>292.95</td>
</tr>
<tr>
<td>D3</td>
<td>Kaptembwo</td>
<td>Km</td>
<td>0.14</td>
<td>30'880'301.94</td>
<td>42'416.00</td>
<td>728.03</td>
</tr>
<tr>
<td>D3</td>
<td>Gilani</td>
<td>Km</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Rehabilitation of Gilani Sewer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>Gilani</td>
<td>Km</td>
<td>2.1</td>
<td>56'688'684.47</td>
<td>3'608.00</td>
<td>15'711.94</td>
</tr>
<tr>
<td><strong>Security Flood Light</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL1</td>
<td>Kwa Rhonda</td>
<td>No</td>
<td>2</td>
<td>16'164'387.09</td>
<td>32'496.00</td>
<td>497.43</td>
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ANNEX 5: MAP OF DRAFT SETTLEMENT UPGRADE PLANS

The following presents the draft settlement upgrading plans for Gilani, Kaptembwo and Kwa Rhonda settlements. They can be consulted at the Ministry of Housing.
Kenya Informal Settlements Improvement Program (KISIP)  
Pöyry, GA Consultants, Pamoja Trust  
Component 3: Infrastructure and Service Delivery  
ESIA Project Report for Infrastructure Upgrading in Informal Settlements - Nakuru  
Date 2013-04-12  
Page 96
ANNEX 6: KISIP ESMF GENERIC MITIGATION MEASURES FOR CONTRACTORS
Appendix 8.1: Generic Mitigation Measures for Contractors

Permits and licences

(i) The Contractor shall ensure that all pertinent permits, certificates and licences have been obtained prior to any activities commencing on site and are strictly enforced/adhered to;

(ii) The Contractor shall maintain a database of all pertinent permits and licences required for the contract as a whole and for pertinent activities for the duration of the contract.

Site preparation phase

Location of Contractor’s camp site

Where the contractor will require setting up a site, the same shall be determined in collaboration with the RE taking into consideration the following:

(i) Preferably to be located on land already cleared wherever possible;

(ii) Not to be installed in the areas used as wildlife grazing areas or migratory corridors or in the area with more dense vegetation or densely settled areas;

(iii) It should also avoid the areas, where the soil has higher erosion risk;

(iv) The need to be more than 20 meters from watercourses in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;

(v) The local administration and the community representatives (CBO) shall be involved in the site location to avoid destruction of any ritual site or any other conflict;

(vi) The Contractor’s Camp layout shall take into account availability of access for deliveries and services and any future works;

(vii) The Contractor’s Camp should also be of sufficient size to accommodate the needs of all sub-contractors that may work on the project.

Environmental Training and Awareness

(i) The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the EMP;

(ii) The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this EMP in his costs and programming;

(iii) An initial environmental awareness training session shall be held by the LA prior to any work commencing on site, with the target audience being all project personnel;

(iv) The training shall include but not limited to the following

• Basic awareness and understanding of the key environmental features of the work site and environs;
• Understanding the importance of and reasons why the environment must be protected;
• Ways to minimise environmental impacts;
• Relevant requirements of the EMP;
• Prevention and handling of fire;
• Health risks pertinent to the site, including prevention of communicable diseases;
HIV/AIDS awareness and prevention campaign

(i) The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, contracting an implementing organisation, with preference for an organisation already working on this issue in the project area;

(ii) The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material (T-shirts and caps), availability of condoms (free), and theatre groups.

Local Labour / Employment

(i) Wherever possible, the Contractor shall use local labour, and women must be encouraged to be involved in construction work.

Construction phase

EMP management records

Environmental management records shall be kept on site during the duration of construction and shall include the following:

(i) The updated version of the EMP;

(ii) All necessary permits and licences;

(iii) All site specific plans prepared as part of the updated EMP;

(iv) All written instructions and reports issued by the RE / Supervising Consultant;

(v) A register of audit non-conformance reports and corrective actions;

(vi) All related environmental, social, health and safety management registers and correspondence, including any complaints;

(vii) All records shall be kept at site premises and maintained in a legible state for the full period of construction.

Contractor’s Camp

The Contractor shall implement the following as required:

(i) A suitable storm-water drainage system to prevent soil erosion, protect storage areas and to prevent stagnant ponds forming;

(ii) A suitable potable water supply;
(iii) Suitable facilities for bathing, washing clothes or vehicles – site staff will not be permitted to use open water bodies for such activities;
(iv) Suitable sanitation facilities, adequate for the number of staff on site;
(v) Facilities for cooking;
(vi) Facilities for solid waste collection;
(vii) Facilities for waste water management.

The method for provision of these services will be approved by the RE.

Water Supply

The Contractor must adhere to water quality regulations and rules as described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 68 of September 2006. These Rules describe the following:

(i) Water sources for domestic use;
(ii) Sewage treatment;
(iii) Ground water;
(iv) Water for agricultural use;
(v) Water for other uses;
(vi) Schedules depicting standards.

Abstractions from natural, municipal and/or private water resources (e.g. rivers, boreholes and springs) for potable water and construction water shall be approved by the Water Resources Management Authority. The Contractor shall arrange for the necessary approvals / permits from the water authorities under the direction of MoR for the abstraction of water.

Conservation of vegetation and protection of wildlife

(i) Except to the extent necessary for establishing the construction site and carrying out the construction works, vegetation shall not be removed, damaged or disturbed. Nor should any unauthorised planting of vegetation take place;
(ii) The clearance of the site for construction purposes shall be kept to a minimum. The use of existing cleared or disturbed areas for the Contractor’s Camp, stockpiling of materials etc shall be encouraged;
(iii) Areas with dense indigenous vegetation are not to be disturbed unless required for construction purposes, nor shall new access routes be cut through such areas.
(iv) Trees should be trimmed rather than removed wherever possible;
(v) The use of indigenous plants as firewood is prohibited unless they are obtained from approved sources;
(vi) There is a possibility of encountering wildlife during the construction works, these animals should be avoided and not perturbed;
(vii) Wildlife poaching or game hunting is forbidden.

Protection of watercourses

(i) The Contractor shall ensure that the footprint of construction activities is minimised at river and stream crossings;
Sedimentation from the construction works of perennial rivers and streams must be minimised;

No construction materials shall be stockpiled within areas that are at risk of flooding;

The Contractor shall ensure that all construction activities at the seasonal river crossings are commenced and completed during the dry seasons;

All temporary and permanent fill used adjacent to, or within, the perennial river bed shall be of clean sand or larger particles. Silts and clays shall not be permitted in the fill;

Plastic sheeting, sandbags or geofabric approved by the RE shall be used to prevent the migration of fines through the edges of the fill into the river;

The Contractor shall not modify the banks or bed of a watercourse other than necessary to complete the specified works. If such unapproved modification occurs, the Contractor shall restore the affected areas to their original profile;

The Contractor shall preserve all riparian vegetation;

The Contractor shall not pollute the watercourse through any construction activities.

Planning Borrow Pits and Quarries
Where required, all borrow pits sites shall be clearly indicated on a plan and approved by the RE.

The Contractor will be responsible for ensuring that appropriate authorisation to use the proposed borrow pits and quarries has been obtained before commencing activities;

Borrow pits and quarries shall be located more than 20 meters from watercourses in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;

The Contractor shall give 14 days’ notice to nearby communities of his intention to begin excavation in the borrow pits or quarries;

The Contractor shall prepare and implement borrow pit plans and borrow pit rehabilitation plans, which would minimise the risk of erosion.

Construction and Operation of New Borrow Pits and Quarries
Topsoil shall be stripped prior to removal of borrow and stockpiled on site. This soil shall be replaced on the disturbed once the operation of the borrow site or quarry is complete;

Storm-water and groundwater controls shall be implemented to prevent runoff entering streams and the slumping of soil from hillside above;

The use of borrow pits or quarries for material spoil sites may be approved by the RE (and/or with the appropriate consent of the “landowner”). Where this occurs, the materials spoiled in the borrow pit shall be profiled to fit into the surrounding landscape and covered with topsoil.

Blasting
If blasting is required, the Contractor will be responsible for obtaining a current and valid authorisation from the Department of Mines and Geology prior to any blasting activity. A copy of this authorisation shall be given to the RE;

A qualified and registered blaster by the Department of Mines and Geology shall supervise all blasting and rock-splitting operations at all times;
(iii) The Contractor shall ensure that appropriate pre blast monitoring records are in place (i.e. photographic and inspection records of structures in close proximity to the blast area);

(iv) The Contractor shall ensure that emergency services are notified, in writing, a minimum of 24 hours prior to any blasting activities commencing on Site;

(v) The Contractor shall take necessary precautions to prevent damage to special features and the general environment, which includes the removal of fly-rock. Environmental damage caused by blasting/drilling shall be repaired at the Contractor’s expense to the satisfaction of the RE and the relevant authorities;

(vi) The Contractor shall ensure that adequate warning is provided to the local communities immediately prior to all blasting. All signals shall also be clearly given;

(vii) The Contractor shall use blast mats for cover material during blasting. Topsoil shall not be used as blast cover.

**Asphalt, Bitumen and Paving**

The site of the asphalt plant shall be selected and maintained according to the following basic criteria:

(i) The plant shall be situated on flat ground;

(ii) Topsoil shall be removed prior to site establishment and stockpiled for later rehabilitation of the site;

(iii) Bitumen drums / products shall be stored in an area approved by the RE. This area shall be indicated on the construction camp layout plan. The storage area shall have a smooth impermeable (concrete or thick plastic covered in gravel) floor. The floor shall be bunded and sloped towards a sump to contain any spillages of substances;

(iv) The area shall be covered to prevent rainwater from contacting the areas containing fuels, oils, bitumen etc and potentially generating contaminated runoff;

(v) The plant shall be secured from trespassers and animals through the provision of fencing and a lockable gate to the satisfaction of the RE;

(vi) Well-trained staff shall be responsible for plant workings.

(vii) Within the bitumen plant site, areas shall be demarcated/marked for plant materials, wastewater and contaminated water;

(viii) An area should be clearly marked for vehicle access;

(ix) Drums/tanks shall be safely and securely stored;

(x) Materials requiring disposal shall be disposed of at an appropriate waste facility.

**Cement/Concrete Batching**

(i) Where required, a Concrete batching plant shall be located more than 20m from the nearest stream/river channel;

(ii) Topsoil shall be removed from the batching plant site and stockpiled;

(iii) Concrete shall not be mixed directly on the ground;

(iv) The concrete batching works shall be kept neat and clean at all times;
(v) Contaminated storm-water and wastewater runoff from the batching area and aggregate stockpiles shall not be permitted to enter streams but shall be led to a pit where the water can soak away;

(vi) Unused cement bags are to be stored so as not to be effected by rain or runoff events;

(vii) Used bags shall be stored and disposed of in a manner which prevents pollution of the surrounding environment (e.g. via windblown dust);

(viii) Concrete transportation shall not result in spillage;

(ix) Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding environment;

(x) Suitable screening and containment shall be in place to prevent windblown contamination associated with any bulk cement silos, loading and batching;

(xi) Waste concrete and cement sludge shall be scraped off the site of the batching plant and removed to an approved disposal site;

(xii) All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete and disposed at an approved disposal site. Washing the remains into the ground is not acceptable;

(xiii) All excess aggregate and sand shall also be removed;

(xiv) After closure of the batching plant or any area where concrete was mixed all waste concrete/cement sludge shall be removed together with contaminated soil. The surface shall then be ripped to a depth of 150mm and the topsoil replaced evenly over the site and re-grassed.

**Air and dust emissions**

Air emissions from construction machinery, including dust, is regarded as a nuisance when it reduces visibility, soils private property, is aesthetically displeasing or affects palatability of grazing. Dust generated by construction related activities must be minimised.

The Contractor shall be responsible for the control of air emissions and dust arising from his operations and activities.

(i) Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications;

(ii) Asphalt plants and concrete batching plants shall be well sealed and equipped with a dust removal device;

(iii) Workers shall be trained on dust minimisation techniques;

(iv) The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilised as soon as practically possible;

(v) The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds. The RE shall suspend earthworks operations wherever visible dust is affecting properties adjoining the road;

(vi) Water sprays shall be used on all earthworks areas within 200 metres of human settlement. Water shall be applied whenever dust emissions (from vehicle movements or wind) are visible at the site in the opinion of the RE;
(vii) Vehicles delivering soil materials shall be covered to reduce spills and windblown dust;
(viii) Vehicle speeds shall be limited to minimise the generation of dust on site and on diversion and access roads;
(ix) Any complaints received by the Contractor regarding dust will be recorded and communicated to the RE and ESO.

Disruption of Access to Property
Disruption of access to property must be kept to a minimum at all times. Where such disruption is unavoidable, the Contractor shall advise the affected parties and the RE at least seven working days in advance of such disruption.

Spoil Sites
Where the Contractor is required to spoil material, environmentally acceptable spoil sites must be identified and approved by the RE and EO, taking into consideration the following:

(i) Preferably to be located on land already cleared wherever possible. Communities shall be involved in the site location to avoid destruction of any ritual site or any other conflict;
(ii) The need to be more than 20 meters from watercourses and in a position that will facilitate the prevention of storm-water runoff from the site from entering the watercourse;
(iii) The development and rehabilitation of spoil areas shall include the following activities:
(iv) Stripping and stockpiling of topsoil;
(v) Removal (to a nominal depth of 500mm) and stockpiling of subsoil;
(vi) Placement of spoil material.
(vii) Contouring of spoil site to approximate natural topography and drainage and/or reduce erosion impacts on the site;
(viii) Placement of excavated subsoil and then topsoil over spoil material;
(ix) Contouring and re-vegetation;
(x) The Contractor shall ensure that the placement of spoil is done in such a manner to minimise the spread of materials and the impact on surrounding vegetation and that no materials ‘creep’ into ‘no-go’ areas.

Noise Control
(i) The Contractor shall keep noise level within acceptable limits and construction activities shall, where possible, be confined to normal working hours in the residential areas;
(ii) Schools, hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity. Any excessively noisy activity shall be conducted outside of school hours, where approved by the RE;
(iii) Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE;
Storm-water Management and Erosion Control

The Contractor shall take reasonable measures to control storm water and the erosive effects. During construction the Contractor shall protect areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking measures to prevent the surface water from being concentrated in drainage channels or streams and from scouring slopes, banks or other areas.

Areas affected by construction related activities and/or susceptible to erosion must be monitored regularly for evidence of erosion, these include:

(i) Areas stripped of topsoil;
(ii) Soil stockpiles;
(iii) Spoil sites;
(iv) Borrow pits;
(v) Sites for bridges and drainage structures.

On any areas where the risk of erosion is evident, special measures may be necessary to stabilise the areas and prevent erosion. These may include, but not be limited to:

(i) Confining construction activities;
(ii) Using cut off drains;
(iii) Using mechanical cover or packing structures such as geofabric to stabilise steep slopes or hessian, gabions and mattress and retaining walls;
(iv) Mulch or chip cover;
(v) Constructing anti-erosion berms;
(vi) The erosion prevention measures must be implemented to the satisfaction of the RE;
(vii) Where erosion does occur on any completed work/working areas, the Contractor shall reinstate such areas and areas damaged by the erosion at his own cost and to the satisfaction of the RE and ESO;
(viii) The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.

Equipment Maintenance and Storage

(i) All vehicles and equipment shall be kept in good working order, are serviced regularly and stored in an area approved by the RE;
(ii) Leaking equipment shall be repaired immediately or removed from the site;
(iii) All washing of equipment shall be undertaken in the workshop or maintenance areas which shall be equipped with suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate/nitrate-type detergents;
(iv) Rivers and streams shall not be used for washing of equipment and vehicles.

Sanitation

(i) The Contractor shall comply with all laws and any by-laws relating to public health and sanitation;
(ii) All temporary/ portable toilets or pit latrines shall be secured to the ground to the satisfaction of the RE to prevent them from toppling over;
(iii) The type and exact location of the toilets shall be approved by the RE prior to establishment. The use of septic tanks may only be used after appropriate investigations have been made and the option has been approved by the RE;

(iv) All toilets shall be maintained by the Contractor in a clean sanitary condition to the satisfaction of the RE;

(v) A wash basin with adequate clean water and soap shall be provided alongside each toilet. Staff shall be encouraged to wash their hands after use of the toilet, in order to minimise the spread of possible disease;

(vi) The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the site to an appropriate location/facility for disposal;

(vii) The Contractor shall instruct their staff and sub-contractors that they must use toilets provided and not the bush or watercourses.

Solid Waste Management

The site is to be kept clean, neat and tidy at all times. No burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted. The Contractor must adhere to Environmental Management and Co-ordination (Waste Management) Regulations 2006. The Contractor shall implement measures to minimise waste and develop a waste management plan to include the following:-

(i) All personnel shall be instructed to dispose of all waste in a proper manner;

(ii) At all places of work the contractor shall provide litter collection facilities;

(iii) The final disposal of the site waste shall be done at the location that shall be approved by the RE, after consultation with local administration and local leaders;

(iv) The provision of sufficient bins (preferably vermin and weatherproof) at the camp and work sites to store the solid waste produced on a daily basis;

(v) Wherever possible, materials used or generated by construction shall be recycled;

(vi) Provision for responsible management of any hazardous waste generated during the construction works.

Wastewater and Contaminated Water Management

(i) No grey water runoff or uncontrolled discharges from the site/working areas (including washdown areas) to adjacent watercourses and/or water bodies shall be permitted;

(ii) Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and concrete swills;

(iii) The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or water bodies;

(iv) Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;

(v) Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;

(vi) The Contractor shall notify the RE of any pollution incidents on site.

Workshops
Where practical, all maintenance of equipment and vehicles on Site shall be performed in the workshop.

(i) if it is necessary to do maintenance on site, but outside of the workshop area, the Contractor shall obtain the approval of the RE prior to commencing activities;

(ii) The Contractor shall ensure that there is no contamination of the soil, vegetation or surface water in his workshop and other plant or emergency maintenance facilities.

The workshop shall be kept tidy at all times and shall have the following as a minimum:

(i) A smooth impermeable floor either constructed of concrete or suitable plastic covered with sufficient gravel to protect the plastic from damage;

(ii) The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil);

(iii) Drip trays shall be used to collect the waste oil and lubricants during servicing and shall also be provided in construction areas for stationary plant (such as compressors);

(iv) The drip trays shall be inspected and emptied daily;

(v) Drip trays shall be closely monitored during wet weather to ensure that they do not overflow.

General Materials Handling, Use and Storage

(i) All materials shall be stored within the Contractor’s camp unless otherwise approved by the RE;

(ii) Stockpile areas shall be approved by the RE;

(iii) All imported fill, soil and/or sand materials shall be free of weeds, litter and contaminants. Sources of imported materials shall be listed and approved by the RE;

(iv) The Contractor shall ensure that delivery drivers are informed of all procedures and restrictions (including ‘No go’ areas) required;

(v) Any electrical or petrol driven pumps shall be equipped and positioned so as not to cause any danger of ignition of the stored product;

(vi) Collection containers (e.g. drip trays) shall be placed under all dispensing mechanisms for hydrocarbons or hazardous liquid substances to ensure contamination from any leaks is reduced;

(vii) Regular checks shall be conducted by the Contractor on the dispensing mechanisms for all above ground storage tanks to ensure faulty equipment is identified and replaced in timely manner;

(viii) Only empty and externally clean tanks may be stored on bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

Fuels, Oils, Hazardous Substances and other Liquid Pollutants

(i) Hazardous materials shall not be stored within 2 kilometres of the top water level of public water supply reservoirs;

(ii) Hazardous materials shall be stored above flood level and at least 20 metres from any watercourse;

(iii) Areas for the storage of fuel and other flammable materials shall comply with standard fire safety regulations;

(iv) Chemicals and fuel shall be stored in storage tanks within a secure compound. All chemicals and fuels shall be stored in accordance with manufacturer’s instructions;
(v) Storage areas or secondary containment shall be constructed of waterproof reinforced concrete or approved equivalent, which is not adversely affected by contact with chemicals captured within them;

(vi) The minimum volume for secondary containment shall be 110% of the capacity of the largest tank system, plus 10% of the total capacity of all other separate tanks and containers within the bund wall with closed valves for controlled draining during rains;

(vii) Pipe-work carrying product from the tank to facilities outside the containment shall be provided with secondary containment;

(viii) Tank equipment such as dispensing hoses, valves, meters, pumps, and gauges shall be located within the containment or provided with own containment;

Health, Safety and Security

General Health and Safety

(i) The Contractor shall comply with all standard and legally required health and safety regulations as promulgated by Occupational Health and Safety Act and the Factories and Other Places of Work Regulations;

(ii) The Contractor shall provide a standard first aid kit at the site office;

(iii) The Contractor shall ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases, particularly HIV/AIDS and how to prevent or minimise such risks;

(iv) The Contractor shall be responsible for the protection of the public and public property from any dangers associated with construction activities, and for the safe and easy passage of pedestrians and traffic in areas affected by the construction activities;

(v) All works which may pose a hazard to humans and domestic animals are to be protected, fenced, demarcated or cordoned off as instructed by the RE. If appropriate, symbolic warning signs must be erected;

(vi) Speed limits appropriate to the vehicles driven are to be observed at all times on access and haul roads. Operators and drivers are to ensure that they limit their potential to endanger humans and animals at all times by observing strict safety precautions;

(vii) No unauthorised firearms are permitted on site;

(viii) The Contractor shall provide the appropriate Personal Protective Equipment for staff.

Security

Security shall be provided to guard against vandalism when the site is unattended. This includes:

(i) Fencing of the tank compound with locks or other adequate security controls at the site;

(ii) Locks on unattended dispensing hoses;

(iii) Appropriate training for the handling and use of fuels and hazardous material is to be provided by the Contractor as necessary. This includes providing spill response and contingency plans;

(iv) Extreme care will be taken when transferring chemicals and fuels from storage vessels to equipment and machinery on an impervious sealed area which is kerbed and graded to prevent run-off. Chemical and fuel transfer areas shall drain away from the perimeter bund to a containment pit. The design shall provide for the safe and efficient movement of vehicles;
(v) All chemicals stored within the bunded areas shall be clearly labelled detailing the nature and quantity of chemicals within individual containers;
(vi) Any chemical or fuel spills shall be cleaned up immediately. The spilt liquid and clean-up material shall be removed, treated and transported to an appropriate site licensed for its disposal;
(vii) Storm water shall be diverted away from the fuel handling and storage areas. An oil water interceptor shall be provided to treat any rainwater from fuel storage and handling areas.

**HIV/AIDS**

The implementing agency for HIV/AIDS campaign shall monitor activities regularly to assess effectiveness and impact. This should include an initial, interim and final assessment of basic knowledge, attitude and practices taking account of existing data sources and recognising the limitations due to the short timeframe to show behaviour change. The assessment will be supported by qualitative information from focus group discussions.

**Fire Prevention and Control**

(i) The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of his activities on site;
(ii) The Contractor shall ensure that there is basic fire-fighting equipment available on site;
(iii) The Contractor shall supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other areas identified by the RE with tested and approved fire fighting equipment;
(iv) Flammable materials should be stored under conditions that will limit the potential for ignition and the spread of fires;
(v) ‘Hot’ work activities shall be restricted to a site approved by the RE;

Smoking shall not be permitted in those areas where there is a fire hazard. These areas shall include:

(i) Workshop;
(ii) Fuel storage areas;
(iii) Any areas (e.g. park/forest areas) where vegetation or other material is such as to make liable the rapid spread of an initial flame;

The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to:

(i) Regular fire prevention talks and drills;
(ii) Posting of regular reminders to staff;
(iii) Any fires that occur shall be reported to the RE immediately and then to the relevant authorities;
(iv) In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring the fire under control;
(v) Costs incurred through fire damage will be the responsibility of the Contractor, should the Contractor’s staff be proven responsible for such a fire.

**Emergency Procedures**
The Contractor shall submit Method Statements covering the procedures for the main activities which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to:

(i) Accidents at the work place;
(ii) Accidental fires;
(iii) Accidental leaks and spillages;
(iv) Vehicle and plant accidents;

Specific to accidental leaks and spillages:

(i) The Contractor shall ensure that his employees are aware of the procedure for dealing with spills and leaks;
(ii) The Contractor shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is available on site at all times;
ANNEX 7: NEMA LICENCING DOCUMENTATION
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

THE ENVIRONMENTAL MANAGEMENT AND COORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT / AUDIT (EIA / EA) PRACTICING LICENSE

CLEANER DEVELOPMENT MECHANISM CONSULTANTS

M/5 LIMITED

Address: P.O BOX 492-00200

NAIROBI

is licensed to practice in the capacity of a (Lead Expert / Associate Expert / Firm of Experts)

FIRM

in accordance with the provisions of the Environmental Management and Coordination Act, 1999

Dated this 28TH Day of JANUARY 13

Signature

(Seal)

Director General

The National Environment Management Authority

CONDITIONS OF LICENSE

1. This license expires on 31st December of the year it is issued.
2. The expert shall comply with the code of practice and professional Ethics for EIA/EA experts.
3. The expert shall comply with the attached conditions.
ANNEX 8: PUBLIC CONSULTATION: LISTS OF PARTICIPANTS
ANNEX 9: KISIP CONSULTANCY SERVICES TERMS OF REFERENCE