REPUBLIC OF KENYA

MINISTRY OF TRANSPORT, INFRASTRUCTURE HOUSING AND URBAN DEVELOPMENT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) PROJECT REPORT

FOR

PROPOSED CONSTRUCTION OF MWARIRO MARKET

Project Ref No. EHS-5240-522708-03

Date: 16th September 2017

CERTIFICATION

SGS Kenya Limited was commissioned by the Ministry of Transport, Infrastructure, Housing and Urban Development to undertake Environmental and Social Impact Assessment for the proposed development of Mwariro Market, Nairobi City County. The Report has been in accordance with the Environmental Management and Coordination Act no. 8 of 1999 and The Environmental (Impact Assessment and Audit) Regulations, 2003 for submission to the National Environmental Management Authority (NEMA).

SGS Kenya Limited submits this Environmental and Social Impact Assessment Report, to NEMA Kenya. To the best of our knowledge, all the information in this report is true and correct.

Proponent: Ministry of Transport, Infrastructure, Housing and Urban Development

Eng John Ndirangu Maina **Project Coordinator**

Name of Officer Designation

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Signature / Date / Official Stamp

Submitted by:

Firm of Experts: SGS Kenya Limited ***Reg. No*. 0280**

……
Official Stamp

Approved by:

…….. ……..
Signature Date

Mr. Philip Abuor:

Environmental Services Manager

EIA/EA Lead Expert

Reg. No.1710

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ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
CBD	Central Business District
CBD	Central Business District
CBOs	Community Based Organisation
CBS 2003a	Central Bureau Statistics (Agricultural Census 2003)
CDs	Compact Disk
CCTV	Closed-Circuit Television
DEC	District Environment Committee
DVR	Digital Video Recorder
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMCA	Environmental management and Coordination Act
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental/Social Management and Monitoring Plan
GIS	Geographic Information System
GoK	Government of Kenya
HIV/AIDS	Human Immuno-Virus/ Acquired Immune-Deficiency Syndrome
ICT	Information Communication Technology
IFC	International Finance Corporation
ILUT	Interdisciplinary Land-Use and Transportation Metropolitan Analysis within the Nairobi Metropolitan Region Study
MDGs	Millennium Development Goals
MoT	Ministry of Transport
MoTIHUD	Ministry of Transport, Infrastructure, Housing and Urban Development
MP	Measurement point
MRTS	Mass Rapid Transit System/ Mass Rapid Transit Study
MSP	Measurement Sampling Point
NaMSIP	Nairobi Metropolitan Services Improvement Project
NCC	Nairobi City County
NEMA	National environment and Management Authority
NIUPLAN	Nairobi Integrated Urban Development Master Plan for the City of Nairobi
NMR	Nairobi Metropolitan region
OHS	Occupational Health and Safety
OP	Operative procedures
PAPs	Project Affected Persons

Acronym	Meaning
SDGs	Sustainable Development Goals
SPC	Spatial Planning Concept Development Plan
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
TOD	Transit Oriented Development
ToR	Terms of Reference
WB	World Bank
WHO	World Health Organisation
WRMA	Water Resource Management Authority

EXECUTIVE SUMMARY

Project Description

The Ministry of Transport, Infrastructure, Housing and Urban Development (MoTIHUD) through the Nairobi Metropolitan Services Improvement Project (NaMSIP) intends to upgrade 15 markets within the Nairobi Metropolitan Region. This initiative is financed by the World Bank with the objectives of providing an enabling physical space for organized markets; creating market linkages for products; fostering access to services so as to promote efficiency and quality of products, and promoting reliable linkages with financial institutions. The goal is to enhance livelihoods especially for the urban poor who are operating as vendors in these select markets.

Nairobi Metropolitan Services Improvement Project (NAMSIP) is an initiative that is in line with Nairobi Metro 2030 that was published by Ministry of Nairobi Metropolitan Development. The report proposed the upgrade of the existing markets and establishment of new markets within Nairobi Metropolitan region. Several Markets were selected by Local Authority Development Action Plan team for upgrade or establishment. In this regard, Mwariro Market was one of the primary markets to be selected for development. The market is located on the eastern side of the intersection of Ring road and Ring Road - Ngara roads, which are major roads in Nairobi CBD.

The market borders key residential areas such as Kariokor and Pangani to the east; and Ngara to the northern side. The development will utilize existing modern technology in the construction industry that is eco-friendly. These new projects are being funded by World Bank through the ministry of Lands, Housing and Urban Development and Nairobi Metropolitan Development.

Project components

The market will consist of a three story building with the area coverage of 1,866.6 m^2 for the ground floor, 1661.4 m^2 for the first and second floor, 673.1 m^2 for the attic floor and 437.4m^2 for the garage. The detailed description of the proposed market is provided in Chapter One of this report. However, in summary, the market will consist of the following:

- **Stalls** -two levels of stalls**;** bigger stalls designed for products demanding larger space such as clothes which measure 3m by 3m and smaller stalls that will measure 3m by 1.5m;
- **Infrastructure -** a car park, access roads and internal passes and drainages.
- **Water Supply and Reticulation -** Water supply will be mainly from Nairobi Water and Sewerage Company and can be supplemented by a water tower. Check meters will be in place to monitor the water usage.
- **Sanitary Facilities -t**oilet spacing will be 2.3m2 per 1000 market users.
- **Fire Fighting -** fire exits and hydrants.
- **Garbage disposal -**. Garbage collection cubicles for both recyclable and non-recyclable materials.
- **Ventilation -** The standard air changes will be used to determine extract fan and duct sizes. Natural ventilation will be the predominant way of ventilating the market.

- **Power -** A switch room with a meter board will be required for power distribution to the different stalls. There will be check meters for every stall for management purposes. Provisions for future expansion of the stalls operation will also be taken into consideration. Cabling to and from the switch room will be done by use of cable trays for efficient and neat cable management.
- **Lighting - external lighting** for security reasons, movement of security guards and to explore the possibilities of 24-hour market operation and **Internal lighting in** the stalls.
- **Telecommunication systems -**. ICT infrastructure to support the service provider.
- **Security -** CCTV cameras located at strategic locations and the DVR and CCTV monitors located in security room.

ESIA Study and Objective

The main objective of the Study was to identify environmental and social impacts associated with the proposed construction of the proposed market and to recommend an appropriate environmental management strategy for the project. The core outcome of the Study is an Environmental and Social Management and Monitoring Plan (ESMMP), which will be used to enhance and mitigate any positive and negative impacts respectively for the project.

Specific tasks included;

- Evaluation of the existing situation at the proposed project sites;
- Appreciation of the project concepts through the study of design documents, construction and intervention layout, feasibility of the project and other documents;
- Identification of potential impacts associated with the proposed projects;
- Identification of suitable mitigation and preventive measures appropriate for the impacts and;
- Development of a comprehensive environment and social management plan for integration into the project implementation.

ESIA Justification

In accordance with the EMCA, (Amendment) 2015, all new projects must undergo environmental impact assessment study so as to comply with the EIA Regulation, 2003. The proposed project is expected to have an overall positive impact to the people and the environment. However, project construction phases and other associated civil works are anticipated to have environmental and social impacts that would require mitigation.

Construction related project including markets are listed in the second schedule of EMCA, (Amendment) 2015 as among project that should undergo EIA. The magnitude of the projects further justifies the EIA study to provide an Environmental Management Plan (EMP) for integration into implementation process. In addition, the National Policy on building and construction as well as the building Act calls for Environmental Impact Assessment on construction related projects for long-term sustainability and acceptability by the beneficiaries.

Approach and Methodology

The ultimate goal of this approach was to identify positive and negative impacts resulting from the construction of the proposed project. . The systematic investigative and reporting methodology specified in the conduct of Project Report Studies (Legal Notice 101 of EMCA) was adopted in this Study. Baseline data on project design was generated through discussion with the client and review of project documentation. Opinions formed were revalidated through field work entailing site investigations and interviews with key primary stakeholders (e.g. traders, shoppers, market management) and secondary stakeholders (e.g. area residents, other traders),.

To identify, predict, analyze and evaluate potential impacts that may emanate from the project, diverse study methods and tools including use of scoping the area, questionnaires, stakeholder consultations, focus group discussions, and observations were employed. An Environmental and Social Management and Monitoring Plan comprising of an impact mitigation plan and modalities for monitoring and evaluation were then developed to guide environmental management during all phases of project development.

Policy, Legal, and Regulatory Framework

This Project Report has been developed to ensure that the proposed construction of the bus park is in conformity with national policy aspirations towards securing sustainable development. Specifically, this report has been developed to ensure compliance with requirements of the Environmental Management and Coordination Act (EMCA) 2015- Kenya's supreme environmental law and the National Constitution. Section 58 of EMCA requires that all proposed development in Kenya to be subjected to environmental impact assessment and to be conducted in line with the Second Schedule (of EMCA) and the Legal Notice 101 (Regulations for Environmental Assessment and Audit) of June 2003.

Potential Environmental Impacts and Mitigation Measures

Positive Impacts

The project is anticipated to have positive socio-economic impact on the traders and local residents. The provision of a modern market will ensure that traders operate in a more convenient place. It is also anticipated that the project will result in growth in revenue of Nairobi's Economy, Job creation and labour remuneration accruing to local residents. Inherent with the proposed project will be the following negative impacts:

Negative Impacts

Air Quality

The project is anticipated to impact on ambient air quality through generation of dust and combustion gases (SO_2, NOx, CO, and particulates). Dust will be generated from construction activities especially removal existing temporary market stalls/structures, grading and excavation; and increased traffic on unpaved roads. Fugitive dust will be greater during drier period in areas of fine textured soils.

The combustion emissions will be generated by diesel powered construction equipment: excavator, wheel loader, trucks, motor grader and compactor.

Considering the Project dust controls (watering; stabilizing disturbed areas) and the fact that the fugitive dust and combustion emissions will be short-term and localized, air quality

impacts from the construction activities are expected to be of low significance at the site and negligible at the closest settlements, respectively.

Soil erosion Impacts

The project is anticipated to cause soil erosion during construction and decommissioning phases. Construction phase and demolition phase activities especially excavation and demolition of structures, respectively are likely to cause soil erosion at the construction site and surrounding areas. However, the impacts are expected to be short term and of low significance.

Loss of vegetation

The development of the proposed Market is expected to impact on both flora and fauna currently inhabiting the site. The flora to be affected include: reeds of different species, water lilies and liver warts (in a swampy area), shrubs and bushes, grasses and a few trees such as acacia while fauna include: butterflies, birds of different species and crawling animals such as lizards. Both flora and fauna at the site are not on IUCN Red list of threatened species.

There will be no effect on the terrestrial ecology both during operation and decommissioning phases. During the operation phase, the site would be covered by the proposed development while for decommissioning phase; the site would be restored and rehabilitated to the natural contours.

Impact on Water Resources

During construction phase, potential water contamination could arise from disturbance of soil, spillage of fuels, lubricants and other toxic materials at the construction site, discharge of silt laden run off from sites, and disposal of waste and wastewater from sanitary convenient provided to construction workers.

During operation phase, solid waste generated from the Market if not managed appropriately can be washed away by storm water.

During the decommissioning phase, the potential negative impacts to water resources are likely to be very similar to those considered during the construction phase of the Project, and the appropriate mitigation measures should be employed to reduce impact on receptors.

The potential risk of water pollution from proposed project can be reduced by: adopting protective measures to prevent spills; putting in place suitable spill response plans; managing wastes appropriately; and controlling soil erosion. With these good practices the risk of water pollution from the project should be low.

Noise and Vibration

The ambient noise quality of the project site is characteristic of an urban setting. During construction phase, noise sources will include, including ground clearance, piling, concreting and equipment installation.

During operation phase, the primary noise sources at the site will include vehicles delivering the supplies to the market; customer's vehicles, and market activities including playing of loud music or use of sound amplifiers to attract customers, a characteristic behaviour in most markets in Kenya. And during decommissioning phase, sources of noise will include; demolition works and vehicles carting away materials.

Landscape and Visual Impacts

During the construction phase, sources of landscape and visual effects include:-

- Site access and haulage routes.
- Materials stockpiles and construction compounds.
- Construction equipment and plant.
- Utilities, including lighting.
- installation of site compound and security posts

Taking into consideration the character of the neighborhood, the inherent low sensitivity of the receiving landscape, absence of any landscape and visual designations it is considered that the construction impacts are most likely to be of ***low medium negative*** significance with regard to visual impacts in the absence of mitigation measures.

The proposed market is not anticipated to alter the existing visual landscape of the area once it is developed. Instead, it will blend in with the surroundings with buildings of similar or taller buildings.

Decommissioning will reduce the visual intrusion of the market infrastructure because much of the infrastructure will be demolished. However, there will be short term landscape and visual impacts from activities on the site including: Stockpiling of wastes/rubbles generated from demolition activities; and dust generated from demolition activities

Socio-economic impacts take into consideration the relationship between economic activities and social life. This relationship is interlinked by the dependence of social activities on economic activities and the vice versa. In most instances the focus is on the social impacts due to economic changes. With regards to the proposed market, there is however generally greater emphasis on economic issues, particularly relating to provision of enough space so that traders can do their business conveniently.

Traders' dissatisfaction due to perceived inequities in allocation of market stalls

The development of the market as well as allocation of space for doing business has been discussed with the traders through public consultation. Against the background of this knowledge and expectation, there is a risk of dissatisfaction if procedures of allocation of stalls or space are not adequately applied, or if they are seen to be applied in an inequitable manner. There is therefore need to adhere to the market policy in allocation of stalls or space to traders; and implement grievance resolution mechanism which is part of the RAP for the market prepared separately from this report.

Inconvenience and danger to proximate residents through increased road traffic and dust, and reduced access to worksites

The project is not anticipated to impact on traffic on the nearby roads (Ring Kikuyu road, traffic around the site will increase considerably. However, construction and decommissioning phase (demolition) activities on site and road traffic will produce dust and noise, and will pose hazards to road users. The impacts will be of short duration (the construction and decommissioning periods) and are low significance.

During operation phase, the market can generate light traffic from vehicles of suppliers delivering products to the markets as well as of customers visiting the market. When distributed over the wider road network, the impacts will be low. However, as with construction, the relative increase in traffic around the site will be slightly significant, with associated implications for access and safety.

Increased demand of construction materials, energy and water

Increased demand of construction materials, energy and water is bound to happen during construction activities. An elaborate waste material reduction is important to save on high demand for construction materials from the environment. Water storage and conservation measures should be adhered to save on water volume used.

During operation phase, water will be required for cleaning, welfare and hygiene. Demand for energy and water is not anticipated during decommissioning phase as energy and water supply infrastructure will also be removed from the site.

Public Consultation, Participation and Disclosure

Apart from the gathering of quantitative data through a socio-economic survey of the area of influence of the project and a preliminary survey of project affected people, consultation sessions (qualitative) were held with the affected persons and other local community interests to share the information about the project and record their concerns/ feedback associated with this project. The consultation was in two stages namely scoping and stakeholder's consultation. Consultative sessions discussed the topics related to land acquisition and resettlement issues, employment and livelihoods of communities, gender and women issues, contractor's camp and access to existing routes and environmental issues.

The section on stakeholder consultations provides details of outcomes of consultations and covers issues and concerns showed by the stakeholders regarding land acquisition and resettlement. To address the issues and concerns raised by the stakeholders, mitigation measures have been developed and incorporated into the ESIA. Overall, the stakeholders generally supported the project and anticipated numerous benefits as a result of the project.

Environmental and Social Management Plan

Social safeguards and environmental protection are very important in any development. A detailed Environmental and Social Management Plan (ESMP) has been proposed for use during the implementation of the project. The ESMP details the important steps available to mitigate the impact that arise during all phases of the project. The proponent and the contractor are the responsible parties in the implantation and monitoring of the ESMP

Project and ESMP Costs

The proposed project construction period will be 9 months and defect liability of 3 months respectively. The costs of construction of the market and implementation of ESMP are estimated at Kenya Shillings 353,690,095 and 9,500,000.00 respectively.

Conclusion

The objective of the proposed project is to develop a market with modern facilities and atmosphere to increase trade and bring economic benefits to the project beneficiaries and the country as well. The environmental and social assessment of the Project ascertains that the Project is likely to cause some few but not significant adverse environmental and social impacts. However, the adverse impacts identified can be readily addressed by some embedded control measures in the engineering design of the Project as well as additional mitigation measures as suggested in the Environmental and Social Management Plan. The Project received favourable support from local people and other stakeholders during consultations and they anticipated numerous benefits as a result of the project.

Mwariro market is currently out of operation and hence its development will not cause any physical displacement of people living in the area. The Project is not located near any protected areas. No archaeological or protected monuments are located in the Project vicinity.

The Project will have both positive and negative impact on the physical and social environment. The positive impacts include: construction of modern facilities that will provide shelter to shield against adverse weather conditions to the traders, creation of direct and indirect employment during construction and operations, and increase of revenue collection by the Nairobi City County.

During the construction phase of the Project, the key potential environmental impacts includes; noise and dust generation, disruption of public utilities, loss of vegetation, and contamination of water. There is also a risk of soil erosion as result of removal of soil cover, excavation and movement of heavy construction vehicles and equipment. Contamination of soil, groundwater could occur also result from accidental spills and leaks of hazardous materials (e.g. oil) during handling, transportation, and storage at the site.
The adverse impacts identified are generally manageable through good housekeeping and a diligent implementation of the ESMP by the Contractor and its supervision by the Proponent. The nearest air quality and noise sensitive receptors will be a focus for monitoring of any impact arising due to the construction activities.

Other possible negative impacts include conflicts and social concerns such as: trader's dissatisfaction due to perceived inequities in allocation of market stalls; Inconvenience and danger to proximate residents through increased road traffic and dust, increased demand for energy and water resources in the area, potential occupational health and safety of the workers, and increase in HIV and AIDS prevalence. However, these impacts can be mitigated with appropriate mitigation measures built in as part of the Project planning process.

It was established that the Project activities will trigger World Bank Operation Policy (OP 4.01) on Environmental Assessment due to environmental and social impacts arising from the Project as presented in this report and OP 4.12 due to relocation of a few PAPs occupying the land temporarily. However, none of the other Operational policies will be triggered by the project.
Based on the analysis conducted in this ESIA, it is concluded that overall the Project will result in positive socio-economic benefits and the negative environmental impacts that have been identified are not significant, and can be minimized adequately through good design, appropriate application of mitigation measures and continuous supervision by the project proponent.

Recommendation

Environmental monitoring is essential to track and sustain the effectiveness of the mitigation measures proposed in this report. An environmental monitoring plan has been prepared as part of the ESMP. The focus areas of monitoring cover air, noise, traffic management, Water

and energy resources, occupational health and safety, as well as local employment and economic impact of the project during construction and operations. The burden of mitigation measures largely lies with the Project Contractor under supervision by the Proponent. Key observations are that most adverse impacts are short-term and will disappear once civil works ends. The Contract for the proposed project should bear relevant clauses binding the contractor to institute environmental mitigation as recommended in this study. The core monitoring strategy for this project will be through site meetings, in which case, it is recommended that the County Environmental Officers be invited to such meetings. Other stakeholders such as the County Labour Officer should also attend such meetings to ascertain that measures towards securing the health and safety of workers have been put in place.

It is the duty of the Proponent to carry out annual environmental audits once it has been commissioned. This will be in compliance with the Environmental Management and Coordination Act, EMCA of 1999 and the Environmental Impact Assessment and Audit Regulations, Legal Notice No. 101 of 2003.

The following are recommended for effective implementation of the mitigation measures for the project;

- All mitigation measures need to be specified in tender and contract documents, and must be included in the Engineering Drawings, Specifications and Bills of Quantities.
- Diligence on the part of the contractor and proper supervision by the Project Engineer during construction and the initial operation phase is crucial for mitigating impacts.
- Periodic environmental and social monitoring is required by the project proponent to ensure that mitigation measures have been implemented in order to prevent or avert any negative impacts of the project.
- The implementing agency should set up proper and applicable Grievance Redress Mechanism (GRM) for the project to deal with grievances and issues on the project.
- Reporting of the implementation of safeguards should be incorporated in the monthly reporting of the project

CHAPTER ONE

1 INTRODUCTION

Nairobi Metropolitan Services Improvement Project (NaMSIP) is a World Bank Funded Project under the State Department of Nairobi Metropolitan Region in the Ministry of Transport, Infrastructure, Housing and Urban Development. NaMSIP's mandate is to strengthen service delivery in the Nairobi Metropolitan Region (NMR) on various selected projects by investing in local infrastructure (markets, roads, street lighting, bicycle and pedestrian pathways, drainage, among others) and in providing large-scale metropolitan infrastructure in the areas of trade, solid waste management, transport, sewerage services, among others.

The objective of Nairobi metropolitan region department is to improve service delivery for the residences living within and outside the metropolitan. This general improvement of urban services and infrastructure is important for future development of the whole republic. Mwariro Market is one of the fifteen markets listed in table 1-1 below proposed to be developed in the overall infrastructure development under the NaMSIP.

Under Kenya Vision 2030 one of the key objectives is to bring overall development and poverty eradication by building regional trade and business service hubs. These hubs include the establishment of metropolitan markets and stalls for trade in the region. The residence of the metropolitan and farmers around the republic will feel the benefit of these new markets. The market hub will encourage commercial farming and entrepreneurial culture in Kenya.

Table 1-1: Proposed Markets and Location

Market	Location	Location (County)
Jogoo Road	Nairobi city along Jogoo road	Nairobi
Karandini	Nairobi city near Dagoretti Corner on the western side of the intersection of Ngong Road and Naivasha Road	
Mwariro	Nairobi near Kariakor	
Muthurwa	Nairobi city off Haile Selassie avenue	
Thika (Madaraka)	Thika, Makongeni area along Garissa Road	Kiambu
Juja	Juja Town near Jomo Kenyatta University of Science and technology	
Ruiru	along Kamiti road in Ruiru Market	
Githurai	Githurai – Gachie –Karura	

Market	Location	Location (County)
	Road near Gachie Bus stop In Githurai	
Kiambu	Kiambu town along Biashara Road	
Kihara	In Kihara town, along Kihara – Karura Road	
Kikuyu	Kikuyu town, near Kikuyu-Nairobi bus park	
Kitengela	Off Nairobi Namanga Road in Kitengela town behind the Kobil petrol station	Kajiado
Ngong	Ngong Town near Ngong bus terminus	
Ongata Rongai (Ole Kasasi)	Ole Kasasi, Rongai area off Maasai lodge Road off the main Magadi Road	
Tala	Tala Town	Machakos

1.1 Proposed Project Location

Mwariro market is located in the central zone of Nairobi City County (NCC), in Ziwani ward, 500 meters Southwest of Kariokor Market on GPS location (-1.280503, 36.832967) see plate 3-1 in this report. The market is bordering Ring Road Ngara to the North, Quarry Road to the East, Kombo Munyiri Road to the South and Ring Road to the West. The market is located on the roundabout intersection of Racecourse Road and Ring Road which serve as key roads in and out of the CBD in the area. The market also borders several businesses on the Northern section. Towards the Eastern side there are Kariokor, Pangani and Eastleigh residential areas, and to the northern side, there is Ngara, Parklands and High Ridge residents among others. Currently the Market is not in operation since its closure in 2007. Since then, no activity has been undertaken at the site and wild vegetation has grown within it.

The market was designated to be a tourist market by the then Nairobi City Council under Private Public Partnership (PPP) but by then, Kenya lacked a working PPP framework and the project would not therefore take off.

Figure 1-1: Mwariro Market

Source: Google Earth 2016

1.2 Rationale for Improvement of the Market

The following are major drivers for improvement of the market:

- Changing organizational structure of commerce – e.g. Increasing volumes of produce handled; alterations to commercial practices and trading patterns, such as the private sector taking over markets;
- Demographic factors – e.g. Overall increase in population of the city and population shifts within cities;
- Changing transportation patterns – e.g. Increased traffic growth and resulting congestion; shifts in transport mode (i.e. the proportion of different types of vehicles); changes in the capacity and size of delivery and distribution trucks;
- To make use of the current asset more effectively, eg collection of rental charges from traders;
- To provide traders and consumers with a modern market with more facilities and amenities;
- To comply with statutory requirements (such as public health, safety and environmental standards).

1.3 Improvement Objectives

- To improve the economic benefit of the site to Nairobi County and local traders;
- To improve operations and maintenance of the site;
- To increase water and sanitation availability;
- To enhance safety and security within and around Mwariro Market.

1.4 Current Market Status

The market site is fenced off with two access points. Three quarters of the land was excavated for commercial gravel by the lessee for use in construction of the roads surrounding site. The site has stagnant water and marshland. Existing infrastructure on site includes a supply of clean water from Nairobi Water and Sewerage Company and a sewer line that cuts through in the middle of the property.

1.5 Market Location

Four tarmacked roads, residential and commercial buildings, enclose the land. The site is accessible via Ring Road and Ring Road Ngara from the Nairobi CBD, and via quarry road and Kombo Munyiri road from the nearby estates. The site is currently empty but is occupied by some squatters, and therefore there will be some minimal resettlements and/ or livelihood restoration requiring relocation of the PAPs to pave way for the project. A separate RAP report has been done for the project with detailed information on the resettlement process.

1.6 Project Components

Since the site is not built, a new and modern market has been proposed for the site. It is estimated that the new structure will house approximately 559 traders in total according to the feasibility study carries out for Nairobi Markets. Service bays and improved pedestrian and vehicular entry and exit points shall be constructed. The figure below shows the outlook of the proposed market design is as shown in the photo below (Figure 1-1). The detailed design and drawing is appended to this report.

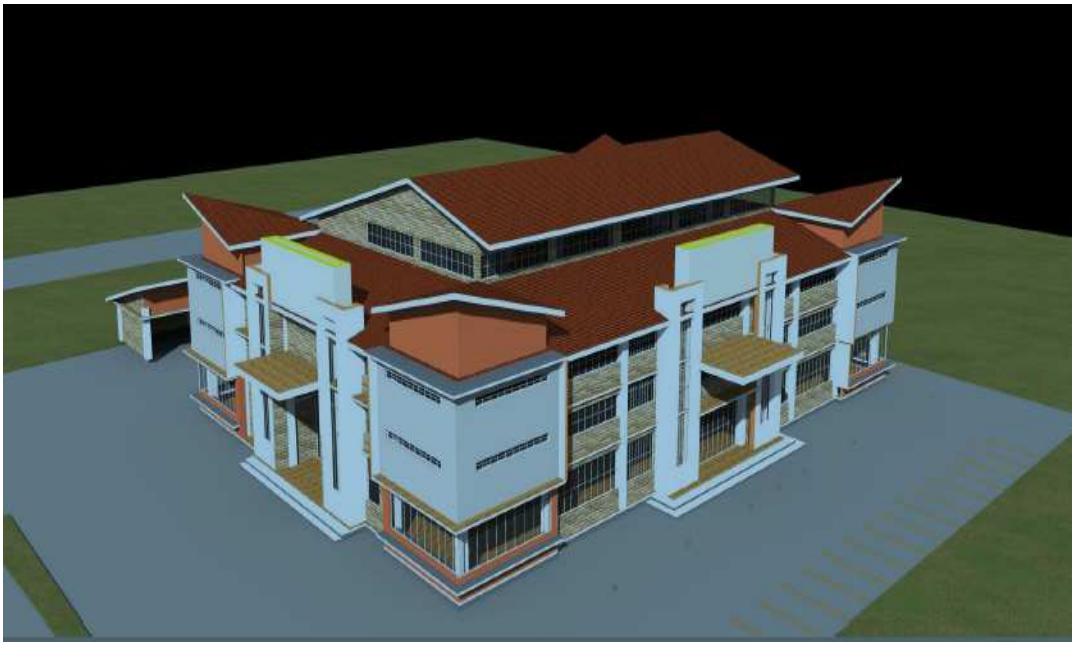


Figure 1-2: Aerial View of the proposed Mwariro Market

Source: Feasibility Study report for cluster 1 projects

An example of a typical arrangement accommodating all of the expected traders is as shown in the table 1-2 below: -

Table 1-2: Proposed arrangement of market segments

Level	Activity
Ground floor	
	Mechanics, garages and spares, car wash green grocers, food kiosks, hardware motor vehicle spares shop, charcoal, live chicken, butchery, carpentry, used paints and empty containers
First floor	
	Sellers of second hand clothes, shoes, bags, mosquito nets
Second floor	
	Selling movie and music CDs, Money exchange (MPESA) agents, Electronics, Salons, Barber shops

1.7 Water supply and reticulation

Mwariro market is served by a NCC water line. The water supply can be used to meet the water requirements in the whole market. An underground and overhead water storage tanks have been proposed for the market. . A water pump will be used to pump water into the overhead tank and a gravity fed system employed to distribute water to the required areas within the market.

1.8 Sanitary facilities

Use of Asian type toilets combined with a flush valve system in the washrooms would be the best vandal proof and hygienic system for use at the market. With a proper facilities maintenance system, the washrooms will serve the users efficiently. Use of push taps for the wash basins will be an efficient way of reducing water usage in the washrooms unlike the knob type where the taps can be left running for long periods of time. Use of a high level cistern for the urinals with distributed flush mechanisms will suffice in cleaning the urinals. The toilets and urinals will be at a maximum distance of 50M-100M from users.

1.9 Drainage

An ideal site when considering drainage is one that is sloping gently away from the road because the site can be drained naturally. If the site is flat or complicated, the drainage will be laid out before any other structures are made.

For foul drainage**,** the site currently has the Nairobi City County (NCC) sewer line serving the surrounding area passing through it. The proposed market facilities can therefore drain into this existing sewer line. For storm water drainage, there is need for proper rain water drainage reticulation in the market site.

1.10 Fire fighting

Fire fighting and detection systems will be installed in the proposed market based on the architectural design and fire risk assessment. Fire hose reels and fire extinguishers

will be located in prime locations to ensure that quick response and corrective action when there is a fire outbreak. The equipment will be encased in cabinets with break glass to discourage theft. Smoke detectors in the stalls and heat detectors in the food cooking /serving areas will also be installed to ensure fires are detected early before spreading.

1.11 Garbage Disposal

A garbage collection point and procedure has been provided for the market. Garbage collection bins will be located in various parts of the market for collection of different waste streams including recyclable and non–recyclable materials. The market maintenance team will be responsible for collecting the waste in the waste bins for disposal into the main market waste receptacle. Dustbins and garbage will be within 25M-50M from the furthest user. The County Government waste department for disposal at the dumpsites will collect the non-recyclable wastes and recyclable wastes will be sold off to waste recyclers.

1.12 Ventilation

The market will mainly utilize natural ventilation from the doors and windows. The market design will incorporate restaurants which necessitate ventilation of the kitchens. The air changes required per hour for the kitchens will be used to determine extract fan and duct sizes. UPVC pipe ducts can be used in place of aluminium ducts to cut costs. This forced ventilation will provide a much more habitable work environment.

1.13 Power

A switch room with a meter board will be required for power distribution to the different stalls. Power requirement to the stalls will be calculated based on area and designated use. This will allow us to confirm whether the existing transformer will be sufficient to cater for the improved market. Power points will be installed in the market stalls to enable traders to connect their equipment and devices. There will be check meters for every stall for management purposes. Provisions for expansion will also be taken into consideration. Cabling to and from the switch room will be done by use of cable trays for efficient and neat cable management.

1.14 Lighting

External lighting:

For security reasons, movement of security guards and to explore the possibilities of 24 hour market operations, wall mounted lights and flood lights will be used to effectively light up the market.

Internal lighting:

The lighting levels in the stalls will be of a high standard of luminance. LED lights will be used to provide sufficient lighting. LED lights have a longer lifespan and reduce electricity bill as compared to other lighting methods. The number of light fittings will be dependent on the Architectural design.

1.15 Telecommunication systems

Access to internet is essential to have a modern market. ICT infrastructure will be provided for in the market to support the service provider. This will enhance communication between the buyers and sellers where orders can be placed online and to increase the trader‘s coverage.

1.16 Security

CCTV cameras located at strategic locations will be installed to help curb insecurity in the market area. With the inclusion of ICT infrastructure, the security system can be linked to an emergency backup service provider to ensure quick response.

The DVR and CCTV monitors will be located in the security room. Security lamps will be placed at 15M – 25M intervals.

1.17 Building Structures

Stalls: They will be simple to cut on construction costs. Need good ventilation; be clean, well-lit and sheltered from direct sunlight. They will be at least 2.4x3.0M.
Stores: will be lockable with the front wall either half or whole capable of opening up. Burglar proof vents are made at least 2.1 M high on all sides. They may be constructed back to back with stalls.
Shops: they may be used for functions like tailoring, flower vending, groceries etc. a combination of two or three stalls can constitute a shop.
Meat stalls: All the openings to these stalls will be made insect proof and fly-trapped. The walls will be of concrete to prevent wear due to frequent scrubbing. Water, cold storage, good ventilation, security, showers and staff changing room will be provided.
Offices: these may include ticketing offices and administrative offices. The latter ought to be at a vantage point for ease of supervision of market activities.
Fences and perimeter walls: these shall aid revenue collection at the gate besides being security measures. A good fence will allow cross ventilation.

1.18 Roads and Walkways

Road widths will be as follows:

- Single lane road width 3.5 M;
- One-way road width 7M
- Two-way road width 12M

Parking areas will be 4.8M by 2.4M per car providing 2-5 spaces to the shoppers per $100M^2$ of sales area, the parking being not further than 100M from the market. Parking for pickups and trucks is 8M by 3.68M and 11M by 3.68 M respectively.
Width of sidewalks will not be more than 2.5 M and where roadside stalls are to be accommodated; will not be less than 5.2 M. Pedestrian walkways will be well drained, paved and shaded where possible. They will be at about 2.4M wide to allow for free walking as well as easy viewing of goods on sale.

1.19 Environmental Considerations

1.19.1 Water storage

In planning the construction, there will be adequate water storage in form of both underground and raised tanks. The size of these tanks will adequately provide the number of traders expected to be hosted by the market. This storage will come in two folds, both as storage for water to be used during fire emergencies within the market and water to be used during water shortages.

1.19.2 Common washing trough/point

A common washing point will be provided within the market with modern water conserving taps installed. This point will be away from the stalls and out in an open place within the market compound. This will ensure no water gets in the stalls which instead can lead to dampening the stalls and causing foul smell in the market.

Every trader will use this point to do any kind of washing, e.g. washing of fresh produce from the farm. The washing point will be cleaned regularly by a County worker or traders in a merry go round cleaning process.

1.19.3 Toilets

Modern toilets, which would adequately serve the expected number of traders in the market, will be constructed. The toilets will be connected to the existing sewer lines for a quality and perfect management of sewer. Sinks will be installed in the toilets and connected to tap water from the storage tanks. This will ensure high level of cleanliness and reduce chances of communicable diseases such as amoeba and cholera.

Toilets will also be located at a safe distance from the stalls and furthest from section where food products are sold. This reduces chances of flies moving to and fro both the food products and toilets, hence minimizing chances of diseases breaking out.

1.20 Solid Waste Management

1.20.1 Proposed effective ways of managing solid waste in Mwariro Market

Solid waste management will be a shared responsibility among all the stakeholders who are the County government, generators, shoppers, contracted and licensed waste handlers, owners and occupiers of premises.

1.20.2 Solid waste categorization and segregation

Solid waste that will be generated in the market will be divided into various categories depending on their physical or chemical characteristics and necessary manner of handling of such waste. This will provide measures to ensure the health and safety of all users, including waste handlers and the wellbeing of the environment. This will also be enhanced by division of thee stalls according to product and goods sold. Categories of solid waste to be produced in the market might include, and not limited to:

- **Municipal waste-** Waste that is majorly composed of solid material and mainly produced within a municipal region and area of high population.

- **Market waste-** As the name suggests, these are wastes that are produced within a market area and other areas of trading. They mainly compose of the dominant goods sold within a specific market.
- **Agricultural/organic wastes-** These are wastes that are mainly from farm products that are sold in a market, e.g. banana and orange peels, vegetable wastes and many other green farm produce wastes.
- **E-waste**- These are electronic wastes that are mainly left out after electronic appliances break down beyond repair. They compose of mother boards of radios, televisions sets and many more.
- **Plastic waste and paper wastes-** These are wastes that are from materials that are made of plastics. They mainly compose of polythene bags, plastic bottles, broken plastic chairs and tables and many others.
- **Junk waste-** Junk waste is mainly waste from garages and car wash found around these markets. They mainly compose of old metals from old cars and repaired vehicles.
- **Vehicle Service waste –** this comprise of waste generated as a result of vehicle service which will include oil, filters, batteries, etc that will be generated from the garages.

The Nairobi City County has come up with method to code litter bins, liner bags and other solid waste bags. This facilitates waste segregation at their points of generation i.e.

- Green liner container for organic wastes
- Blue liner container for plastic and paper wastes
- Brown liner container for any other waste

The following information will be clearly printed or marked of the liner bags, litter bins or containers:

- The name and logo of the service provider
- Address and phone number of the service provider

Traders will keep every litter bin and refuse containers continuously covered when not in use so as to prevent any escape of its content thereof or any soakage into the ground. Traders will also ensure that the refuse containers and litter bins are kept reasonably clean and maintained in good conditions. Traders will also ensure safe and sanitary disposal of their wastes in the right refuse container. Traders and customers in these markets will be sensitized on solid waste management in order to enhance the level of awareness and knowledge of solid waste management and disposal to ensure that waste is managed in a manner which will protect human health and the environment against adverse effects which may result from the waste.

Litter bins will be movable and with wheels, hence can be pushed down and up a ramp. This ensures safer movement of waste without spilling them on the ground. There will be a designated point where the Nairobi City County or a licensed waste collector on a weekly or twice a week basis will keep these bins ready for emptying into a truck managed.

1.20.3 Access and point collection

Every stall shall be provided with a litter bin. The stalls shall then be serviced by a sweeper with a cart who exchanges empty bins for full ones and then empties the bins into a large container stationed in an area immediately adjacent to the market for collection by a lorry managed by the Nairobi City County or a licensed waste collector.

1.21 ESIA Justification

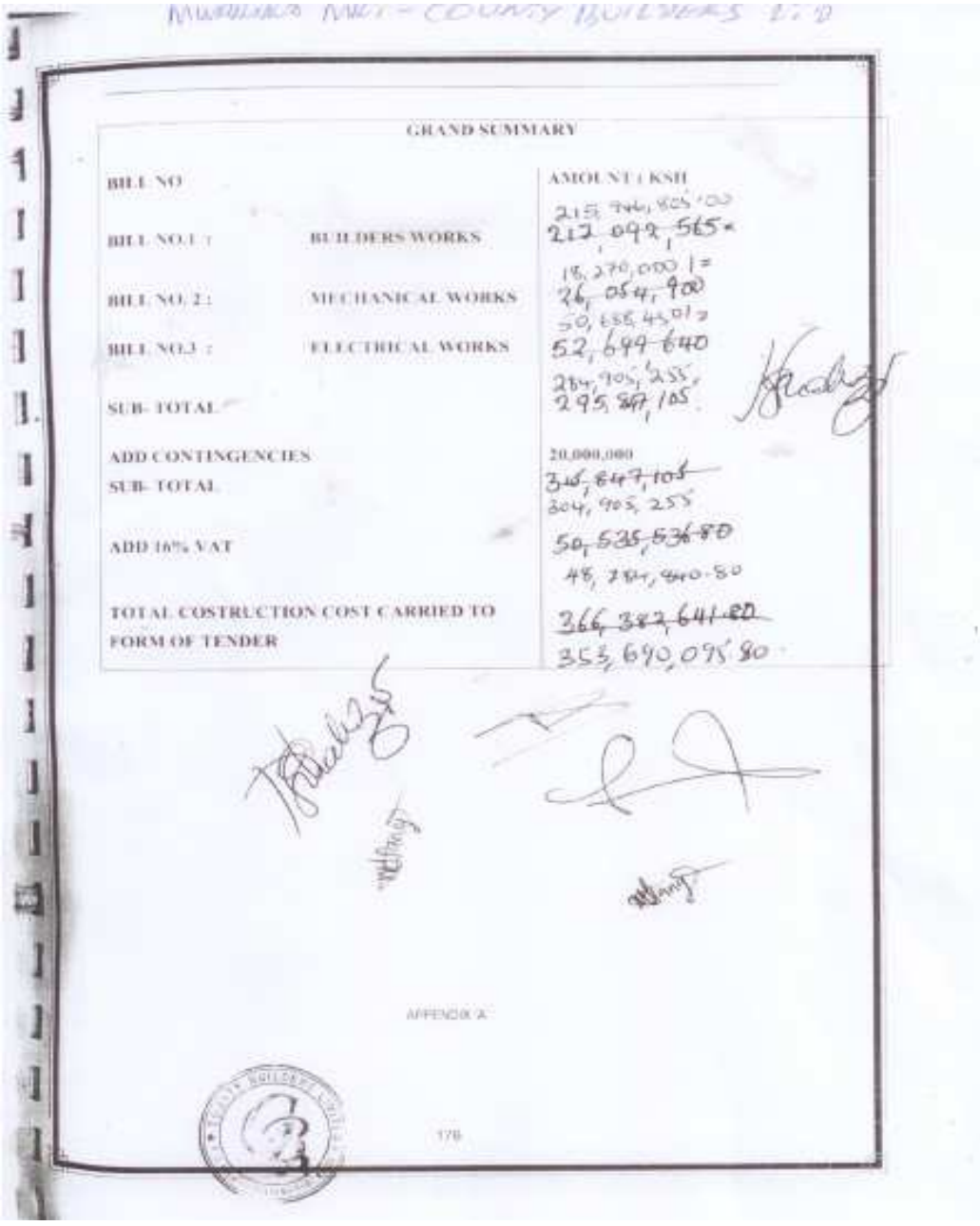
In accordance with the EMCA, (Amendment) 2015, all new projects must undergo environmental impact assessment study so as to comply with the EIA Regulation, 2003. The proposed project is expected to have an overall positive impact to the people and the environment. However, project construction phases and other associated civil works are anticipated to have environmental and social impacts that would require mitigation.

Construction related project including markets are listed in the second schedule of EMCA, (Amendment) 2015 as among project that should undergo EIA. The magnitude of the projects further justifies the EIA study to provide an Environmental Management Plan (EMP) for integration into implementation process. In addition, the National Policy on building and construction as well as the building Act calls for Environmental Impact Assessment on construction related projects for long-term sustainability and acceptability by the beneficiaries.

1.22 Project Cost

The project is estimated to cost Kenya Shillings, Three hundred and fifty three million, six hundred and ninty thousand and ninety five (353,690,950) to construct while the cost of implementing EMP is estimated at Kenya Shillings, Nine Million Five Hundred Thousand (9,500,000.00). The following table 1-2 shows the summary cost estimate of the project.

Table 1-3: BoQ Cost Summary page



GRAND SUMMARY

BILL NO		AMOUNT (KSH)
BILL NO.1 :	BUILDERS WORKS	215,746,805.00 217,092,565=
BILL NO. 2 :	MECHANICAL WORKS	18,270,000 /= 26,054,900
BILL NO.3 :	ELECTRICAL WORKS	50,655,45.01= 52,699,640
SUB- TOTAL		284,905,255. 295,847,105.
ADD CONTINGENCIES		20,000,000
SUB- TOTAL		~~315,847,105~~ 304,905,255
ADD 16% VAT		~~50,535,536.80~~ 48,784,840.80
TOTAL COSTRUCTION COST CARRIED TO FORM OF TENDER		~~366,382,641.80~~ 353,690,095.80

APPENDIX A

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Presentation of the report

The report is presented as outlined below:

Chapter 1: Introduction of the project which include Background, Scope of the proposed project. It also gives the format of the presentation of the report

Chapter 2: Gives the Objectives, Scope, and Methodology of the ESIA Study.

Chapter 3: Gives the Policy, Legal and Regulatory Framework Policy, Legal, Institutional and Administrative Framework.

Chapter 4: Project Baseline Information of the Study Area.

Chapter 5: Outcome of the Public Participation and Consultation process.
Chapter 6: Alternatives to the Project.
Chapter 7: Identification of Potential Impacts and mitigation measures of the project.
Chapter 8: Mitigation Measures of Potential Impacts of the Project.
Chapter 9: Environmental and Social Management and Monitoring Plan (ESMMP)
Chapter 10: Concludes the Project and recoups the core recommendations.

1.22.1 ESIA Study Team

The study team composed of members from different professional disciplines. The team members included:

- Environmental team leader
- Sociologist; and
- Environmental support staff.

CHAPTER TWO

2 ESIA OBJECTIVES, SCOPE AND METHODOLOGY

An environmental and social impact assessment has been undertaken to fulfil the legislative requirements of the Environmental Management and Coordination Act (Amendment), 2015 and the subsequent Kenya Gazette Supplement on Environmental Impact Assessment and Environmental Audit Regulations 2003.

The ESIA identifies potential positive and negative environmental, social, and economic impacts of the proposed project and proposed mitigation and measures.

The process in support of the preparation of the ESIA comprised of discussions and consultations with the proponent and stakeholders; initial site reconnaissance; desk study and literature review; preparation of data collection instruments; field visits for consultations and observations; data analysis and report writing.

2.1 Terms of Reference (TOR) for the ESIA Process

The ESIA expert team used the following terms of reference for the proposed Mwariro Market Development Project.

- Provision of baseline and background information;
- Project and site description;
- Identification of environmental impacts of the proposed development in the various phases and their level of significance;
- Impact of the project on existing infrastructure;
- Evaluation of alternatives;
- Stakeholder consultation and participation;
- Identification of possible conflicts;
- Suggest mitigation measures for identified negative impacts; and
- Prepare a comprehensive environmental management plan.

2.2 Objectives of the ESIA

In accordance with the EMCA, 1999, all new projects must undergo environmental impact assessment study such as to comply with the EIA Regulation, 2003 and to ensure provisions for environmental protection. Therefore, the main objective of environmental and social impact assessment associated with development of the proposed project is to comply with the current requirements of the EIA regulations of 2003 as established under the EMCA, 2015, in addition to the requirements of the World Bank (project financier) OP 4.01 requirements. Scope of the ESIA

The scope of ESIA study, therefore, covered the following key areas;

- Provide a description of the environmental, social and economic issues associated with the proposed boreholes projects,
- Undertaking public and stakeholder consultations in the process through interviews and meetings with stakeholders and the affected members of public,

- Identification of anticipated environmental and social impacts with particular focus on social, economic and natural resources aspects,
- Development of mitigation measures and an environmental management plan for identified environmental and social impacts.
- Preparation of ESIA Reports including a Project Report and ESIA Study Report for submission to NEMA,
- Obtain appropriate EIA Licenses from NEMA

2.3 ESIA APPROACH AND METHODOLOGY

In accordance to the ESIA guidelines, the study included the following:

1. A clear description of the proposed project including its objectives, design concepts, proposed interventions and anticipated environmental and social impacts,
2. Description of the baseline conditions in the project area to cover the physical location, environmental setting, social and economic issues,
3. A description of the legal, policy and institutional framework within which the proposed market development project will be implemented,
4. Description of the project alternatives and selection criteria,
5. Details of the anticipated impacts to the environment, social and economic aspects of the area covered by the project.
6. Appropriate mitigation and/or corrective measures,
7. Development of an environmental and social management plan (ESMP) presenting the project activities, potential impacts, mitigation measures and responsibilities, associated costs and monitoring indicators.

2.4 Approach

According to the Environmental Management and Coordination Act (EMCA), 2015, section 58 requires that all projects falling under the second schedule of the Act must undergo comprehensive environmental and social impact assessment studies. ESIA study should also comply with the EIA Regulations of 2003 on the minimum and other convectional environmental guidelines. ESIA studies are adopted as integrated approach where desk documentary reviews, field investigations, consultations as well as interviews and discussions with stakeholders and affected communities are considered. The overall study was undertaken following these stages;

2.4.1 Environmental Screening

Screening process was undertaken to decide whether the proposed CRS project needed to be subjected to an ESIA study or not. Based on literature review, the proposed project falls under category 2 of projects to be subjected to EISA study as provided for by the second schedule of the Environmental Management and

Coordination Act of 2015 and Category B under the World Bank Environmental and Social Safeguards Policies as defined in the Bank's Operational Procedures (OPs).

2.4.2 Environmental Scoping

The aim of this stage was to ensure that the ESIA study adequately addresses all the crucial issues of environmental and social concern to the decision-makers. This was done by narrowing down on the proposed Market Development project issues and also to those requiring detailed analysis. The process involved dialogue with all project stakeholders so as to ensure that this aim was fulfilled. It also involved the collection of primary and secondary data. From an evaluation of this data, a rapid assessment of the project site and its surrounding areas was made.

The key benefits of scoping include:

- Identification and engagement of key stakeholders
- Identification of the existing gaps
- Ensures that the assessment focuses on the key likely environmental and social impacts

2.4.3 Documentary Review

Several relevant documents were reviewed for a clear understanding of;

- the terms of reference,
- environmental status of the project area, data on demographic trends (for the project area, the beneficiary areas and the adjoining towns and counties),
- land use practices in the affected areas, development strategies and plans (Local, National and International) as well as
- the policy, legal and institutional documents.

The documents reviewed were:

- Interdisciplinary Land-Use and Transport Metropolitan Analysis within the Nairobi Metropolitan Region (ILUT) Report which had Detailed Design Report for the Proposed CRS Project Sites.
- Relevant Legal, Policy and Regulatory documents;
- EMCA (Amendment), 2015
- Nairobi Integrated Urban Development Master Plan for the City of Nairobi
- Kenya National Bureau of Statistics, 2009

2.4.4 Site Assessment

A physical inspection of the ground (proposed site and their surrounding environment) was conducted. This process was meant to appreciate the project's scope of land requirements, and establish actual baseline as well as verification of facts stated for project designs. This was done with an aim of establishing the anticipated positive and negative impacts on the physical and biological environment (hydrology, climatic patterns and geology), social and economic trends (population trends, settlement trends, economic patterns, cultural setting and linkages, land ownership issues, etc.) and the project affected persons (PAPs) and beneficiaries.

Specific objectives of the field assessment included:

- Obtaining any available information and data from the local public offices including environment, water, lands and agriculture.
- Evaluating the environmental setting around the proposed site - observations were focused on the topography, land tenure, surface and ground water sources, public amenities, land cover, climate, flora and fauna, soils, etc.
- Undertaking comprehensive consultative public participation exercises so as to reach a large section of the affected persons as well as other stakeholders. Public consultations were also organized with the stakeholders on **2/6/16** at Mwariro Market evaluating the environmental setting around the proposed site - observations were focused on the topography, land tenure, surface and ground water sources, public amenities, land cover, climate, flora and fauna, soils, etc.
- Evaluate social, economic and cultural settings in the entire project site

2.4.5 Socio-Economic Survey

A socio-economic survey was undertaken around the project area of influence that will be affected and/or benefit from the project. The main tools of the survey were questionnaires which were administered to the sampled community members, business people around the market, ward administrators, chiefs and sub chiefs. The main aim of conducting the surveys was to gather information regarding the anticipated socio-economic and environmental impacts due to proposed project. The data collected was analyzed with the help of summaries made by SPSS software. The findings have been presented using charts, tables and graphs as shown on Chapter 3 of this report.

2.4.6 Public Participation

It is a Government policy that beneficiaries and members of the public living near new or improvement project sites (both public and private) are consulted to seek their views and opinions regarding the projects before they are implemented.

Interaction with the stakeholders and communities living around the project area was undertaken through public participation and consultation on 2/6/2016. Through this process, the stakeholders had an opportunity to contribute to the overall project design by making recommendations and raising any environmental and social concerns of the project. In addition, the process aimed at creating a sense of responsibility, commitment and local ownership for smooth implementation of the project.

2.4.7 Impact Assessment and Mitigation Measures

The primary function of an environmental impact assessment study is to predict and quantify potential impacts, assess and evaluate the magnitude and their importance to develop an Environmental and Social management plan to mitigate the impacts. Environmental impacts could be positive or negative, direct or indirect, local or regional and also reversible or irreversible. Assessment of impacts depends on the nature and magnitude of the activity being undertaken and also on the type of mitigation measures that are envisaged as part of the project proposal.

For the proposed project, the anticipated impacts are divided into three components of the project: impacts based on Project Location, impacts during Construction phase, and impacts during De-commissioning and Operational phases. The identified positive and negative impacts of the project are presented in Chapter 7 of this report.

2.4.8 Environmental and social Management and Monitoring Plan (ESMMP)

The Consultants have developed an Environmental and social Management and Monitoring Plan (ESMMP) to guide the project team in eliminating or reducing the project impacts to acceptable minimum/ standards. The ESMMP is based on good environmental practices of project implementation and safety of the operations. The proposed ESMMP can be improved through continuous monitoring and audits during project implementation. The plan is provided in a matrix form in Chapter 9 of this report and it identifies the anticipated impact; proposed measures to be undertaken; monitoring indicators; the party responsible for implement the measures, and the estimated cost likely to be incurred to undertake the measures.

CHAPTER THREE

3 POLICY, LEGAL AND ADMINISTRATIVE POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This chapter outlines the policy, legal, regulatory and institutional framework in Kenya particularly for environmental management, protection and assessment applicable to the proposed Project. The Project will be subject to laws, regulations, guidelines and standards of the Government of Kenya and international institutions (IFC/World Bank). Note that wherever any of the laws contradict each other, the Environmental Management and Coordination Act (EMCA) prevails.

3.1 Government of Kenya Policy Framework

Applications of national statutes and regulations on environmental conservation suggest that the owner of any project has a legal duty and responsibility to discharge wastes of acceptable quality to the receiving environment without compromising public health and safety. This position enhances the importance of an EIA for the proposed extension project to provide a benchmark for its sustainable operation when it is finally commissioned. The Mwariro market project complies with government policy framework by the act of the proponent conducting ESIA study before initiating any civil works on the project.

3.1.1 The Constitution of Kenya 2010

The Constitution of Kenya, promulgated into law on 27 September 2010, is the supreme law of the Republic: It provides the broad framework regulating present and future development aspects of Kenya and along which all national and sectoral legislative documents are drawn.

With regard to environment, Section 42 inside the Bill of Rights of the Constitution, states that: every person has the right to a clean and healthy environment, which includes the right 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 to have obligations relating to the environment fulfilled under Article 70.

Chapter 5 of the new constitution provides the main pillars on which the 77 environmental statutes are hinged and covers "Land and Environment" and includes the aforementioned articles 69 and 70. Part 1 of the Chapter dwells on land, outlining the principles informing land policy, land classification as well as land use and property. Part 2 of the Chapter directs focus on the environment and natural resources. It provides for a clear outline of the state's obligation with respect to the environment. The Chapter seeks to eliminate processes & activities likely to endanger the environment.

Article 69 states that the State shall:

- Ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;

- Work to achieve and maintain a tree cover of at least ten percent of the land area of Kenya;
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
- Encourage public participation in the management, protection and conservation of the environment;
- Protect genetic resources and biological diversity;
- Establish systems on environmental impact assessment, environmental audit and monitoring of the environment;
- Eliminate processes and activities that are likely to endanger the environment; and,
- Utilise the environment and natural resources for the benefit of the people of Kenya.

There are further provisions on enforcement of environmental rights as well as establishment of legislation relating to the environment in accordance to the guidelines provided in this Chapter.

In conformity with the Constitution of Kenya 2010, every activity or project undertaken within the Republic of Kenya must be in tandem with the state's vision for the national environment as well as adherence to the right of every individual to a clean and healthy environment.

Section 70 provides for enforcement of environmental rights thus:-:

- If a person alleges that a right to a clean and healthy environment recognised 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.
- 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

  (b) To provide compensation for any victim of a violation of the right to a clean and healthy environment.

- 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 the Environmental Management and Co-ordination Act (EMCA), 1999, whose requirements for environmental protection and management have largely informed Sections 69 through to 71 of the Document. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law. The proposed project complies with the Constitution by proposing a framework in its ESIA on Social, Health, safety and environmental protection

3.1.2 The Kenya Vision 2030

Kenya Vision 2030 is the country's development programme from 2008 to 2030. It was launched on 10 June 2008 by President Mwai Kibaki with the aim to help transform Kenya into a newly industrializing, middle-income country with a consistent annual growth of 10 % by 2030. Developed through an all-inclusive and participatory stakeholder consultative process, involving Kenyans from all parts of the country, the Vision is based on three "pillars": Economic, Social, and Political. The 2030 goal for urban areas, to reach “a well-housed population living in an environmentally-secure urban environment in particular, will be achieved by bringing basic infrastructure and services namely roads, street lights, water and sanitation facilities, storm water drains, footpaths, and others. It is likewise important the promotion of: environmental conservation and pollution and waste management, through the application of the right economic incentives in development initiatives.

Under the first Medium-Term Plan (MTP-1) (2008-12) of Kenya’s Vision 2030 strategy, significant efforts were made to promote growth and preserve sound economic policies under challenging circumstances. While reforms were being implemented across the board during 2008-12, the biggest achievements under MTP-1, as noted in the MTP-2, were in improving infrastructure as well as some social indicators, such as school enrolment rates. Through short of the targets set in MTP-1, average annual GDP growth reached 3.8 percent despite the impact of repeated droughts, high international commodity prices, the global financial and economic crisis, and political uncertainty in the run up to the 2013 general elections. Furthermore 2.7 million jobs were created between 2008 and 2012 compared with an objective of 3.3 million.

Kenya’s second Medium Term Plan (MTP-2) covers the 2013-2017 period. It seeks to build on the successes of the MTP 1, including macroeconomic stability, the enactment of the 2010 Constitution, infrastructure development, the growth of the services sector, and improved access to education. At the same time, it recognizes remaining challenges, including a low and declining share of manufacturing, low agricultural productivity, high energy costs, a still limited transport infrastructure, a narrow export base, and major economic and social disparities across the country. The MTP-2 aims to continue the positive trend in areas where substantial progress was achieved, as well as to increase attention on areas where progress was slower while keeping the same priority sectors.

The overall objectives of the MTP-2 are to accelerate growth to reach double-digit levels, to create jobs for the Kenyan youth, and to further reduce the still high poverty levels. The key thematic areas that seek to describe how these objectives will be achieved are: (i) the foundations for national transformation, which cover a broad range of areas including infrastructure, information technology, employment policies, land reform, ending drought emergencies, public sector reform, and national security; (ii) the economic pillar, which identifies the seven sectors that are expected to spur faster growth; (iii) the social pillar; and (iv) the political pillar.

By promoting investment in the priority sectors identified under the Economic Pillar2, Vision 2030 seeks to achieve and sustain annual GDP growth rate at 10% up to 2030 and thereby generating resources required to address other SDGs. This creates the urgent need of investing in both Flagship Projects and requisite infrastructure.

The realization of the proposed project is a step towards realizing the Vision 2030 as provision of trading infrastructure that will create employment for the Kenyan population and spur economic growth for the country.

3.1.3 Nairobi metro 2030

Nairobi Metro 2030 was developed in the year 2008 to provide a guide for the NMR play its role in the National growth strategies under the Kenya Vision 2030. It is a transitional document that brings into focus challenges faced under urban growth and development. The document provides forum to achieve sustained rates of economic growth necessary for successful economic and social development. The Metro 2030 provides links with the Central Government through Kenya Vision 2030 and other development plans as well as seeking to strengthen the Local Authorities as part of the devolvement of power and recognizing need for ensuring efficient and effective management of resources at the grassroots.

Nairobi Metro 2030 carries the vision for Nairobi Metropolitan Region to be a World Class African Metropolis supportive to the overall national agenda under the Kenya Vision 2030. The agenda to achieve this vision is the need to enhance mechanisms for economic growth, employment creation, improved lifestyles and improved infrastructure. Therefore, the proposed project contributes to the Nairobi Metro 2030 by providing development that will contribute to the economic and employment growth within the metropolitan.

3.1.4 The Sustainable Development Goals

The 2030 Agenda comprises 17 new Sustainable Development Goals (SDGs), or Global Goals, which will guide policy and funding for the next 15 years, beginning with a historic pledge to end poverty.

The concept of the SDGs was born at the United Nations Conference on Sustainable Development, Rio+20, in 2012. The objective was to produce a set of universally applicable goals that balances the three dimensions of sustainable development: environmental, social, and economic.

The Global Goals replace the Millennium Development Goals (MDGs), which in September 2000 rallied the world around a common 15-year agenda to tackle the indignity of poverty.

The MDGs established measurable, universally-agreed objectives for eradicating extreme poverty and hunger, preventing deadly but treatable disease, and expanding educational opportunities to all children, among other development imperatives.

The MDGs drove progress in several important areas:

- Income
- Poverty

- Access to improved sources of water
- Primary school enrolment
- Child mortality

With the job unfinished for millions of people—we need to go the last mile on ending hunger, achieving full gender equality, improving health services and getting every child into school. Now we must shift the world onto a sustainable path. The Global Goals aim to do just that, with 2030 as the target date.

This new development agenda applies to all countries, promotes peaceful and inclusive societies, creates better jobs and tackles the environmental challenges of our time—particularly climate change.
Nationally, the GOK has taken bold steps to domesticate the SDGs as illustrated by:

- Investment in the Poverty Reduction Strategy Paper (PRSP) process through which participatory mapping of poverty incidence at both District and National Level was undertaken,
- Implementation of the Economic Recovery Strategy for Wealth and Employment Creation, and
- Implementation of projects that directly confront specific aspects of the SDGs. By anchoring the

Economic Pillar of Vision 2030 which seeks to generate resources needed to address SDGs, implementation development of the proposed project is attuned to the national and indeed global agenda for economic and social development.
Mwririo market project contributes to the policy by creating direct and indirect employment opportunities for many people that be served by the operation of the market.

3.2 Legal and Regulatory Framework for Environment

3.2.1 The Environment Management and Coordination Act No 8, 1999 and the relative Amendment Act No 5, 2015

The Environment Management and Co-ordination (Amendment) Act 2015 No 5 of 2015 was effective on the 17th June 2015 to amend the Environmental Management and Co-ordination Act 1999. The Act has aligned EMCA Act 1999 with the Constitution of Kenya (2010) to include new structures that the Constitution of Kenya 2012 created particularly entrenchment of county government in environment and natural resource management.

The EMCA is an act of Parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto.

The Act further aims to improve the legal and administrative co-ordination of the diverse sectoral initiatives in the field of environment so as to enhance the national capacity for its effective management. In addition Act seeks to harmonize all the 77 sector specific legislation touching on the environment in a manner designed to ensure protection of the environment.

As the principal environmental legislation in Kenya, EMCA sets the legal framework for environmental management basically as follows:-
Part II of the Act states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment.
In order to ensure the achievement, part VI of the same Act directs that any proponent of a new project, activity or operation should undertake an Environmental Impact Assessment (EIA) and a report prepared for submission to the National Environmental Management Authority (NEMA), who in turn may issue a license as appropriate; while projects already in place will undertake annual Environmental Audits (EA).

Section 58 of the Environmental Law requires that notwithstanding any approval, permit or license under this Act or any other law in force in Kenya, any person being a proponent of a project, shall before financing, commencing proceeding with carrying out, executing or conducting or causing to be financed, commenced, proceed carried out, executed or conducted by another person for any undertaking specified in the second schedule to this Act, submit a project report to the Authority in the prescribed form, giving the prescribed information and shall be accompanied by the prescribed fee.
Section 68 and 69 of EMCA requires all on-going projects to conduct an EA with a view to finding out if the processes and activities have any negative impacts on the environment and to propose any mitigation measures to counter such impacts .EA are further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003.
Under EMCA 2015, NEMA has gazetted legal tools that govern how EIAs are conducted and general environmental protection. These guidelines are captured in the Contracts for Construction to ensure that contractors are legally bound to undertake mitigation alongside general construction work.
Under EMCA, NEMA has gazetted legal tools that govern conduct of EIAs and general environmental protection. The Proposed project by the NaMSIP falls under the requirement of this Act, and has been screened against these tools with results that (table below) five of the tools will be triggered.

Table 3-1: Analysis of the Project triggers to the EMCA and its tools.

Legal Tool	Status	Trigger mechanism
EIA and Audit regulations	Triggered	EIA Study has to conform to these rules
Waste Management Rules	Triggered	Construction likely to generate solid waste
Water Quality rules	Triggered	Water for construction will be drawn from rivers or other sources and have to adhere to ensuring water quality is observed
Conservation of Biodiversity regulations	Not triggered	These regulations focus more on benefit sharing in biodiversity conservation.

National Sand Harvesting Rules	Triggered	Construction works will require concrete mixture which shall include sand
Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61:	Triggered	Both construction activities and construction equipment likely to generate noise
Air Quality Regulation (2014)	Triggered	Both construction activities and construction equipment likely to generate air pollution

In particular, specifications of these guidelines would require to be captured in the Contracts for Construction to ensure that contractors are legally bound to undertake mitigation alongside general construction work. The EMCA Tools likely to be triggered by the proposed construction of the proposed project are briefly reviewed below.

3.2.2 Environmental Impact Assessment and Audit Regulations, 2003

Environmental impact Assessment (EIA) is a tool for environmental conservation and has been identified as a key component in new project implementation. At the national level, Kenya has put into place necessary legislation that requires EIA be carried out on every new project, activity or programme (EMCA), and a report submitted to the National Environmental Management Authority (NEMA) for approval and issuance of relevant certificates. These Regulations provide procedures for conducting an EIA study and detail the parameters to be evaluated during the study. It also provides guidelines on the payment of the EIA license fees, conducting environmental audits and development of project monitoring plans.

In particular, specifications of these guidelines indicate that no proponent should implement a project which can have a negative environmental impact.

This ESIA report has been undertaken in accordance with the Environment (Impact Assessment and Audit) regulation 2003, which operationalizes the Environment Management & Coordination Act (EMCA) 1999 and its subsequent amendment, the Environmental Management and Coordination Act (Amendment), 2015. The report is prepared in conformity with the requirements stipulated in the Act and its amendment and the Environmental Impact Assessment and Audit regulations 2003 regulation7 (1) and the second schedule.

3.2.2.1 Environmental Management and Coordination Act (Waste Management) Regulations, 2006

The regulations provide details on management (handling, storage, transportation, treatment and disposal) of various waste streams including:

- Domestic waste
- Industrial waste,
- Hazardous and toxic waste

- Pesticides and toxic substances
- Biomedical wastes
- Radioactive waste

Regulation No.4 (1) makes it an offence for any person to dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle.

Regulation 5 (1) provides categories of cleaner production methods that should be adopted by waste generators in order to minimize the amount of waste generated and they include:

i) Improvement of production process through:

- Conserving raw materials and energy
- Eliminating the use of toxic raw materials and waste
- Reducing toxic emissions and wastes

ii) Monitoring the product cycle from beginning to end by:

- Identifying and eliminating potential negative impacts of the product
- Enabling the recovery and re-use of the product where possible
- Reclamation and recycling

iii) Incorporating environmental concerns in the design and disposal of a product.

The Proponent shall ensure that the main contractor adopts and implements all possible cleaner production methods during the construction phase of the project.

Regulation 6 requires waste generators to segregate waste by separating hazardous waste from non- hazardous waste for appropriate disposal.

Regulation 14 (1) requires every trade or industrial undertaking to install at its premises anti-pollution equipment for the treatment of waste emanating from such trade or industrial undertaking.

Regulation 15 prohibits any industry from discharging or disposing of any untreated waste in any state into the environment.

Regulation 17 (1) makes it an offence for any person to engage in any activity likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by NEMA.

Regulation 18 requires all generators of hazardous waste to ensure that every container or package for storing such waste is fixed with a label containing the following information:

- The identity of the hazardous waste
- The name and address of the generator of waste
- The net contents
- The normal storage stability and methods of storage
- The name and percentage of weight of active ingredients and names and percentages of weights of other ingredients or half-life of radioactive material
- Warning or caution statements which may include any of the following as appropriate.
- the words "WARNING" or "CAUTION";
- the word "POISON" (marked indelibly in red on a contrasting background;

- The words "DANGER! KEEP AWAY / NO ENTRY FOR UNAUTHORIZED PERSONS";
- A pictogram of a skull and crossbones.

Regulation 19 (1) requires every person who generates toxic or hazardous waste to treat or cause to be treated such hazardous waste.

During the construction phase of the project, the Proponent shall ensure that the main contractor implements the above mentioned measures as necessary to enhance sound environmental management of waste.

3.2.2.2 Environmental Management and Coordination Act (water quality) Regulation 2006

The Regulations provides for sustainable management of water resources including prevention of water pollution and protection of water sources (lakes, rivers, streams,' springs, wells and other water sources).

It is an offence under Regulation No.4 (2), for any person to throw or cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution.

Regulation No. 11 further makes it an offence for any person to discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit the dumping or discharge of such matter into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards for effluent discharge into the environment

Regulation No. 14 (1) requires every licensed person generating and discharging effluent into the environment to carry out daily effluent discharge quality and quantity monitoring and to submit quarterly records of such monitoring to the Authority or its designated representatives.

The proponent will have to ensure that appropriate measures to prevent pollution of underground and surface water sources are implemented throughout the project cycle.

Wastewater guidelines

Part of the study involves a review of the envir3044onmental standards that provides a basis for monitoring and future audits. The table below presents recommended guidelines on wastewater quality for discharge into the public sewers and open water bodies.

Table 3-2: Kenya discharge Guidelines for Waste water

Parameter	Discharge in public sewers (mg/l)	Discharge into water bodies (mg/l) – Assuming 10% dilution
PH	6.0 – 9.0	6.0 – 9.0
BOD5 (20oC)	500	20
COD	1000	50
Suspended Solids	500	30
Detergents	30	Nil
Heavy metals (combined)	1	0.1

Oils/Grease	50	Nil
Nitrates (TN)	20	10
Phosphates (TP)	30	5
Conductivity	-	1500 uS/cm
4hr PV Value	No limits	20
Faecal Coliforms	No limits	1000/100ml for large water bodies, otherwise <10/ml)
Sulphates	-	500
Dissolved Oxygen	No limits	2
Phenols	-	2
Cyanides	-	0.1
Chlorides	-	1000
PCB	-	0.003
Colour	No limits	5 Hazen Units
Odour	No limits	Not objectionable

Sources: Department of Water Development

3.2.2.3 Air Quality Regulation, 2014

This regulation is referred to as "The Environmental Management and Coordination (Air Quality) Regulations, 2014". The objective is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air.

It provides for the establishment of emission standards for various sources, including as mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the Environmental Management and Coordination Act, 1999. It also covers any other air pollution source as may be determined by the Minister in consultation with the Authority. Emission limits for various areas and facilities have been set.

The Regulations prohibits the Proponent from:

- Acting in a way that directly or indirectly cause or may cause air pollution to exceed levels set out in the second Schedule to the Regulations
- Allowing particulates emissions into the atmosphere from any source not listed in the six schedule of the Regulations
- Causing ambient air quality in controlled areas (listed in Schedule Thirteen) to exceed those stipulated under second Schedule.
- Allowing (during construction and demolition) emission of particulate matter above the limits stipulated in second Schedule
- Causing or allowing stockpiling or storage of material in a manner likely to cause air pollution
- Causing or allowing emissions of oxides of nitrogen in excess of those stipulated in the eleventh Schedule of the Regulation

The Proponent shall observe policy and regulatory requirements and implement the mitigation measures proposed in this document in an effort to comply with the provisions of these Regulations on abatement of air pollution.

3.2.2.4 Environmental Management and Coordination Act (Noise and Excessive Vibrations Pollution Control) Regulations, 2009

The regulations define noise as any undesirable sound that is intrinsically objectionable or that may cause adverse effects on human health or the environment. The regulations prohibit any person from making or causing to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.

Article 13 2(d) of the regulations allows for construction work at night for public utility construction, construction of public works, projects exclusively relating to roads, bridges, airports, public schools and sidewalks, provided noise generated is not caused within a residential building or across a residential real property boundary where such noise interferes with the comfort, repose, or safety of the members of the public. The second Schedule of the Regulations provides for the maximum permissible level of noise at construction sites.

Table 3-3: Maximum permissible noise levels for construction sites (measurement taken within the facility)

Facility		Maximum Noise level permitted (leq) in dB (A)	
		Day (6.01am-6.00pm)	Night (6.01 pm-6.00am)
(i)	Health facilities, educational institutions, homes for disabled and residential areas	60	35
(ii)	Residential	60	35
(iii)	Areas other than those prescribed in (i) and (ii)	75	65

Under section 15, the Regulations require the Proponent during EIA studies to:

- Identify natural resources, land uses or activities which may be affected by noise or excessive vibrations from construction or demolition;
- Determine the measures which are needed in the plans and specifications to minimize or eliminate adverse construction or demolition noise or vibration impacts
- Incorporate the needed abatement measures in the plans and specifications.

It is anticipated that the proposed project will generate noise and/or vibration during the construction phase that will originate from the construction equipment, vehicles and the workers since the project neighbours homesteads and businesses in some sections. It is therefore recommended that the construction team develops mitigations to reduce noise propagation in the project area.

The provisions of this Act will be applied by the Proponent in the management of the project where the contractor will be required to adhere to the provisions of this regulation.

Noise guidelines

The following guidelines will be used to monitor noise levels, especially during the construction stage of the project.

Table 3-4 Comparison between WHO and NEMA Noise Guidelines

Specific Environment	Critical Health Effects	LAeq dB(A) WHO	Time base (hours)	LAeq dB(A) NEMA	Time base (hours)
Outdoor living area	Serious annoyance Moderate annoyance	55 50	16 16	45 35	14 14
Indoor dwelling Inside bedroom	Speech interference Sleep disturbance	35 30	16 8	-	-
Outdoor bedroom	Sleep	45	8	35	-

	disturbance				
School classroom Indoor	Speech and communication	35	During class time	Day 60 Night 35	14 14
School playground outdoor	Annoyance External	55	During play	45	Day
Hospital, treatment room indoor	night time daytime	30 30	8 16	-	-
Industrial, Commercial and traffic areas	Hearing impairment	70	24	60	12
Ceremonies, festivals entertainment events	Hearing impairment	100	4	-	-

The provisions of this Act will be applied by the Proponent in the management of the project where the contractor will be required to adhere to the guidelines to reduce the possibility of adverse noise and vibration impacts to human health. The regulation stipulates that the acceptable standard day and night noise levels should not exceed 65dBa and 45 dBA respectively.

3.3 World Bank Environmental and Social Safeguard Policies

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) will be respected for the purposes of this project implementation. WB classifies its projects into four Environmental Assessment 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 it's 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 mitigation measures can be designed more readily than for Category A projects. *This particular NaMSIP subproject 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 environmental assessment 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 NaMSIP project.

By virtue of source of funding, the proposed development of the market by the Ministry of Land, Housing and Urban Development, and Nairobi Metropolitan Development under the NaMSIP is also subject to World Bank requirements for impact assessment. As such, this Project Report study has been formulated to address and cater for both Kenyan and World Bank requirements for impact assessment. World Bank projects and activities are governed by Operational Policies, which are clearly spelt out in the Bank's Operational Manual ("Bank Procedures" and "Good Practices"). The World Bank's safeguard policies are designed to ensure that projects proposed for Bank financing are environmentally and socially sustainable, and thus improve decision-making. These operational policies include:

- OP 4.01 Environmental Assessment;
- OP 4.04 Natural Habitats;
- OP 4.09 Pest Management ;
- OP 4.11 Cultural Heritage;
- OP 4.12 Involuntary Resettlement;
- OP 4.10 Indigenous People;
- OP 4.36 Forests;
- OP 4.37 Safety of Dams;
- OP 7.50 Projects on International Waterways ;
- OP 7.60 Projects in Disputed Areas.

The table below shows the applicability of World Bank Operational Policies to the proposed project.

Table 3-5: Analysis of potential triggers to World Bank Safeguards Policies

OP	Title	Comments/Impact
4.01	Environmental Assessment	Applicable. As a result of environmental and social screening, the project was identified as a Category B
4.04	Natural Habitats	Not applicable - there no natural habitats at the project site
4.09	Pest Management	Not applicable- the project will not involve any pest management
4.10	Indigenous Peoples	Not applicable- there are no indigenous people at the site or project area
4.11	Physical Cultural Resources	Not applicable. Site inspections and literature searches have not indicated the presence of any cultural (historical, archaeological) sites in the construction area. However, to manage "chance finds" an appropriate procedure is included in this ESIA. Such procedure to be followed by contractors during the construction phase.
4.12	Involuntary Resettlement	Applicable. The site is currently occupied by some squatters, and therefore there will be some minimal resettlements and/ or livelihood restoration requiring relocation to pave way for the project. A separate RAP report has been done for the project.
4.36	Forests	Not applicable- there is no forest at the site
4.37	Safety of Dams	Not applicable because the project will not involve construction of dams.
7.50	Projects on International Waters (OP 7.50)	Not applicable- the site does not sit on international waters
7.60	Projects in Disputed Areas	The site is not classified as disputed in the project area.

3.3.1 Environmental Assessment (OP 4.01)

OP 4.01 requires Environmental Assessment (EA) for projects proposed for Bank financing to ensure that they are environmentally sound and sustainable, and as a basis for decision making. Under OP 4.01 projects are screened and assigned either of four categories each of which requires different levels of environmental assessment as follows:

a) **Category A**: A proposed project is classified in this category if it is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented. Moreover, the EA for this category includes examining the project's potential negative and positive impacts in comparison with those of feasible alternatives and recommends any measures required to prevent, minimize, mitigate or compensate for adverse impacts and improve environmental performance. These impacts may affect an area boarder than the sites or facilities subject to physical works.

b) **Category B**: A proposed project is classified in this Category if it's 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 of them are irreversible and in most cases the mitigation measures can be designed more readily than Category A projects.

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

The proposed improvement of the proposed project has been classified as environmental category B and hence requirement for this Project Report study.

3.3.2 Harmonization of both WB and GOK requirements for social and environmental sustainability

With regard to the project under review, our experience informs that when proposed projects are subjected to environmental and social impact assessment as stipulated under EMCA 2015 and its tools, the same process simultaneously fully resolves requirements of OP 4.01. Generally, both requirements are aligned in principle and objective in that:

- Both require Environmental Assessment before project implementation leading to development of comprehensive Environmental and social Management plans to guide resolution of social and environmental impacts as anticipated.
- Both require public disclosure of Project Report and stakeholder consultation during preparation,
- While OP 4.01 of World Bank stipulates different scales of Project Report for different category of projects, EMCA requires Project Report for all sizes of projects, which are required to be scoped as relevant
- Where EMCA requires consultation of Lead Agencies comprising of relevant sectors with legal mandate under GoK laws, the WB has equivalent safeguards for specific interests.
- The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project which is equivalent to the statutory annual environmental audits at the operation phase of projects in Kenya.

The understanding of this Project Report study is that, pursuit of an in-depth Project Report process as stipulated by EMCA 1999 is adequate to address all World Bank requirements for environmental and social assessment. This is a major guiding principle in this study.

In keeping with this trend, public consultation has been done to the stakeholders, and their comments have been incorporated in the final Environmental Assessment and final design of the project. In addition, the Environmental Assessment report will be

made publicly available to all stakeholders through disclosure at the project's proponent website, NEMA, and WB infoshop, as well as copy of the report available at the project site.

3.3.3 The Urban Areas and Cities Act 2011

This law passed in 2011 provides legal basis for classification of urban areas (City) when the population exceeds 500,000; a municipality when it exceeds 250,000; and a town when it exceeds 10,000) and requires the city and municipality to formulate County Integrated Development Plan (Article 36 of the Act). Under Article 36, the integrated development plan so developed is required to be the central pillar in public administration of the city or municipality this forming the basis for:

- the preparation of environmental management; preparation of valuation rolls for property taxation plans;
- provision of physical and social infrastructure and transportation;
- preparation of annual strategic plans for a city or municipality;
- disaster preparedness and response;
- overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management; and
- The preparation of a geographic information system for a city or municipality.

The strategy plan as stated above denotes an annual plan to be adopted in the county assembly following the integrated development plan, and the Act requires the board of town committee to formulate the strategy plan soon after the adoption of the integrated development plan (Article 39).

The integrated development plan as stipulated in the Act has to reflect:

I. vision for the long term development of the city or urban area;
ii. An assessment of the existing level of development;
iii. Any affirmative action measures to be applied; development priorities and objectives;
iv. Development strategies which shall be aligned with any national or county sectoral plans and planning requirements;
v. A spatial development framework;
vi. Operational strategies; and
vii. Applicable disaster management plans;
viii. A regulated city and municipal agricultural plan;
ix. A financial plan and;
X. the key performance indicators and performance targets (Article 40).

The integrated development plan thus formulated has to be submitted to the county executive committee, and the committee has to submit the plan to the county assembly with an opinion within 30 days (Article 41).

Mwariro market project complies with the urban area and other cities Act. It is integrated in the County integrated Development plan, and will comply with all the regulations set in the Act.

3.3.4 The County Government Act 2012

The County Government Act of 2012, which has been adapted to the Constitution's State and County structure in relation to devolution, declares the County Integrated Plan to be central to the County's administration and prohibits any public spending outside of the plan. The Act clarifies that the County Integrated Plan to be broken down into the economic plan, physical plan, social environmental plan and spatial plan. Also, the Act states that the County Plan commands,

- County integrated development plan
- County Sectoral plans
- County spatial plan
- Cities and urban areas plans as stipulated by Urban Areas and Cities Act

The act also stipulates that the County Government will be –responsible for functions stipulated in article 186 and assigned in the Fourth Schedule of the Constitution which includes control of air pollution, noise pollution, other public nuisances and outdoor advertising.

The Proponent will ensure the project will be compliant with County Government Act 2012 by controlling all forms of pollution. Additionally an Environmental and Social Management/monitoring plan has been provided in this report with measures for mitigating potential environmental pollution anticipated from the development of the project.

3.3.5 The National Land Commission Act (2012)

Section 5 of the Act, the Commission's functions are to manage public land, recommend national land policy, advise the GoK on a land registration program, conduct research on land use and natural resources, and monitor and oversee land use planning throughout the country. The same section goes on to stipulate that the NLC ensure that state owned land is managed sustainably for future generations. *The project will be subjected to this act by ensuring the land used for the project is a public land and has no encumbrances to be used for development of a market.*

3.3.6 National Sand Harvesting Guidelines, 2007

These Guidelines apply to all sand harvesting activities in Kenya to ensure sustainable utilization of the sand resource and proper management of the environment. Among key features, the guidelines empower respective DECs to regulate sand harvesting within areas of jurisdiction implying that, sand should only be sourced from approved sites and by approved dealers.

The project will commit to the fulfilment of the guidelines.

3.3.7 Traffic Act Chapter 403

This Act consolidates the law relating to traffic on all public roads. The Act also prohibits encroachment on and damage of roads including land reserved for roads. The proposed project is under the provisions of the Act, in that it will utilize the roads near the project.

3.3.8 The Water Act, 2002

The Act vests the water in the State and gives the provisions for the water management, including irrigation water, pollution, drainage, flood control and abstraction. It is the main legislation governing the use of water.

The proposed project shall require some quantities of water during the construction phase and generation of equally large volumes of surface run-off during operations. The water supplied by the local water provider and local rivers might be the sources of water for construction. The river near the project will be receiving bodies for the surfaces run-off, as all the drainage systems shall be designed to discharge into them.

The contractor shall ensure that there will be no pollution to the nearby rivers and streams, and will seek the necessary permits to abstract the water from the rivers, or any other sources, and shall abide by the conditions attached to the permit(s).

3.3.9 The Water Resources Management Rules (2007)

These Rules are described in Legal Notice Number 171 of the Kenya Gazette Supplementary Number 52 of 2007. They apply to all water resources and water bodies in Kenya, including all lakes, water courses, streams and rivers, whether perennial or seasonal, aquifers, and shall include coastal channels leading to territorial waters.

The Water Resources Management Rules empower Water Resources Management Authority (WRMA) to impose management controls on land use falling under riparian land. It also enables any person with a complaint related to any matter covered by these rules to the appropriate office in WRMA as per the Tenth Schedule which provides a format for report on complaints. WRMA is to reply to the complainant with "copies to all other relevant parties within twenty one days of receiving the complaint, starting with what action is being taken, the position of the Authority on the matter and any recommendation to the complainant."

The contractor shall seek the necessary permits to abstract the water from the rivers, or any other sources, and shall abide by the conditions attached to the permit(s).

The contractor/proponent will adhere to the provision of this regulation by obtaining relevant water permit from WRMA or consult with the Nairobi City Water and Sewerage Company (NCWSC) for its water sources.

3.3.10 HIV/AIDS Prevention and control Act (Act No. 14 of 2006)

Part 11, Section 7 of the Act requires that HIV and AIDs education be carried out at the work-place. The government is expected to ensure the provision of basic information and instruction on HIV and Aids prevention and control to: -

(I) Employees of all government ministries, departments, authorities, and other agencies as well as employees of private and informal sectors.

(ii) The information on HIV/AIDS is expected to be treated with confidentiality at the work place and positive attitude towards infected employees.

In allocating contractors to the proposed project, the proponent should ensure that the contractor offers such training to the worker as provided by law.

3.3.11 Occupational Safety and Health Act OSHA, 2007

The Occupational Safety and Health Act, 2007, is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act applies to all workplaces and workers associated with it; whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and non-workers. Part 9 states that the occupier or employer shall establish a health and safety committee where twenty or more people are employed and such an employee shall prepare a written statement of his general policy with respect to the safety and health at the work place. Further, the occupier shall prepare annual safety and health audits by a qualified person.

The contractor shall adhere to all Sections of the Act as it relates to this project, such as observing safety guidelines, provision of protective clothing, clean water, and insurance cover are observed so as to protect all from work related injuries or other health hazards.

3.3.12 Work Injury Benefits Act, 2007

This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. An employee is a person who has been employed for wages or a salary under a contract and includes apprentice or indentured learner.

The proposed project will adhere to the provisions of this act throughout the construction period of the project.

3.3.13 The 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 advice and direct local authorities 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.

Part IX section 115 states that no person shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 waste pipes, sewers, drains or refuse pits in such a state, situated or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. Any noxious matter or waste water flowing or discharged from any premises into Public Street or into the gutter or side channel or watercourse, irrigation channel or bed not approved for discharge is also deemed as a nuisance. Other

nuisances are accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or other vermin.

This provision is supplemented by Section 126A that requires local authorities to develop by-laws for controlling and regulating among others private sewers, communication between drains and sewers and between sewers as well as regulating sanitary conveniences in connection to buildings, drainage, cesspools, etc. for reception or disposal of foul matter.

Part XII (prevention and destruction of mosquitoes) Section 136 states that all collections of water, sewage, rubbish, refuse and other fluids which permits or facilitate the breeding or multiplication of pests shall be deemed nuisances and are liable to be dealt with in the manner provided by this Act.

The operations and activities of the proposed project can be detrimental to human and environmental health and safety in the absence of appropriate measures. For example waste, dust, noise and air emission generated from activities and process of the proposed project can directly or indirectly have adverse impacts on human and environment. The Act prohibits the Proponent from engaging in activities that cause environmental nuisance or those that cause danger, discomfort or annoyance to inhabitants or is hazardous to human and environmental health and safety.

The proponent will therefore observe the public Health act to mitigate on the negative environmental health and safety to the public.

3.3.14 The Physical Planning Act (Cap. 286)

Section 24 of the Physical Planning Act gives provision for the development of local physical development plan for guiding and coordinating development of infrastructure facilities and services within the area of authority of County, municipal and town council and for specific control of the use and development of land. The plan shows the manner in which the land in the area may be used. Section 29 of the physical Planning Act gives the county councils power to prohibit and control the use of land, building, and subdivision of land, in the interest of proper and orderly development of its area. The same section also allows them to approve all development applications and grant development permissions as well as to ensure the proper execution and implications of approved physical development plans. On zoning, the act empowers them to formulate by-laws in respect of use and density of development.

The proposed project adheres to this act by ensuring that the proposed project is being developed as per the plans approved by the Ministry of Lands and Physical Planning in accordance to the law.

3.3.15 Way Leave Act Cap 292

Section 3 of the Act states that the Government may carry any sewer, drain or pipeline through, over or under any land whatsoever, but may not in doing so interfere with any existing building. Notice, however, should be given one month before carrying out any such works (section 4) with full description of the intended works and targeted place for inspection.

Any damages caused by the works would then be compensated to the owner as per Section 8 of the Act that states that any person whom without consent causes any

building to be newly erected on a way leave, or cause hindrance along the way leave shall be guilty of an offence and any alterations will be done at his/her costs.
The proponent shall observe this Way leave Act when developing or improving the sewer and drainage system for the project.

3.3.16 The Building Code 2009

This code was formulated to provide rules and guideline to be observed during construction it requires the proponent to adhere to the set rules and guidelines in the code. The code requires building plans to be approved by county government. It also prohibits;

- Erection, or causing or permitting erection of temporary buildings (e.g. a site office, store, builder's shed etc.) to which the Regulations apply without a permit granted under Regulations and
- Knowingly occupying a temporary building which is erected in contravention to the regulations

The proponent is committed to developing the proposed project in accordance to the building codes, the national standards and other international building standards and guidelines.

3.3.17 Public Roads and Roads of Access Act (Cap 399)

Sections 8 and 9 of the Act provides for the dedication, conservation or alignment of public travel lines including construction of access roads adjacent to lands from the nearest part of a public road.
Sections 10 and 11 allows for notices to be served on the adjacent land owners seeking permission to construct the respective roads.
The proponent shall issue notices to land owners adjacent to the project area before construction works begins. In addition, the proponent will inform the relevant authorities on the intended modifications of the roads near the proposed project.

3.3.18 National Gender and Equality Commission Act, 2011

The Commission was established through an Act of parliament and is mandated but not limited to perform the following functions:

(a) promote gender equality and freedom from discrimination in accordance with Article 27 of the Constitution; (b) monitor, facilitate and advise on the integration of the principles of equality and freedom from discrimination in all national and county policies, laws, and administrative regulations in all public and private institutions; (c) co-ordinate and facilitate mainstreaming of issues of gender, persons with disability into the overall national development framework.

The provisions of this Act shall be invoked in the implementation of the project, especially in ensuring gender equity, by offering opportunities to women in employment and allocation of stalls.

3.3.19 The Sexual Offences Act (No. 3 of 2006)

Relevant Sections in this Act include:-

- 24- Sexual offences relating to position of authority and persons in position of trust.
- 25- Sexual relationship which pre-date position of authority or trust.
- 26- Deliberate transmission of HIV or any other life threatening sexually transmitted disease.

The proposed project will ensure that this Act is adhered to, by ensuring that there will be NO sexual offences committed, especially during the construction period.

3.4 The Institutional Framework

3.4.1 Ministry of Environment and natural resource

Kenya's Ministry of Environment and Natural Resource is mandated to monitor, protect, conserve and manage environment and natural resources of the country. The Ministry is to achieve this monumental task through sustainable exploitation of natural resources for socio-economic development geared towards eradication of poverty, improving living standards and maintaining a clean environment for present and future generations.

3.4.2 The Ministry of Transport, Infrastructure, Housing and Urban Development (MoTIHUD)

The MoTIHUD is the project proponent and is implementing the development of Mwariro Market through Nairobi Metropolitan Services Improvement Project (NaMSIP).

3.4.3 National Environment Management Authority (NEMA)

The Government established the administrative structures to implement EMCA as follows:-

3.4.3.1 The National Environmental Council

The National Environment Council (the Council) is responsible for policy formulation and directions for the purposes of the EMCA Act. The Council also sets national goals and objectives, and determines policies and priorities for the protection of the environment.

3.4.3.2 The National Environmental Management Authority

EMCA allows for formation of the National Environmental Management Authority (NEMA) as the body charged with overall responsibility of exercising general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment. In the context of the EIA process NEMA is responsible for approving the ToR for the ESIA and for the approval of the ESIA. Without this latter approval, the project cannot proceed.

The Authority shall review this ESIA Report for the proposed project, visit the project site to verify information provided in this report and emanate an ESIA license whether all the relevant issues to the project have been identified and mitigated in accordance to the proposed measures.

3.4.3.3 County Environmental Committees

The County Environmental Committees also contribute to decentralized environmental management and enable the participation of local communities. These environmental committees are to be constituted by the governor and are responsible for the proper management of the environment within the county for which it is appointed.

3.4.3.4 Public Complaints Committee

Under EMCA 2015, a Public Complaints Committee has been established to provide an administrative mechanism for addressing environmental harm. The Committee whose membership include representatives from the Law Society of Kenya, NGOs and the business community has the mandate to investigate complaints relating to environmental damage and degradation.

3.4.4 The Directorate of Nairobi Metropolitan Development

In the capacity of Employer, the Ministry of Land, Housing and Urban Development, Nairobi Metropolitan Development through the NaMSIP PCT has administrative jurisdiction over the EIA process.

3.4.5 The Market committees, local CBOs and other Civil Society

Members of the market committees at Mwariro, civil society working in the area in related fields are responsible for sensitizing the people and empower them to realize maximum benefits from the project. They will be involved in the training and creating awareness of the project, and assisting in grievance handling (if any) for the proposed project.

CHAPTER FOUR

4 PROJECT ENVIRONMENTAL AND SOCIAL BASELINE

The baseline environmental condition of the proposed project is described in terms of the existing physical, biological, and social environment.

4.1 Background

Mwariro Market hereafter referred to as proposed project, which is discussed in this ESIA report forms part of the Nairobi Metropolitan service improvement project being implemented by the Ministry of Lands and Urban Development with financial support from the Word Bank. This initiative is financed by the World Bank with the objectives of providing an enabling physical space for organized markets; creating market linkages for products; fostering access to services so as to promote efficiency and quality of products, and promoting reliable linkages with financial institutions. The goal is to enhance livelihoods especially for the urban poor who are operating as vendors in these select markets. The selection of the market (Mwariro) was on the basis of the existing local participatory process from prioritizing local investment called the Local Authority Service Development Action Plan.

According to NaMSIP feasibility study for Mwariro Market, the market was in operation as an open air market between 1997 and 2007. It was closed in 2007 and has not been in operation since its closure.

4.2 Location and Size

Mwariro Market is located on the eastern side of the intersection of Racecourse and Racecourse roads, which are major roads in Nairobi CBD. The market borders key residential areas such as Kariokor and Pangani to the east; and Ngara to the northern side. The road network linking the market to the rest of Nairobi is adequate and easily accessible. Plate 3-1 below shows the aerial view of the markets location.

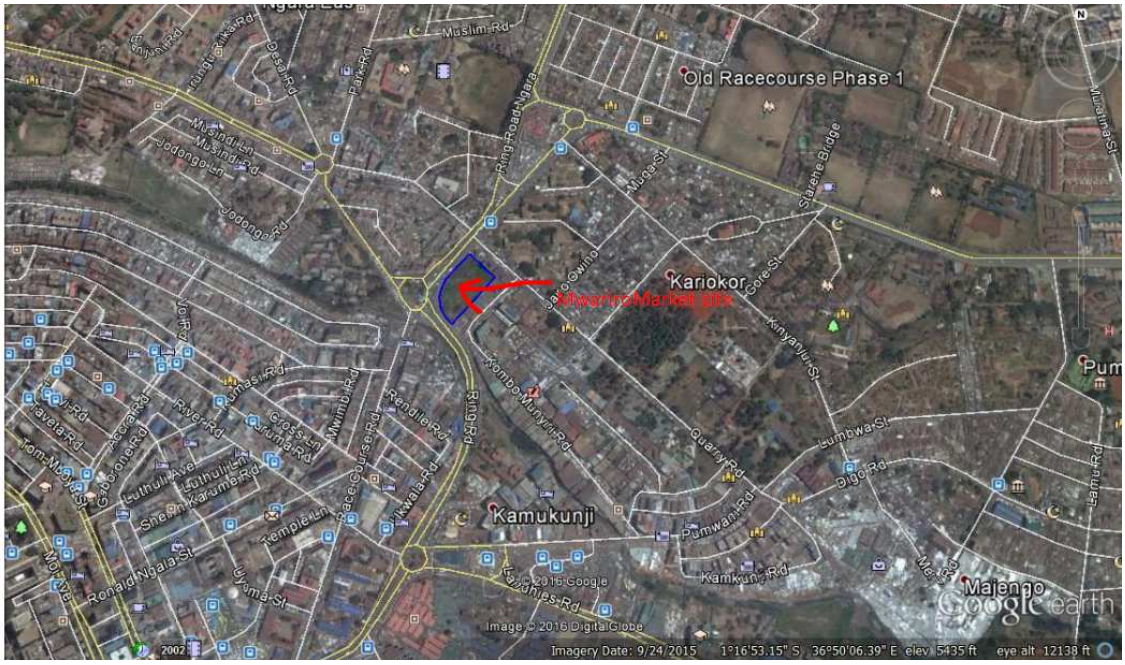

Plate 3-1: Aerial view of Mwariro Market site
(*Source: Feasibility Study Report, 2015*)

4.3 Physical Environment

The baseline condition is dependent on the geographical and physical orientation of the zones. The project area is categorized as central zone adopted under Nairobi Metro 2030. The physical characteristics of the proposed project site is described in terms of soils, geology, topography, drainage, climate, ambient noise levels and ambient air.

4.3.1 Climate

Nairobi's elevation strongly influences the City's climate. The temperatures in Nairobi are fairly uniform with coolest temperatures occurring from June to August, while the hottest temperatures typically occur from December to March (as shown in figure below).

Nairobi has a bimodal rainfall regime with long and short rainy seasons in March-May and October-December respectively. Northeast monsoons are common during December to February, and southeast monsoons during June to August are associated with depressed rainfall conditions. The mean annual rainfall in Nairobi ranges between 800 mm and 1 300 mm per annum. More than 50 % of the total rainfall occurs during the long rainy season.

The mean monthly relative humidity varies between 36 and 55 per cent. The mean daily sunshine hours varies between 3.4 and 9.5 hours (CBS 2003a). The cloudiest part of the year is just after the first rainy season, when, until September, conditions are usually overcast with drizzle. The project site will therefore assume the climate of the larger Nairobi area.

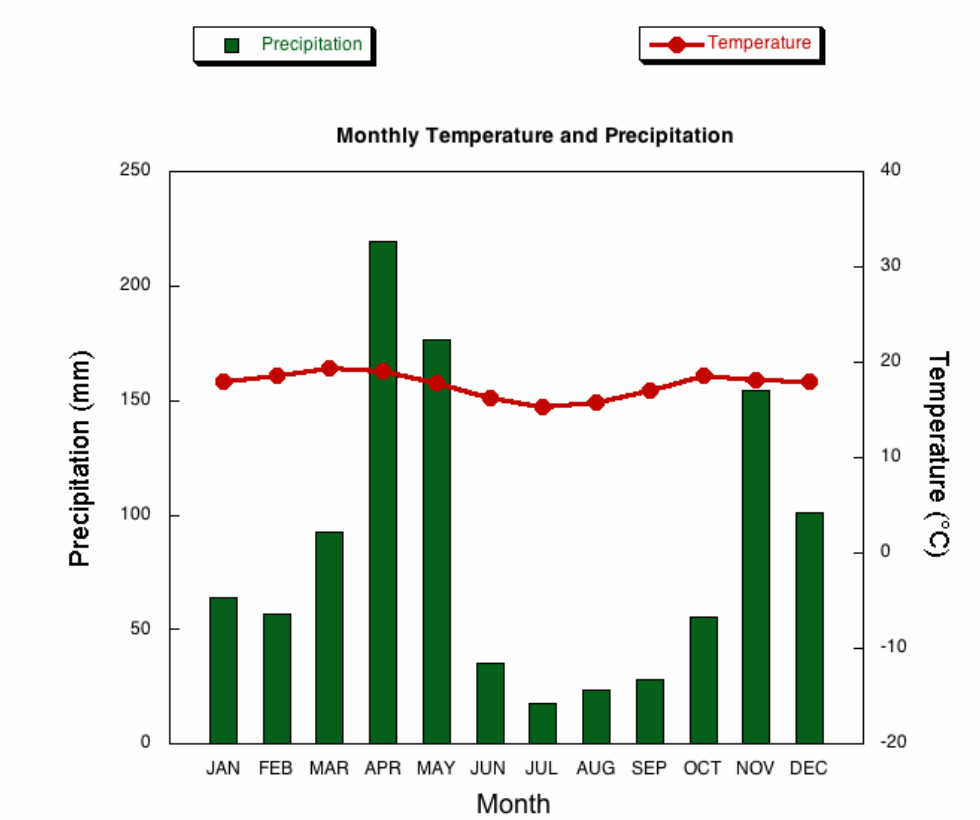

Figure 4-1: Nairobi monthly average temperature and rainfall
Source: ***http://drought.unl.edu/archive/iclimographs/NairobiMetric.htm***

4.3.2 Topography

Nairobi City lies east of the Ngong Hills and this situation shapes the City's topography. As can be seen from the Figure below, the western part of Nairobi lies on high ground with a rugged topography and elevations of approximately 1700 to 1850 m above sea level (asl). The terrain then gradually falls towards the east reaching about 1600 m a.s.l around Athi River at the north-eastern outskirts of the City. The project is located at an elevation of about 1655m a.s.l.

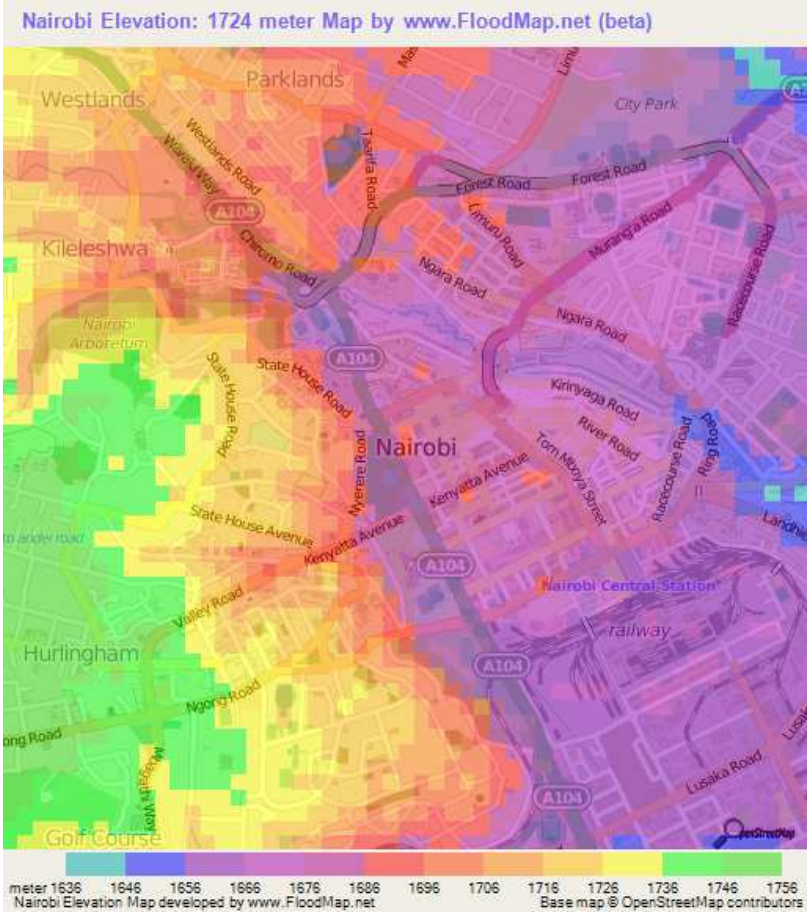

Figure 4-2: Topography of Nairobi

Source: ***Nairobi, Kenya Elevation Map*** ***at www. floodmap.net***

4.3.3 Drainage and Hydrology

Nairobi Metropolitan Region sits on a drainage basin between highlands in the northwest and plains east of the City. The main river in the Nairobi (the Central Zone) is the Nairobi River flowing through the city, and is close to the proposed project. It is the main river of the Nairobi river basin, comprising of several parallel streams flowing eastwards. All of the Nairobi Basin Rivers joins together east of Nairobi and meet the Athi River, eventually flowing to the Indian Ocean. Nairobi River tributaries include Ruiru River, Kamiti River, Rui Ruaka, Karura River, Gitathuru River, Mathare River, Kirichwa and Motoine-Ngong River. The Motoine River flows to the Nairobi Dam and further onwards the stream continues as Ngong River. All these rivers suffer from contaminations by agriculture, slums and industrial areas. During the rainy seasons, the discharge tends to multiply, causing floods on low-lying riverbanks. Nairobi's watercourses divide the City as the main roads are generally aligned along these rivers in roughly east-west orientation, while only few roads cross them.

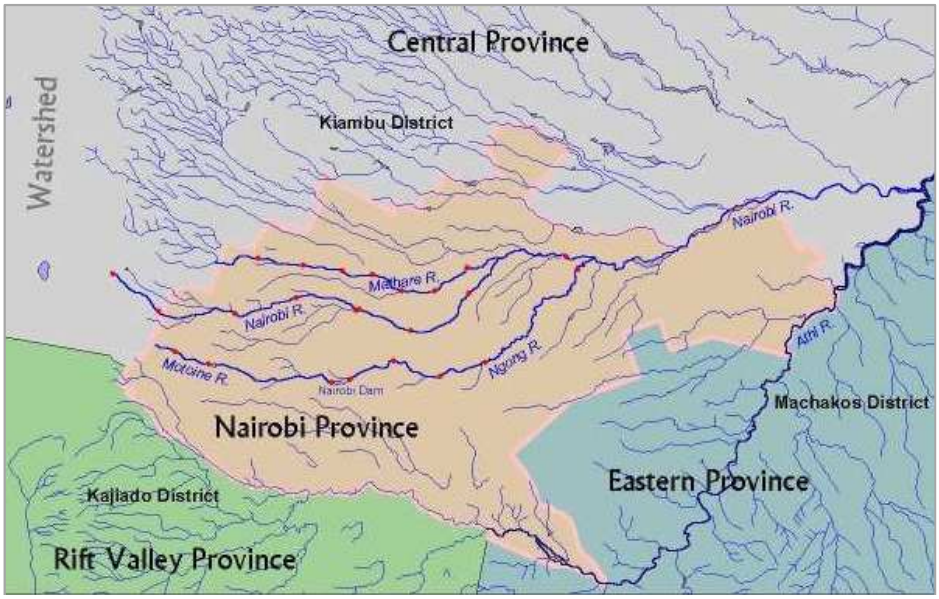

Figure 3-3: illustration of Nairobi River Basin
Source: Nairobi River Basin Project, UNEP

4.3.4 Geology and Soils

Nairobi Metropolitan area lies within a volcanic setting that resulted from rift valley formation. The geology of the area comprises the Nairobi Trachytes extending from Dagoretti – Karen up to the east of Nairobi, and towards north of Kiambu and Githunguri; impermeable Nairobi Phonolites between the Nairobi National Park and Kiambu and resting directly on the Athi Series and the Kapiti Phonolites which are also overlain by the Athi Series. The Upper Athi Series formations mainly consist of sandy sediments; gravel, or pebble beds, tuffs and pyroclastic sediments. The CBD is covered by various forms of Trachytes, (Saggerson, 1991).

Soils in the area have developed on tertiary basic igneous rocks (olivine basalts and nepheline phonolites) and are mostly black cotton soils. These soils are imperfectly drained, very deep, dark grey to black, firm to very firm and are usually boulder and stony due to cracking clay. (Ministry of Roads, 2012). Soils around the site have been disturbed by human activities over a long period. The condition of the soil may not be able to hinder the development of the market due the advanced building technologies existing today.

4.3.5 Air Quality

Nairobi is faced with two major issues as far as the atmospheric environment is concerned: climate change and air quality. These are mainly the result of anthropogenic activity in the transport, energy and industrial sectors. The main sources of atmospheric pollution are vehicles, industries, emissions from the use of charcoal and firewood for energy, and other municipal sources such as suspended particulate matter from dust and the open burning of waste.

An illustration of the average total suspended solids (TSS) over parts of Nairobi as measured in 2001 is shown in figure 3-3 below. Areas were classified as having LOW (< 90 µg/m3 annual mean), MEDIUM (90 – 180 µg/m^3) and HIGH (>180µg/m3) levels

of TSP. LOW means that the TSP levels are below the WHO recommended mean value of 90 µg/m^3; MEDIUM means that the WHO recommendation is exceeded by up to a factor of 2, while HIGH means that the WHO guideline is exceeded by more than a factor of 2. The results of this study showed that the levels of TSS were above WHO recommended levels in most parts of the City, including the location of the proposed project.

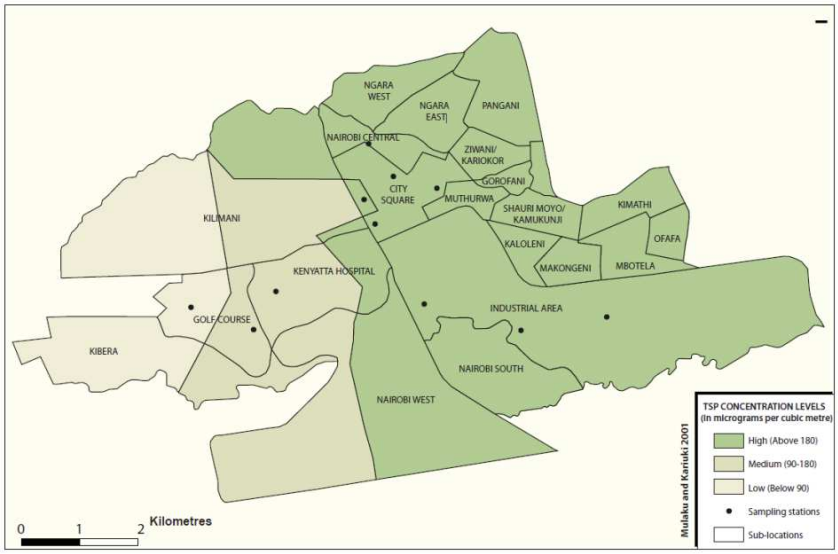

Figure 3-4: Average total suspended particulates (TPS) over a section of Nairobi (Source: UNEP (2009), City of Nairobi Environment Outlook)

A limited spot check survey and analysis was undertaken in the Project area as part of this ESIA process. Measurements of the baseline PM_{10}, SO_2 and NO_2 levels were undertaken at 2 locations (MSP1 and MSP2). The results obtained were well within WHO and Kenyan standards; Environmental Management and Coordination (Air Quality) Regulations 2014. The air quality is expected to be impacted by construction, operation and demolition activities. However, implementation of the proposed recommended measures will keep the levels within the acceptable limits. The results are presented in Tables below.

Table 4-1: Air Quality Results at Mwariro Market

Site / Location	GPS Coordinates	Parameter	Results	Kenyan limits	IFC/WB guidelines	EU standards*/WHO Guidelines
Unit			**ug /m^3**	**ug /m^3**	**ug /m^3**	**ug /m^3**
Mwariro Market	MSP1 1º 16' 48.46" S 36º 49' 59.05" E	PM_{10} NO_2 SO_2	45.00 16.59 3.35	100 80 80	50 200 20	50 - 125 / 20
	MSP2 1º 16' 48.46" S 36º 49' 59.05" E	PM_{10} NO_2 SO_2	42.00 18.37 3.35	100 80 80	50 200 20	50 - 125 / 20

4.3.6 Noise Quality

Since noise is one of the anticipated impacts in the project, baseline noise survey was undertaken at different points to determine the levels before any activity is carried out. The measurements were rated against the World Bank guidelines and the findings are indicated in Table 4-2 below. The complete noise report is appended to this report.

Table 4-2: Noise Survey Results

Measurement Points	Type of Zone	Noise Level	NEMA Limits	WB Limits
		Daytime		
MP1	Commercial/ residential	53.3	55	55
MP2	Commercial/ residential	57.4	55	55
MP3	Commercial/ residential	55.4	55	55
MP4	Commercial/ residential	52.6	55	55
MP5	Commercial/ residential	56.6	55	55
MP6	Commercial/ residential	72.4	55	55
World Bank Guidelines: Residential: Daytime: 55 dB(A), Night-time: 45 dB(A) Industrial: Daytime: 70 dB(A), Night-time: 60 dB(A) Mixed Residential (with some commercial and places of entertainment): 55 dB(A)				

4.4 Biological Environment

4.4.1 Flora and Fauna

The rapid urbanization witnessed the City of Nairobi over time has led to degradation and loss of most of its biological environment. The City was once referred to as “Green City in the Sun” because it had a landscape which was characterized by natural forests, labyrinthine riverine ecosystems, and wetlands. Despite rapid changes brought by urbanization, Nairobi has retained green spaces such as Nairobi National Park; Karura Forest, Ngong Forest, City Park, Ololua Forest and Nairobi Aboretum.

The flora and fauna at Mwariro Market site currently consist of several species of plants and animals. Since the site has not been unutilized for some time, it has been colonized by some plant species such as reeds of different species, water lilies and liver warts grasses found on the swampy area which previously was excavated as a source of materials (refer to Plate 3-2). The dry land plant species observed at the site included shrubs and bushes, grasses and a few trees i.e. Acacia.

The fauna at the site included butterflies, birds of different species and crawling animals such as lizards which are not endangered species. None of the birds found nest on site, rather use the area for feeding and resting.

Figure 4-3: view of flora on swampy area at the Site
Source: Feasibility Report, March 2016

4.4.2 Social Environment

The social environment in the area consist of several business established enterprises, transportation system (roads) and residential area. The interaction of these establishments with people in the area and outside the area is part of the functional Nairobi social environment. Currently the social environment around the area auger well with movement of people, goods and delivery of services due to the existing infrastructure such as roads, sewer lines, power lines and commercial buildings.

4.4.3 Demographics

According to the 2009 national Census, Nairobi County had a population of 3,134,265 people. The population increase is projected to be over 4,000,000 by the year 2017 and over 5,000,000 by the year 2030 according to Kenya Bureau of Statistics. With this data, it is clear that the project is in line with the demand of food commodity in the County and the larger Nairobi Metropolitan region.

4.4.4 Gender

According to the socio-economic survey that was carried out during this study, the respondents constituted 71.6 % male and 28% female. This indicated that there are more male headed households compared to female as shown in below.

Table 4-3: Gender of the head of the household

	Frequency	%
Male	169	71.6%
Female	66	28.0%
No Response	1	0.4%
Total	236	100.0

4.4.5 Age

The socio-economic survey also showed that majority of the household heads are aged between 25-35 years constituting (32.6%) of the respondents and those aged between 36-45 years accounting constituting 28.8%. See below

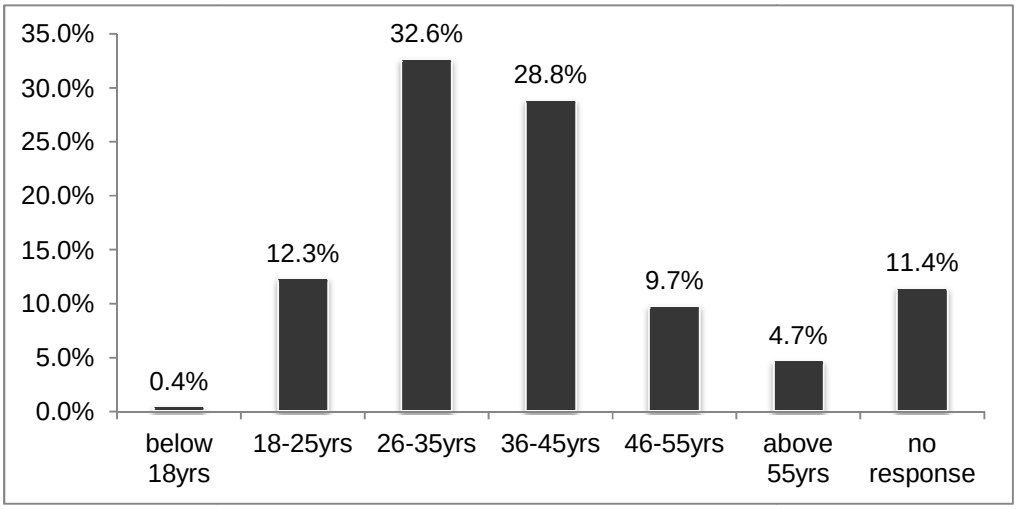

Figure 4-4: Age of the head of the household

4.4.6 Livelihood and Occupation

The table 4-4 below presents an overview on livelihoods in the Project area in the socio-economic survey findings. The primary occupation of those interviewed (head of households as well as other household members) is trading, accounting for over 90%.

Table 4-4: Livelihood occupation

Livelihood/Occupation		
	Frequency	%
Subsistence Trader	214	90.7%
Farmer	0	0.0%
Fishing/fish farming labour	0	0.0%
Self Employed craftsman	5	2.1%
Formally Employed	4	1.7%
Non employed home helper	1	0.4%
Shop assistant	1	0.4%
Student	1	0.4%
Without Occupation/Employment	0	0.0%
Other	3	1.3%
Did Not Respond	7	3.0%
Total	236	100.0

4.4.7 Income

The survey indicated that most of the people in the area make a profit of 100-500 Ksh. per day from their business, with only 2.1% making a profit of 2,001 Kshs. and

above. The tables below indicate the income levels and type of trade undertaken by the respondents.

Table 4-5: Income/Daily Profit

	daily basis		other income activity	
	Frequency	%	Frequency	%
100-500	119	50.4%	15	6.4%
501-1000	36	15.3%	2	0.8%
1001-1500	10	4.2%		
1501-2000	15	6.4%		
2001 and above	5	2.1%	2	0.8%
no response	51	21.6%	217	91.9%
Total	236	100.0	236	100.0

Table 4-6: Type of trade

Type	%
Groceries	13.1%
Barber/Salon	3.0%
Second Hand/New Clothes	11.0%
Furniture	0.0%
Electronics/Mobile Shops	3.4%
Hardware	17.4%
Auto spares	11.9%
Food Kiosks	3.0%
Garages	11.0%
Cereals	0.4%
Other	5.1%
No Response	20.8%
Total	100.0

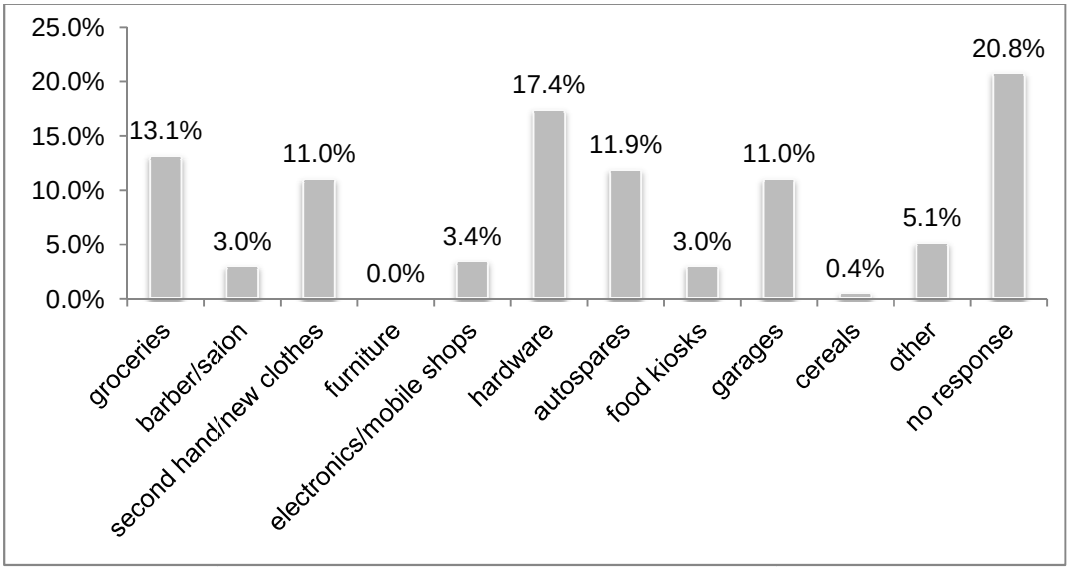

Figure 4-5: Type of trade activities

4.4.8 Education

Majority of the people surveyed in the project area have completed primary education (31.8%) and secondary education (39.4%) with only 4.2% having completed vocational training. Over 30% of the respondents have completed primary education and 6.4% did not complete primary education. The table below indicates the education levels of the respondents. Over 92% of the project affected persons could read and write as indicated in the table.

Table 4-7: Education level of the household head

Education Level	%
Without Education	2.5%
Didn't Complete Primary Education	6.4%
Completed Primary Education	31.8%
Didn't Complete Secondary Education	9.7%
Completed Secondary Education	39.4%
Completed Technical Training	3.4%
Completed Vocational Training	4.2%
Other	0.4%
No Response	2.1%
Total	100.0

Table 4-8: Percentage of respondents who can read and/or write

Read and /or Write	%
Yes	92.4%
No	3.0%
Did Not Respond	4.7%
Total	100.0

4.4.9 Structure Ownership

Majority of the respondents have rented their areas of business (37.3%), with 9.7% owning their structures, while the rest have no structures and conduct trade on the road reserve. The table below shows percentage of business structures ownership.

Table 4-9: Ownership status of the business structure

Ownership Status	%
Rented	37.3%
Owned	9.7%
Road reserve	34.7%
Did Not Response	18.2%
Total	100.0

4.4.10 Water and Sanitation

Findings of the survey indicated that majority of the people in the area have access to tap water in their houses (53%), followed by public water outside of the houses (38.6%), with other sources of water being boreholes, rainwater and traditional wells. The table below shows respondents access to drinking water.

Table 4-10: Access to drinking water

Access to drinking water	%
Traditional Well At Home	1.7%
Borehole At Home	2.5%
House With A Tap Water	53.0%
Access To Public Water Taps Outside The House	38.6%
Access To Water Sources Or Boreholes Outside The House	1.3%
Access To Surface Water	
Rainwater	1.7%
Other	0.8%
Water Vendor	0.4%
Total	100.0

Majority of the people in the area use public toilets outside of their houses as sources of sanitation facility (56.4%), with 27.1% having flush toilets. Other PAPs use latrines with and without septic tanks. Table 3-12 below indicates the sanitary facilities used by the respondents.

Table 4-11: Sanitary facilities

Sanitary Facility	%
Flush Toilet In The House	27.1%
Latrine With Septic Tank	5.5%
Latrine Without Septic Tank	7.6%
Public Toilets Outside The House	56.4%
None	0.0%

Sanitary Facility	%
No Response	3.4%
Total	100.0

4.4.11 Energy

The people in the area use electricity from the national grid for lighting (80.9%), followed by kerosene (23.3%),candles (10.2%), generator (3%) and lantern (2.1%) in that order, as shown in the tables below;

Table 4-12: Energy-Type of lightning

Energy use in lighting	%
Electricity (Public Utility)	80.9%
Electricity (Power Gen)	3.0%
Oil Lamp/Lantern	2.1%
Kerosene Lamp/Lantern	23.3%
Candle	10.2%
None	0.4%
Other	0.4%
Total	120.3%

Kerosene (56.4%) and Liquefied Petroleum Gas (LPG) 32.2% are the most used forms of energy for cooking as shown in table below followed charcoal (25.8%), then electricity and biogas in that order.

Table 4-13: Energy-Cooking

Energy used in Cooking	%
Electricity	3.4%
Kerosene	56.4%
Coal	25.8%
LPG Gas	32.2%
Biogas	2.5%
Dry Plants	3.4%
Total	123.7%

4.4.12 Household Equipment

The survey indicated that the most common house equipment owned by traders is the mobile phone consisting (91.1%) 3044of the respondents, followed by radio (88.6%), then television (83.1%). Other equipment includes bicycle, motorcycles, generators, cars among others as shown in table below.

Table 4-14: Household equipment

Household Equipment	%
Bicycle	10.6%
Motorcycle	4.2%

Household Equipment	%
Truck	0.0%
Car	2.1%
Wheel barrow	0.8%
Mobile Phone	91.1%
Tractor	0.0%
Water Pump	2.1%
Radio	88.6%
Television	83.1%
Generator	1.3%
Total	283.9%

4.4.13 Awareness of Project

The respondents indicated high levels of awareness for the NaMSIP project. 97% of those interviewed indicating that they knew about the project.

Table 4-15: Awareness of Nairobi Metropolitan Services Improvement Project

Awareness of Project	%
Yes	97.0%
No	0.4%
Did Not Respond	2.5%
Total	100.0

4.4.14 Source of Information on the project

The respondents cited several sources of information about the project including national and county government, neighbours and family members as well as public meetings respectively. The table below indicates the main source of information to the respondents.

Table 4-16: Main source of information about project

Sources of Information about the Project	%
Family Members	5.7%
Neighbours	28.4%
National Government	10.9%
County Government	21.4%
Public Meetings	34.1%
Others	0.4%
Total	100.0

4.4.15 Challenges

The findings indicated that Insecurity was ranked the highest among the challenges faced by the traders, followed by inadequate space, dilapidated structures, untidy work conditions, inadequate storage facilities, lack of water and sanitation facilities, as well as lack of electricity. The challenges are summarized in the table below:

Table 4-17: Challenges

Challenges	%
Insecurity	100.0%
Limited Space For Stalls And Parking	94.9%
Untidy Working Conditions	80.1%
Storage Facilities	75.8%
Poor Business Structures	84.3%
Lack Of Water & Sanitation Facilities	72.0%
Lack Of Electricity	61.4%

4.4.16 Immediate Investment Activities

92.8% of the traders interviewed would like a new modern market built while others would like the issue of water and sanitation (10.6%), security (8.5%), parking (5.5%) and market upgrade (3.8%) addressed in that order.

Table 4-18: Immediate Investment

Investment Activities	%
Build New Modern Market	92.8%
Upgrade Existing Market	3.8%
Expand Loading Zone & Parking	5.5%
Address Water & Sanitation Services	10.6%
Install Security Systems & Lighting In The Market	8.5%
Others	0.8%
Total	122.0

CHAPTER FIVE

5 PUBLIC PARTICIPATION

5.1 Stakeholder Mapping and Consultations

Public participation is basically concerned with involving, informing and consulting the public in planning, management and other decision-making activities. Legal Notice 101 of EMCA 1999 (The Environmental Regulations, 2003) requires that all environmental assessment process in Kenya to incorporate Public Consultation.

Public consultation in this project was carried out with the following aims:

- To inform the local people, leaders and other stakeholders about the proposed project and its objectives
- To seek views, concerns and opinions of people in the area concerning the project
- To establish if the local people foresee any positive or negative environmental effects from the project and if so, how they wish the perceived impacts to be addressed
- is to ensure that all stakeholder interests are identified and incorporated in project development, implementation and operation

5.2 Public Consultation Methodology

The following techniques and instruments were used for public participation and consultation.

5.2.1 Stakeholders identification

The ESIA team identified the following key stakeholders for the project.
The table below illustrates the stakeholders consulted.

Table 5-1: Stakeholder Mapping Checklist

Primary Stakeholders		
No	**Name**	**Category**
1.	NaMSIP	Project Proponent
2.	Project Affected Persons/Traders	Project Affected Persons, Potential future traders
3.	Nairobi County	County Government
4.	Local Administration	

5.2.2 Initial Interviews

This involved face-to face interaction between the consultants/experts and the stakeholders of the project. An interview guide was used to solicit information from various government offices and relevant players on the area of study.

5.2.3 Socio-Economic Survey

This process involved an Economic and Social Surveys conducted on the general community through direct interactions and also through a structured questionnaire administration designed to generate the required information. The information was

used to answer questions related to status of social and economic parameters within the project site including, the availability or lack of social service facilities, existing levels of access to education, health, potable water and related services, local market prices as well as agricultural production and productivity.

5.2.4 Key Informant Interviews

Key Informants interviews were undertaken in two sessions within the month of May 2016 (16/05/2016; 17/05/2016) with key experts leading the development of the market from the Nairobi County, and market leaders. The purpose of key informant interviews was to collect information from a wide range of people—including market leaders and professionals have first-hand knowledge about the project. Participants to the meetings were drawn from the following groups and organizations.

Table 5-2- Schedule of Meetings held

Name of Officer	Organization	Date of Meeting
Mr. Peter Bundi	NAMSIP	16/05/2016
Eng. S Abeka - 0722561284	Head of Markets Nairobi County	16/05/2016
Mr. Joshua Otieno -0720959327	Assistant Head of Markets Nairobi County	16/05/2016
Mr. Hari Mwahari - 0721219374	Assistant Head of Markets Nairobi County	16/05/2016
Mr. Nderitu - 0714347558	Vice Chair Mwariro Market	17/05/2016
Mr Gitau -0723897216	Youth Leader Mwariro Market	17/05/2016

5.2.5 Public consultations

A public consultation meeting took place at the proposed site for Mwariro Market in Nairobi County on 2/6/2016. The aim was to get the views from the public concerning the proposed project; how it will affect them and the potential impacts to the environment, including their views on how that can be mitigated.

The meeting was attended by diverse project stakeholders that included women, men and the youth. A list of the attendants is attached as an annex, including the minutes of the meeting.

5.3 Key outcomes of the consultations

The table below highlights the key outcomes of the consultation

Table 5-3: Key Outcomes

	Questions/Comments	Responses
Dennis Kung'u	Who is the Contractor given the responsibility of building the market?	SGS is not aware of the identity of the contractor or firm given the responsibility of constructing, this will be communicated to the public once tendering process is finalized.
Raphael	This area has poor security,	Security for the market has been

Gitau	how will this issue be addressed?	addressed in the architectural plans through provisions of lighting, security cameras. In addition, there will be private security guards at the premises.
Joshua Maina Kabata	How much money has been set aside for constructing the market?	The overall cost/budget for the markets is estimated at Kshs. 15 Billion. Individual market budgets will be released to the public once all plans have been finalized.
Mary Akoth	I sell vegetables, since the proposed market is modern, will I still be able to sell?	Yes, a census will be undertaken of all traders that will be housed at Mwariro and all will be accommodated within the new market.
Stanley Gichoi	Will the Youth be involved in construction?	The contractor identified for construction will be advised to make use of local labour and materials as much as possible.
Stanley Gichoi	Is there a grievance redress mechanism system in place and will it be effective?	There will be a grievance redress mechanism which will be put in place for the traders and other stakeholders and is expected to handle any issues fairly. The grievance mechanism will be disclosed to the traders at a later stage after the construction begins.
Irene Wambui	In the past contractors have done shoddy jobs. Can NaMSIP have a monitoring and evaluation system to ensure the contractor complies?	This is noted and the proponent will be advised to ensure an M&E system is part of contractual agreement with identified contractor.
Caleb Angati	Will we get space for garages?	The proposed market has planned for stalls. Car mechanics are advised to utilize space set aside by Nairobi City County.

CHAPTER SIX

6 ANALYSIS OF ALTERNATIVE

6.1 Introduction

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study Report subsequent to which, subsection (i) requires an analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies.

This section analyses the project alternatives in terms of site, technology and waste management options.

6.2 The No Project Alternative

The No Project option in respect to the proposed project implies discontinuation of the project proposal hence the status quo is maintained. The result is the site being retained in its existing form. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will however have the greatest implications on the socioeconomic environment of the area and surrounding communities. This will mean the market will not be developed, and the land will remain unutilized for the specific purpose it is supposed to serve. The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- The economic status of the direct and indirect users of the market will remain unchanged,
- The empty land will stay unutilized as a market land,
- No employment opportunities will be created for local citizens who will work in the project area and after the development of the market,
- Increased urban poverty and crime in Kenya will continue to rise,
- Development of infrastructural facilities (roads and associated infrastructure) will not be undertaken.

From the analysis above, it becomes apparent that the No Project alternative is not attractive to the local people, Kenyans, and the Government of Kenya.

6.3 Analysis of Alternative Construction Materials and Technology

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. The construction works will be done using locally sourced materials that meet the Kenya Bureau of Standards requirements.

The technologies available include use of traditional material which is represented by concrete structures and concrete or clay bricks or use of steel frame and thermo-acoustic aluminium panels. Some of these may not be desirable from a cost and durability perspective, e.g. steel frame. The technology to be adopted will be the most economical and one sensitive to the environment.

6.4 Solid waste management alternatives

A lot of solid wastes will be generated from the proposed project, which could be detrimental to the environment. An integrated solid waste management system has been recommended to mitigate any impacts of solid waste generated from the project during construction and operation of the proposed project. First, the proponent will give priority to reduction at source of the materials. This option will demand a solid waste management awareness programme in the management and the staff. Recycling and reuse options of the waste will be the second alternative in priority. This will call for a source separation programme to be put in place. The third priority in the hierarchy of options is combustion of the waste that is not recyclable. Finally, the proponent will need to establish agreement with Nairobi County Government to ensure regular waste removal and disposal in an environmentally-friendly manner. In this regard, a NEMA registered solid waste handler would have to be engaged. This is the most practical and feasible option for solid waste management considering the described options.

CHAPTER SEVEN

7 ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT AND MITIGATION MEASURES

7.1 Introduction

This chapter outlines the potential negative and positive impacts that will be associated with the project. The impacts will be related to activities to be carried out during construction of the project and the operation stage of the project. The operational phase impacts of the project will be associated with the activities carried out within the premises. In addition, closure and decommissioning phase impacts of the project are also highlighted.

The impacts of the project during each of its life cycle stages (construction, operation and decommissioning) can be categorized into: impacts on the biophysical environment; health and safety impacts and socio-economic impacts.

7.2 Approach

The process involved in assessing the potential impacts of the project used the following steps:

- Prediction: What will happen to the environment as a consequence of the project?
- Evaluation- will it have beneficial or adverse effects? How big is the change expected to be? How important will it be to the affected receptors?
- Mitigation- if the impact is of concern, can anything be done to avoid, minimize, or offset the impact? Or to enhance potential benefits?
- Assessment of Residual impact-After mitigation, is the impact still of concern?

7.3 Positive Impacts

7.3.1 Shield against adverse weather conditions

The construction of a modern market will ensure traders carry out their businesses without worry of extreme weather such as vulnerability to rainfall and heat from the sun since the market will have a roof and wall around it.

7.3.2 Increase in Revenue collection for Nairobi County

It is anticipated that the project will result in growth in revenue to County Government of Nairobi, through revenues collected in the market from the traders.

7.3.3 Employment opportunities

Demand and supply of goods and services for the workforce creates a temporary direct and indirect employment to the local businesses. Local residents, especially the youth will benefit from expanded opportunities for seasonal employment during the construction period of the road. Local businesses will also benefit from supply of construction materials to the contractor.

7.4 Negative Impacts

7.4.1 Loss of vegetation

The development of the proposed Market is expected to cause some limited loss of vegetation at the site during construction. As noted in Chapter 3 on description of baseline environmental and social conditions, the flora found at the site include: reeds of different species, water lilies and liver warts (in a swampy area), shrubs and bushes, grasses and a few trees such as small natural acacia trees that have grown as a result of the site being empty.

There will be no effect on the terrestrial ecology both during operation and decommissioning phases. During the operation phase, the site would be covered by the proposed development while for decommissioning phase; the site would be restored and rehabilitated to the natural contours.

Mitigation measures during construction

The Proponent and Contractor should implement Terrestrial Ecology disturbance control measures which shall include:

- Maintain current trees at their location if possible, or uproot and replant in areas that will not be developed or used for landscaping
- Restoration of vegetation or planting of trees or having flower gardens around the project site

Mitigation measures during Operation

- Replenish vegetation at the open areas of the market regularly
- Proper maintenance of trees and other vegetation at the market

7.4.2 Impact on Soil

Construction activities could lead to increased soil compaction, erosion and contamination in and around work sites Soil contamination by construction machinery will be localised and short term. Soil compaction is likely to be caused by movement of heavy construction machinery in and around the site. Soil erosion is likely to be caused by site preparatory activities such as soil stripping and excavation. Soil contamination is likely to result from oil and fuel spill from construction vehicle and equipment. These impacts are expected to be short term and of low significance. During operation phase risk of impacts on soil are not anticipated as the site will be occupied by the market building and associated paved surfaces and therefore impacts on soil during this phase is not considered any further. During decommissioning phase, risk of impact on soil is likely because of demolition and removal of facilities and structures at the site.

Construction Mitigation measures

The contractor is recommended to undertake the following measures to mitigate the risk of soil erosion during construction:

- Only area required for the project shall be cleared of vegetation
- Measures shall be taken to ensure that topsoil and subsoil excavated from the construction site is properly managed. These measures are contained in the construction environmental management plan.
- A minimum amount of storm water will be allowed to flow on to the site, and control measures to meet industry norms and standards will be implemented to ensure that storm water damage is avoided and minimized.
- Provide erosion channels to natural drains and rivers/streams to minimize erosion
- Provide embankments and re-vegetate with grass and shrub species
    - Denuded areas shall be surfaced as soon as possible to minimize soil erosion.
    - Construction vehicle and equipment should be regularly inspected and serviced to prevent oil and fuel spills.
    - Conduct proper chemical waste management to avoid spillage of chemicals

Mitigation measures during decommissioning phase

It is recommended to undertake the following measures to mitigate the risk of soil erosion during decommissioning:

- The stockpiled soil can then be reused following closure of the site for rehabilitation purpose
- Denuded areas shall be surfaced as soon as possible after demolition, where clearing or use has been temporarily used for construction.
- At closure, the site shall be restored as much as possible to its natural contour.

7.4.3 Disruption and damage of public utilities

There is potential for a few disruptions of public utilities, especially the electric power and some water lines, especially the ones that might be located near or located at the site. Although minimal, disruption of electric power will occur during connection of power to the project. During transportation of materials to construction site, the use of already existing tarmacked roads to the site may lead to damage on paved surfaces if axle load weight is not observed, resulting to poor roads, and spending more money repairing the affected roads. Water and sewer utilities may also be affected during construction through damage or disruption during connection periods.

Mitigation measures

- Contractor to generate utility management plan
- Contractor to minimize damage to public utilities

7.4.4 Air Quality

7.4.4.1 Decreased air quality due to dust emission

During construction phase, potential dust pollution will be generated from:

- site preparation activities such as stripping and excavation;
- movement of vehicles over unpaved surfaces;

- dust blown from stockpiles, earth moving operations and other dusty surfaces.

Dust emission is not envisaged during operation phase because the market surface will be concreted and hence limited or no generation of dust. During decommissioning phase, dust emission would be generated from debris and soil resulting from demolition activities.

Construction Phase Mitigation measures

The Proponent and Contractor should implement dust abatement measures which shall include:

- Sprinkling stockpile with water regularly or cover with a membrane to prevent them from being blown away;
- Sprinkling water on the unpaved surface over which construction vehicles and machinery driven;
- Covering of all materials/loads leaving or entering the site
  - Provision of PPE in accordance with the risk of the various work places e.g. masks; goggles; coveralls; etc.;
  - Prohibit idling of vehicles and creating awareness on the same.
  - Impose speed restrictions for trucks
  - Strictly cover any trucks carrying construction materials;
  - Proper maintenance of construction equipment per the manufacturer requirements

Decommissioning Phase Mitigation measures

The Proponent and Contractor shall implement dust abatement measures which shall include:

- suppress dust regularly using water;
- securely cover skips and minimise drop heights;
- use manual methods during demolitions to minimize generation of dust;
  - cover areas to be demolished

7.4.4.2 Exhaust emissions

Exhaust emissions from construction vehicles and machinery are the sources of gaseous pollutants during construction and decommissioning phases.

During operation phase, exhaust emissions from vehicles used by traders to deliver items to the market and those used by customers coming to the market will be the main sources of gaseous pollutants.

The impact from these sources will be minor and be limited to the project site.

Mitigation measures

- Proper maintenance of construction equipment per the manufacturer requirements
- Controlled operation of construction plant and equipment- minimize idling and turning off equipment when not in use

7.4.5 Noise and Vibration Pollution

During construction phase, potential noise pollution will be generated from:

- Movement of vehicle and plant machinery during activities such as stripping and excavation;
- Concretes mixing using a mixer
- Vibrating machinery and equipment
- Hammering operations
- Compacting operations
-

During operation phase, the primary noise sources at the site will include vehicles delivering the supplies to the market; customer's vehicles, and market activities including playing of loud music or use of sound amplifiers to attract customers. And during decommissioning phase, sources of noise will include; demolition works and vehicles carting away materials.

Construction Phase Mitigation measures

The Proponent and Contractor shall implement noise pollution control measures which shall include:

- comply with the legal requirements for the management of noise impact specified in the noise quality regulations;
- Ensure that potentially disturbing construction noise is not produced outside of working hours and use barriers where applicable
- construction equipment will be properly muffled in addition proper maintenance
- Use of ear muffs by the workers and other Personal protective equipment
- construction activities will be restricted to daytime hours only
- Proper maintenance of vehicles as per the manufacturer's specifications

Operation Phase Mitigation measures

The Proponent and Contractor shall implement noise pollution control measures which shall include:

- Comply with the legal requirements specified in the noise quality regulations;
- Noise concerns raised by the public will be addressed on an individual basis in a timely manner.

Sensitize and educate the traders to be aware of and understand the safety risks and health hazards associated with high noise levels

Decommissioning Phase Mitigation measures

The Proponent and Contractor shall implement noise and vibration abatement measures which shall include:

- Same as in construction phase

7.5 Solid waste

This may be worsened if some of the waste materials contain hazardous substances, are not biodegradable, and can have long-term and cumulative effects on the environment.

7.5.1 Construction Stage

During the construction of the project and related infrastructure, considerable quantity of construction waste will be generated. Such waste will consist of demolition and excavated materials, metal drums, surplus spoil materials, empty paint and solvent containers, paper bags, empty cartons, waste oil, and waste bitumen, among others. At the end of the construction stage, waste will be generated due to the demobilization of contractors' yard and stores. Such waste will consist of demolition of hoarding, rejected materials, paper bags, and empty cartons, among others.

Mitigation Measures

- Contractor to establish a solid waste management plan for solid disposal of debris/ garbage at the construction site to be approved by the Project Engineer
- Stacking and disposal of solid waste material shall be such that it shall not disturb the surrounding land use and shall be disposed off at the approved and designated disposal site identified by the Nairobi County.
- All construction waste shall be removed from site when the contractor complete the works

7.5.2 Operation Stage

During the operation stage, the main type of waste expected to be generated will be food items waste, such as fruit peelings and stocks, paper products, and other normal food wastes generated from agricultural food items.

Mitigation Measures

The following measures shall be taken to minimize the adverse impact due the said waste types.

- Provision shall be made to provide separate collection bins for biodegradable and non-biodegradable waste at the new facility. Waste from such bins shall be collected on daily basis by the county workers for proper disposal
- Traders will also be provided with bins near their merchandising points to ensure waste generated is collected at garbage stations or transfer points and later disposed at the main collection points for further disposal by the county authorities.
- All the collection bins and collection points/stations shall be properly maintained on regular basis

7.5.3 Impact on Water Resources

7.5.3.1 Water Pollution

During construction phase, potential water contamination could arise from disturbance of soil, spillage of fuels, lubricants and other toxic materials at the construction site, discharge of silt laden run off from sites, and disposal of waste and wastewater from sanitary convenient provided to construction workers.

Although the chemical composition of the soil at the site was not established, there is a possibility that it could have been impacted by the neighbouring and previous land use activities onsite. Lose of this soil in the nearby river/stream may result in water pollution

Storage and handling of construction materials such as concrete additives, oil, fuel and solvent at the construction site could lead to spills on site, along roads and in surrounding areas. Contaminated run-off from spill sites could adversely affect soils, vegetation and water quality. The extent of impact will depend on the size, frequency and timing of spills in relation to flow conditions in the receiving waters. The extent will also depend on the nature of the materials involved including their toxicity and possible for bio-magnification or bioaccumulation.

Construction mitigation measures

The Proponent and Contractor should implement good construction site practices to control water pollution, which include:

- Chemical composition of the soil should be established prior to construction and remedial measures instituted (where necessary)
- Erosion control measures highlighted earlier should be implemented
- Adopting protective measures to prevent spills and putting in place suitable spill response measures
- Ensuring that both liquid and solid wastes generated from the construction site are collected and disposed offsite by NEMA approved waste handler.
- Slope stabilisation, protection of soil storage areas, controlled site drainage and use of sediment traps.
- No repair or servicing of vehicles will be allowed on site
- Proper maintenance of vehicles as per the manufacturer's specifications

Operation phase mitigation measures

During operation phase, solid waste generated from the Market if not managed appropriately can be washed down by storm water to the nearby Nairobi River via roadside storm water drains in the vicinity and consequently increasing pollution load of the river.

- The Proponent and market administration shall ensure that solid waste generated from the Market is collected and disposed offsite by NEMA approved waste handler.
- Monitor water wastage and usage during operational stages of the market
- Install pressure taps that minimize and time usage

- Repair damaged taps and toilets to minimize wastage of water

During the decommissioning phase, the potential negative impacts to water resources are likely to be very similar to those considered during the construction phase of the Project, and the appropriate mitigation measures should be employed to reduce impact on receptors.

7.5.4 Socio-Economic Impacts

Socio-economic impacts take into consideration the relationship between economic activities and social life. This relationship is interlinked by the dependence of social activities on economic activities and the vice versa. In most instances the focus is on the social impacts due to economic changes. With regards to the proposed market, there is greater emphasis on economic issues, particularly relating to provision of enough space so that traders can do their business conveniently.

7.5.4.1 Social conflict within the traders

The development of the market as well as allocation of space for doing business has been discussed through public consultation, and there are many expectations on who will occupy the stalls when the development is completed. Against the background of this knowledge and expectation, there is a risk of dissatisfaction if procedures of allocation of stalls or space are not adequately applied, or if they are seen to be applied in an inequitable manner.

Mitigation measures

- Adhere to the market policy in allocation of stalls or space to traders;
  - Implement proposed grievance resolution mechanism

7.5.4.2 Increased traffic

Activities related to construction works and operation will undoubtedly induce uncharacteristic levels of additional vehicular traffic at the site and roads leading to the site and market respectively. Related issues of vehicle congestion and reckless driving by truck drivers delivering construction materials and supplies to the site and market will be sources of potential accidents to road users and pedestrians. Disturbance of normal living conditions to the local population and business people due to the increased traffic in the area will also be expected especially during the construction period.

Mitigation measures during construction

The Proponent shall implement the following measures to minimise inconvenience and danger to proximate residents through increased road traffic and dust, and reduced access to worksites:

- Determine the main access and egress points for the site throughout the project duration, along with scheduled changes in these access and egress points, if applicable. These points need to be shown on the site layout (i.e., site setup) drawings.

- Proper traffic control signage should be installed. This includes road signage to be erected in the vicinity of all the entrances and junctions to control construction traffic
- Delivery of materials should be planned at night when there is minimal traffic
- Any excavated materials should be hauled at night or timed during traffic off-peak periods
- Prepare a plan for communication with local residents and businesses surrounding the construction site. Effective communication with local stakeholders is essential to minimise the inconvenience to the surrounding community
- The contractor shall prepare a traffic management plan to be approved by the RE
- The contractor's vehicles and equipment must be in proper working condition and have registration plates, and numbering.
- The contractor ensures proper driving discipline by its employees, and sanctions those in breach.
- Excavated sites, embankments, and dangerous locations are protected with proper safety barriers, tape and warning signs.
- Maintain a log detailing every violation and accident on site or associated with the project work activities, including the nature and circumstances, location, date, time, precise vehicles and persons involved, and follow-up actions with the police, insurance, families, community leaders, etc
- Implement grievance resolution mechanism

Mitigation measures during Operation

- Make the necessary arrangements for coordinating and controlling delivery vehicles
- Make arrangements with the traffic police and county personnel to manage traffic in the area to mitigate against traffic accidents and traffic jam built up at the entry and exit points of the market
- Delivery of supplies should be limited to off-peak hours when the market is not operational to minimize traffic jams in the area.

7.5.4.3 Health and Sanitation concerns

Workers at the construction site will require sanitation facilities during construction period, which if not well maintained and cleaned, may lead to outbreaks of illnesses such as cholera, hepatitis, typhoid etc.

During operations, lack of adequate and clean sanitation facilities at the market to accommodate all the traders and customers can also lead to potential outbreaks of diseases. It is therefore important to ensure that the market is equipped with enough and clean sanitation facilities to mitigate such occurrences.

Mitigation measures during construction

- Contractor to provide clean and adequate sanitation facilities for the workers at all times
- Contractor shall also provide clean drinking water at the construction site for his workers at all times

Mitigation measures during operation

- Project proponent to ensure that the sanitation facilities are cleaned at all times
- Proper maintenance of sanitation facilities
- Facilities should be cleaned regularly, with one day set aside for major clean up once a month
- Ensure drainage system and specific design measures are working effectively.
- Well planned and thorough regular cleaning, including drainage areas and under points of sales
- Discourage cleaning of produce at the stalls to minimize water ponding in the market

7.5.4.4 Occupational Health and Safety Issues

Construction workers will be exposed to risks of accidents and injuries during construction activities. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of objects and risk of vehicular accidents. Other injuries or fatalities may result from workers operating equipment without adequate training or with lack of PPE, or extended exposure to outdoor weather resulting in heat related lethargy. This is considered a short-term impact that has potential long-term implications. Risks of injuries and accidents may also happen to local people if the site is not well secured through falls at excavated areas and by construction vehicles.

Mitigation measures during construction

- Contractor shall provide an Occupational Health and Safety Policy and OHS Plan for the work to be performed at the sites
- Provide medical and insurance cover for all workers
- In collaboration with local health authorities, ensuring that medical staff, first aid facilities are available at all times at the site
- Appoint an Occupational Health and Safety (OHS) officer at the site, with necessary authority and resources to manage OHS issues
- Provision of adequate and right safety tools and personal protective equipment (PPEs) to protect and prevent possible injuries to the workers
- The site shall be fenced off and provided with security at the access gates to reduce potential accidents and injuries to the public

7.5.4.5 HIV/AIDS and Sexually Transmitted Infections (STIs)

Construction projects are associated with an increase in sexually transmitted diseases and HIV/AIDS due to the influx of immigrant workmen interacting with the local people. Construction teams, as well as the greater number of drivers, who are expected to serve the project in various capacities, can also cause social upheaval among communities near the site.

Mitigation measures during construction

- Initiate a sensitization and awareness campaign on HIV/AIDS and STDs to be done to workers and local community;
- Reduce risk of transfer through provision of male and female condoms for all workers;
- Provide free STI and HIV/AIDS screening, diagnosis, counselling for workers and local people near the site

Mitigation measures during operation

- During operations, the market management shall ensure that a continuous sensitization and awareness program on health issues related to STDs and HIV/AIDS at the market is maintained and conducted regularly, e.g. installing posters at the market.

7.5.4.6 Crime Management, Child protection, Gender equity and sexual harassment

The laws of Kenya prohibit contractors from "employing children in a manner that is economically exploitative, hazardous, and detrimental to the child's education, harmful to the child's health or physical, mental, spiritual, moral, or social development. It is also important to be vigilant towards potential sexual exploitation of children, especially young girls. The contractor should adopt a 'Child Protection Code of Conduct'; that all staff of the contractor must sign, committing themselves towards protecting children, which clearly defines what is and is not acceptable behaviour.

Crimes might occur in the project area during the construction and operation such as stealing of construction materials or individual property, fighting, petty crimes such as pick pocketing, drug abuse and alcoholism among others.

There is also potential that gender inequality might occur during project construction through unequal distribution of work, discrimination against women, and unequal pay for women, lack of provision of separate facilities for women, among others. Sexual harassment against women might also happen as a result of mixing of women and men at the construction site.

Mitigation Measures (design)

- Proper design incorporating lighting to enhance security at the market
- Provision for fencing along the property boundary should be part of the design to control entry and exit points

Mitigation measures during construction

- Ensure no children are employed on site in accordance with national labor laws
- Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police
- The client and the contractor shall adopt a 'Child Protection Code of Conduct' which sets stringent standards for personal behavior so as to avoid child exploitation and abuse.

- The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with this Code of Conduct.
- Removing any employee who persists in any misconduct or lack of care, carries out duties incompetently or negligently, fails to conform to any provisions of the contract, or persists in any conduct which is prejudicial to safety, health, or the protection of the environment.
- Taking all reasonable precautions to prevent unlawful, riotous or disorderly conduct by or amongst the contractor's personnel, and to preserve peace and protection of persons and property on and near the site.
- Prohibiting alcohol, drugs, arms, and ammunition on the worksite among personnel.
- The contractor and Supervision Consultant should register in a log all events of a criminal nature that occur at the worksite or are associated with the civil works activities.
- The contractor and Supervision Consultant should report all activities of a criminal nature on the worksite or by the contractor's employees (whether on or off the worksite) to the police and undertake the necessary follow-up. Crime reports should include nature of the offense, location, date, time, and all other pertinent details.
- Sensitize the construction workers, locals, and security to be on the lookout on suspicious activities near the site
- The contractor's responsibility for workers' conduct within the worksite should include but not limited to:
- Contractor to prepare and enforce a No Sexual Harassment Policy in accordance with national law where applicable
- Contractor and implementing agency to prepare and implement a Gender Action plan to include at minimum, in conformance with local laws and customs, equal opportunity employment, gender sensitization
- Provision of gender disaggregated bathing, changing, sanitation facilities
- Grievance redress mechanisms including non-retaliation should be set up for the workers
- Liaise with the administration units (County and sub county governments, Police, DO, chiefs, etc.) to provide regular surveillance and patrols to protect workers and shoppers during operation
- The market management should hire a security firm to manage security within the market

7.6 Cummulative impacts

Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity. For practical reasons, the

identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities[1]. Cumulative impacts can only occur where, following the implementation of mitigation, significant residual impacts are predicted by the ESIA process.

The cumulative impacts considered in this project include the following;

- Air quality,
- Water quality,
- Waste management
- Noise impacts
- Traffic
- Social economics

7.6.1 Assessment of the impacts

The assessment looked at the likelihood of an impact having a residual impact that can build up or interact with other impacts from other market projects after the implementation of the mitigation measures proposed in this report. The impact was then rated likely or unlikely. The distances between the markets were also taken into consideration. The distance of other proposed markets to Mwariro market is set out in table 7-1 below.

Table 7-1: The distance of Mwariro Market in reference to other fourteen markets on a straight line

	Market	Approximate distance from Mwariro Market
1.	Muthurwa	540 metres
2.	Jogoo Road	3.23 Km
3.	Githurai	11.95 Km
4.	Kiambu Market	12.23 Km
5.	Kihara	10.09 Km
6.	Kikuyu	19.17 Km
7.	Karandini	8.64 Km
8.	Ngong	21.56 Km
9.	Ole Kasasi	14.89 Km
10.	Kitengela	26.34 Km

[1] IFC), 2013, Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets

	Market	Approximate distance from Mwariro Market
11.	Ruiru	19.45 Km
12.	Juja	27.46 Km
13.	Madaraka	38.71 Km
14.	Tala	54.09 Km

The following tables look at the significance of an impact to have residual cumulative impact. The impacts are rated as negligible, minor or moderate.

Residual cumulative impact of air quality

No significant local air quality effects are predicted following the good construction practice, which incorporates the implementation of the identified mitigation measures in the ESMP

Phase	Significance (Pre-mitigation)	Residual Significance (Post-mitigation)
Construction	negligible	negligible
Operation	negligible	negligible

Residual cumulative impact of water quality

No significant impacts on the local water environment are predicted with the implementation of proposed mitigation measures. Therefore in reference to the fifteen markets, interaction of the impacts to produce cumulative impact is negligible.

Phase	Significance (Pre-mitigation)	Residual Significance (Post-mitigation)
Construction	minor	negligible
Operation	minor	negligible

Residual cumulative impact of Waste management

In waste management cumulative impact to the waste services could be impacted if mitigation measures are not implemented and the impact significance could be minor. Therefore following the implementation of mitigation measures cumulative impact are localised and impossible to spread and combine to produce any significant cumulative impact

Phase	Significance (Pre-mitigation)	Residual Significance (Post-mitigation)
Construction	minor	negligible

Operation	negligible	negligible

Residual cumulative impact of Noise quality

For the proposed market project, the noise generation is predicted to be localised. In addition to distance between the markets its impossible for the noise level to combine and produce significant cumulative impact

Phase	Significance (Pre-mitigation)	Residual Significance (Post-mitigation)
Construction	negligible	negligible
Operation	negligible	negligible

Residual cumulative impact of traffic congestion/interruption

Due to the geographical location of the markets and the fact that all the markets are not going constructed at the same time. It's unlikely that any significant cumulative traffic impacts arising from the market improvement projects. In addition the haulage routes and access roads for the markets are different and widespread; therefore no significant impact will arise following the implementation of the localized mitigation measures

Phase	Significance (Pre-mitigation)	Residual Significance (Post-mitigation)
Construction	minor	negligible
Operation	negligible	negligible

7.6.1.1 Cumulative impact on socio economic

Cumulative impacts on socio economic as a result of all the fifteen markets being built at the same time is likely to have positive impacts to the socio economic of the metropolitan region. Some of the benefits include the following;

- Increased number of people employed in the building sector as casual/permanent during the construction and operation stage
- Improved markets will reduce produce loses because of the improved storage conditions and working condition and increase profitability of the businesses in the markets
- The county revenue tax will increase due to the increase of number of traders in the market.

7.6.2 Conclusion

The possibility of the interaction of the impact is unlikely to produce any cumulative impact due to the distance between the markets and their geographic location. In addition the market will not be constructed at the same time, which make the interaction of the impacts unlikely or even produce any cumulative impact

CHAPTER EIGHT

8 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

8.1 General Overview

The project is geared towards enhancing social and economic benefits through the development of Mwariro Market. The project would be expected to comply with the environmental conservation requirements in accordance with the established Kenyan laws and regulations. To realize these goals, acceptability by a majority of the stakeholders and minimal effects to the physical environment will require to be ensured through participation in the project and continuous consultations, evaluations and review of the design aspects throughout project implementation cycles.

It is also recommended that the environmental management guiding principles specific to this project improvement and water resources management be established to allow integration of environmental management considerations during construction and operations.

Among the factors that need to be considered in this particular project implementation will include,

- Enhancing integration of environmental, social and economic functions in the project implementation.
- Compensation of any land or property that may be affected by the project in accordance to the laid down regulations,
- The contractors and other players in the project activities be prevailed upon to implement the ESMP through a sustained supervision and continuous consultation

8.2 Significance of ESMMP

The purpose of the Environmental/Social Management & Monitoring Plan is to provide a summary of the mitigation measures identified in the ESIA, identifying to which stage (design construction operation) they are relevant, who is responsible for ensuring that the actions are taken, and what the broad costs associated with the delivery of the items is predicted to be.

The ESMMP outlined below will address the identified potential negative impacts and mitigation measures on the following project stages:

- Pre-construction and Construction Phases
- Operation Phase and
- Decommissioning Phase.

8.3 Environmental, Social, Management and Plan

ESMMP is a detailed summary of the impacts and the proposed mitigation measures. It further specifies who is responsible for implementation of the proposed actions and the cost involved in the action. It describes monitoring schedule and the parameter to be monitored.

Table 8-1: Environmental and Social Management and Monitoring Plan (ESMMP)

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
Loss of vegetation	**CONSTRUCTION PHASE** • Minimize clearing of unnecessary areas at the construction site • Replant vegetation through landscaping upon completion **OPERATION PHASE** • Replenish vegetation at the open areas of the market regularly • Proper maintenance of trees and other vegetation at the market	Design Engineer, Project Engineer and Contractor	(c) check and follow specifications in the drawings and plans (c) Minimal clearance of vegetation and soil stripping (c&o) Net change in vegetation types at the project site; (c&) Net change in fauna at the project site	Continuous during construction & operation phases	Included in the BoQ under excavations Bill No 2
soil impacts	**CONSTRUCTION PHASE** • Construct efficient drainage structures (culverts, mitre drains, scour checks etc.) • Control earthworks through cascading gabions and distribution channels for	Design Engineer, Project Engineer and Contractor NCC	(c) and (o) • Soil erosion levels	During rainy seasons	Included in the BoQ under Drainage Structures Bill No 2

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	storm water • Protect excavated sections of the route of storm water during heavy rains • Provide erosion channels to natural drains and rivers/streams to minimize erosion • Design to incorporate existing drainage pattern and avoid disturbing the same **OPERATION PHASE** • Regular cleaning and proper maintenance/repair of drainage structures				Normal maintenance budget of the market during operation
Disruption of Public Utilities	**DESIGN and CONSTRUCTION PHASE** • Design to incorporate existing public utilities and avoid disturbing the same • Contractor to generate utility management plan	Project Engineer and Contractor Utilities providers	(c) Down time of utilities affected • Complaints from the local residents • No of disruptions	(c) daily	Budget under provisional sums of Utilities Bill No 1, Item E Kshs. 6,000,000

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	• Contractor to minimize damage to public utilities				
Air Pollution	**CONSTRUCTION PHASE** • Speed control of vehicles accessing the site • Construction of bumps along the road near the market • Regular watering of access roads and work sites • Proper maintenance of construction equipment per the manufacturer requirements	Project Engineer, Contractor, Traffic police	(c) inspection / observation • Dust levels (particulate matter)- the levels may exceed the baseline levels (40 µg/m^3) presented in table 4-1 of this report but should be within the limits set out in the First Schedule of EMC (Air Quality) Regulations, 2014. At the project site boundary, the 24hour and annual time weighted average should not exceed 70 and 50 µg/m^3 respectively. • Exhaust fumes from the vehicles- the	Daily/random	Equipment and motor vehicle inspection - costs build in the planning and administration costs of the contractor equipment

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
			emission levels should not exceed the levels prescribed under Kenya Standards (KS1515:2000 on vehicular emission) e.g. CO shall not exceed 0.5 per cent volume and hydrocarbons (HC) concentrations shall not exceed 0.12 per cent volume (1200ppm) • Maintenance levels of plant and equipment		
Noise pollution	**CONSTRUCTION PHASE** • Regular Sensitization of workforce and residents on potential noise levels • Controlled operation of construction plant and equipment • No blasting shall be done on	Project Engineer and Contractor	Inspection / observation • Construction noise and vibration levels at the construction site should be within the limits prescribed in EMC (Noise and Excessive Vibration Pollution (Control) Regulations 2009 or no	daily/random	Costs build in the planning and administration costs of the contractor

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	site		more than baseline levels presented in table 4-1 of this report. The regulatory limits are as follow: • Noise levels- as provided in the Second Schedule of the above regulations the levels should not exceed Leq 60 and 30 dB(A) in diurnal and nocturnal schedules respectively. • vibration levels do not exceed 0.5 centimetres per second beyond any source property boundary or 30 metres from any moving source. • Number of Complaints from the residents		

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
Water Resources Usage	**CONSTRUCTION PHASE** • Develop water abstraction plan to minimize conflict with local residents • Manage use of piped water and other water sources mainly used by local people • Abstraction licenses should be obtained from the required authority (WARMA)	Project Engineer and Contractor WARMA	Inspection /method of waste collection • Complaints from the neighbouring communities or the authorities • Amount of water abstracted	(c) monthly	Costs build in the planning and administration costs of the contractor
	OPERATION PHASE • Monitor water wastage and usage during operational stages of the market • Install pressure taps that minimize and time usage • Repair damaged taps and toilets to minimize waste	NCC	inspection • Amount of water used • Repairs and damaged water facilities	(o) monthly	Normal maintenance budget
Water Pollution	**DESIGN and CONSTRUCTION PHASE** • Chemical composition of the soil should be established prior to construction and remedial measures	Project Engineer and Contractor Sub-County Health &	Inspection • Discharge into water bodies • Complaints from the	(c) daily (o) regularly	Costs build in the planning and administration costs of the contractor

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	instituted (where necessary) • Erosion control measures highlighted earlier should be implemented • Incorporate erosion control measures during construction at the site • No oils and fuels should be stored on the construction site – small works • Maintenance, re-fuelling and cleaning of equipment should NOT be done at construction site by the contractor – but in a licensed garages outside the site area • The design will incorporate oil sumps at the parking areas to isolate oil spills from parked vehicles that might spill to the storm drains • No solid waste, fuels or oils	Environmental Officer, NEMA, WARMA NCC	neighbouring communities or the authorities • Inspection status of streams, rivers and wetlands in the area of influence		& Maintenance costs of the market

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	shall be discharged on land surface, into drains or streams **OPERATION PHASE** • Monitor oil spills and other leakages at the at garages, parking lots, and delivery areas • Regular cleaning of oil sumps and storm water drains				
Traffic safety	• Contractor to prepare a Traffic Management Plan for approval to address the following issues; • Initiation of a safety program and measures by creating awareness and educational campaigns for workers and local communities • Installation of appropriate road signage, speed signs, and other warning signs at the site and access roads	Project Engineer and Contractor Local Police, NCC	Inspection and accident reports (c) & (o) - No of accidents (minor, major and fatal) involving project vehicles (c) & (o) - No. of complaints or grievances lodged with the project regarding construction vehicles (c) Adherence of insurance	Monthly	Costs build in the planning and administration costs of the contractor Contract clause No 18

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	• Copies of insurance policies for the contractor's drivers and vehicles should be provided to the Supervision Consultant. • The contractor's vehicles and equipment must be in proper working condition and have registration plates, and numbering. • The contractor ensures proper driving discipline by its employees, and sanctions those in breach. • Excavated sites, embankments, and dangerous locations are protected with proper safety barriers, tape and warning signs. • Maintain a log detailing every violation and accident on site or associated with the project work activities,		and traffic Act requirements		

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	including the nature and circumstances, location, date, time, precise vehicles and persons involved, and follow-up actions with the police, insurance, families, community leaders, etc. (including during operation stages)				
Settlement/Induced settlement changes	**CONSTRUCTION PHASE** • Ensure the site is fenced off to discourage informal settlement and trading around the premises • Discourage informal business settlement near the market	NCC, Local sub-county Authorities	Inspection/observation Number of informal businesses set up near the project	monthly	No direct costs
Social Issues - employment	**CONSTRUCTION PHASE** ♦ Utilization of local skilled and unskilled workers •	Contractor, Project Engineer	(c) observation /reports ♦ Number/percentage of local workers from the local communities ♦ Complaints from local residents	Monthly	No direct costs to ESMMP, costs build in the planning and administration costs of the contractor

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
Workers health and sanitation	• Contractor to provide clean and adequate sanitation facilities for the workers at all times • Contractor shall also provide clean drinking water at the construction site for his workers at all times **OPERATION PHASE** • Project proponent to provide clean and adequate sanitation facilities for the commuters	Contractor, Project Engineer NCC	Inspection/observation/ reports • Number of sanitation facilities • Sanitation facilities cleanliness • Number of disease outbreaks	Daily Monthly reports	No direct costs to ESMMP, costs build in the planning and Administration costs of the contractor & Normal maintenance costs during operation
Security and Crime	• Proper design incorporating lighting to enhance security at the market • Sensitize the construction workers, locals, and security to be on the lookout on suspicious activities near the market • Liaise with the	Contractor, Project Engineer Local police NCC	Reports Number of crimes reported (target =0)	Monthly	No direct costs to ESMMP, costs build in the planning and administration costs of the contractor & Normal operational costs

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	administration units (County and sub county governments, Police, DO, chiefs, etc.) to provide regular surveillance and patrols to protect workers and commuters				during operation
HIV/AIDS, STDs,	**CONSTRUCTION PHASE** • Initiate a sensitization and awareness campaign on HIV/AIDS and STDs to be done to workers and local community; • Reduce risk of transfer through provision of male and female condoms for all workers; • Provide free STI and HIV/AIDS screening, diagnosis, counselling for workers and local people near the site	Contractor, Project Engineer Sub-county Health & Environmental Officer, local sub-county authorities	observation / reports • No. of HIV/AIDs programs conducted by the contractor • No of testing, counselling provided • Prevalence of prostitution, HIV/AIDS and STDs in the area during construction period; • No. of condoms provided	Monthly	a) HIV/AIDS awareness campaign b) HIV/AIDS prevention campaign Kshs. 2,500,000 as per provided in the BoQ Bill No 1 , Item L
	OPERATION PHASE • Maintain a continuous	Environmental	observation / reports	Continuous	

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	awareness program on health issues related to STDs and HIV/AIDS at the market, e.g. installing posters at the market	Unit/ Proponent	• Information flow, dissemination and awareness on HIV/AIDs • No of educational posters at the market	• Response to HIV/AIDS issues	
Solid Waste	**CONSTRUCTION PHASE** • Establish a well-planned method of solid disposal of debris/ garbage at the camp site	Contractor and Project Engineer	Inspection • Disposal methods of solid waste from the site • Complaints on health and safety aspects related to construction activities • Site cleanliness • Amount of waste/debris on site	weekly	Costs build in the planning and administration costs of the contractor
	OPERATION PHASE • Provision of disposal bins at designated areas at the	NCC	Inspection • Accumulation of garbage at the market	daily	NCC budget

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	market • Regular collection and disposal of garbage by the project proponent • Clean storm water drains to minimize clogging • Provision of separate collection bins for biodegradable and non-biodegradable waste at the new facility. • Traders to be provided with bins near their merchandising points to ensure waste generated is collected at garbage stations or transfer points and later disposed at the main collection points for further disposal by the county authorities. • All the collection bins and collection points/stations shall be properly maintained		• Complaints by commuters (target=0) • Number of drainage areas clogged • Facilities cleanliness		

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	on regular basis				
Occupational Health and Safety	The contractor to prepare a Health and Safety Plan that will include consideration of the following: **CONSTRUCTION PHASE** • Provide medical and insurance cover for all workers • Provide adequate and right safety tools, and enforce use of PPEs to all workers • Appoint a fulltime OHS personnel • Ensure provisions of first aid for staff, insurance, and access to ambulance service at all worksites, and arrangement to access local hospital/dispensary with qualified medical staff by workers • The site shall be fenced off and provided with security	Project Engineer and Contractor Sub-county Health & Environmental Officer	inspection • HSE instructions and PPE available • Workers OHS compliance (use and adequacy) • Number of construction activities related accidents • Recording of violations and corrective measures • Workplace risk assessment undertaken before start of operations	Monthly	Standard conditions of contract for Insurance - Clause 18 of contract Bill No 1 ,Item A Health & Safety for Workers and Equipment – Approx Kshs. 1,000,000

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	at the access gates to reduce potential accidents and injuries to the public				
Child protection	**CONSTRUCTION PHASE** • The contractor to have and enforce 'Child Protection Code of Conduct' • Ensure no children are employed on site in accordance with national labour laws • Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police • The contractor to have and enforce a Code of Conduct in regard to child protection	Contractor, Project Engineer,	observation /reports/random checks • Inspection of employees working at the site • Labour Records by the contractor	Regularly	No Direct costs
Gender equity and Sexual harassment	**CONSTRUCTION PHASE** • Contractor to prepare and enforce a No Sexual Harassment Policy in	Contractor, Project Engineer,	observation /reports • Number of incidences reported (target=0)	monthly	No direct costs to EMMP, costs build in the planning and

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	accordance with national law where applicable • Contractor and implementing agency to prepare and implement a Gender Action plan to include at minimum, in conformance with local laws and customs, equal opportunity employment, gender sensitization • Provision of gender disaggregated bathing, changing, sanitation facilities • Grievance redress mechanisms including non-retaliation • The contractor to have and enforce a Code of Conduct in regard to Gender equity and Sexual harassment		• Number of women employed • Labour Records by the contractor		administration costs of the contractor

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
Loss of life, injury, or damage to people and private property	**CONSTRUCTION PHASE** • Contractor shall maintain records and making reports concerning health, safety and welfare of persons, and damage to property, as the RE may reasonably require • Insuring against liability for any loss, damage, death or bodily injury which may occur to any physical property or to any person which may arise out of the contractor's performance of the contract • Insuring against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the contractor or any other of	Contractor, Project Engineer,	• Number of incidences reported (target=0)		No direct costs to EMMP, costs build in the planning and administration costs of the contractor Schedules, BOQ, Sect A, No 5

Project Environmental and Social Impact	Proposed Mitigation and Aspects for Monitoring	Responsibility for intervention and monitoring during design, construction and defects liability period	Parameters for Monitoring/ Indicators (c) – construction (o) - operations	Timing - Recommended frequency of monitoring	Estimated Mitigation & Monitoring costs to be included in the BoQ (Kshs)
	the contractor's personnel. • The construction site shall be fenced off to prevent access to members of the public				
Chance Finds	• The contractor should have and implement the Chance Finds Procedure set out in Appendix 2 in the event that cultural heritages is discovered	Contractor, proponent, NCG	• Log of chance find; • 100% implementation of Chance Finds Procedure	Constant monitoring during excavation	No cost implication
TOTAL APPROXIMATE COSTS OF ESMMP					**Kshs. 9,500,000**

8.4 Grievance redress Mechanisms (GRM)

Proper and strong Grievance mechanisms are very important in ensuring the stakeholders grievances and issues as they relate to the proposed project are addressed in a timely and appropriate manner, to enhance the relationship between the project proponent, contractor, and the stakeholders. It is therefore recommended that the project proponent should therefore put in place a GRM for the project to ensure any issues raised by stakeholders related to the project safeguards are addressed.

It is important to emphasize that grievance redress mechanisms are for all aspects of a project, not just environmental and social safeguards. The implementing agency should prepare and disseminate grievance redress guidelines for the project, including a hierarchy of reporting levels for redress, roles, and responsibilities. Public information about grievance redress should be posted in visible locations in project area of influence. Where needed, Grievance Redress Committees (GRCs) should be established, with the necessary authority, training and resources. Entities involved in grievance redress should keep proper records and logs. Project budgets should include resources for the establishment and operation of the Grievance Redress System. The implementing agency should on regular occasions review the GRM and verify that they are working properly. A sample grievance process has been provided in Annex 3 of this report.

CHAPTER NINE

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusion

The objective of the proposed project is to develop a market with modern facilities and atmosphere to increase trade and bring economic benefits to the project beneficiaries and the country as well. The environmental and social assessment of the Project ascertains that the Project is likely to cause some few but not significant adverse environmental and social impacts. However, the adverse impacts identified can be readily addressed by some embedded control measures in the engineering design of the Project as well as additional mitigation measures as suggested in the Environmental and Social Management Plan. The Project received favourable support from local people and other stakeholders during consultations and they anticipated numerous benefits as a result of the project.

Mwariro market is currently out of operation and hence its development will not cause any physical displacement of people living in the area. The Project is not located near any protected areas. No archaeological or protected monuments are located in the Project vicinity.

The Project will have both positive and negative impact on the physical and social environment. The positive impacts include: construction of modern facilities that will provide shelter to shield against adverse weather conditions to the traders, creation of direct and indirect employment during construction and operations, and increase of revenue collection by the Nairobi City County.

During the construction phase of the Project, the key potential environmental impacts includes; noise and dust generation, disruption of public utilities, loss of vegetation, and pollution of nearby Nairobi river. There is also a risk of soil erosion as result of removal of soil cover, excavation and movement of heavy construction vehicles and equipment. Contamination of soil, groundwater could occur also result from accidental spills and leaks of hazardous materials (e.g. oil) during handling, transportation, and storage at the site.

The adverse impacts identified are generally manageable through good housekeeping and a diligent implementation of the ESMP by the Contractor and its supervision by the Proponent. The nearest air quality and noise sensitive receptors will be a focus for monitoring of any impact arising due to the construction activities.

Other possible negative impacts include conflicts and social concerns such as: trader's dissatisfaction due to perceived inequities in allocation of market stalls; Inconvenience and danger to proximate residents through increased road traffic and dust, increased demand for energy and water resources in the area, potential occupational health and safety of the workers, and increase in HIV and AIDS prevalence. However, these impacts can be mitigated with appropriate mitigation measures built in as part of the Project planning process.

It was established that the Project activities will trigger World Bank Operation Policy (OP 4.01) on Environmental Assessment due to environmental and social impacts arising from the Project as presented in this report and OP 4.12 due to relocation of a few PAPs occupying the land temporarily. However, none of the other Operational policies will be triggered by the project.

Based on the analysis conducted in this ESIA, it is concluded that overall the Project will result in positive socio-economic benefits and the negative environmental impacts that have been identified are not significant, and can be minimized adequately through good design, appropriate application of mitigation measures and continuous supervision by the project proponent.

9.2 Recommendation

Environmental monitoring is essential to track and sustain the effectiveness of the mitigation measures proposed in this report. An environmental monitoring plan has been prepared as part of the ESMP. The focus areas of monitoring cover air, noise, traffic management, Water and energy resources, occupational health and safety, as well as local employment and economic impact of the project during construction and operations. The burden of mitigation measures largely lies with the Project Contractor under supervision by the Proponent. Key observations are that most adverse impacts are short-term and will disappear once civil works ends. The Contract for the proposed project should bear relevant clauses binding the contractor to institute environmental mitigation as recommended in this study. The core monitoring strategy for this project will be through site meetings, in which case, it is recommended that the County Environmental Officers be invited to such meetings. Other stakeholders such as the County Labour Officer should also attend such meetings to ascertain that measures towards securing the health and safety of workers have been put in place.

It is the duty of the Proponent to carry out annual environmental audits once it has been commissioned. This will be in compliance with the Environmental Management and Coordination Act, EMCA of 1999 and the Environmental Impact Assessment and Audit Regulations, Legal Notice No. 101 of 2003.

The tentative budget allocated for the project is Ksh. 353,690,095 and an ESMP cost of Ksh. 9, 5000,000 It is the responsibility of the project proponent to allocate this budget to facilitate diligent implementation of the mitigation measures and minimize potential negative impacts at construction and operational phases of the project.

The following are recommended for effective implementation of the mitigation measures for the project;

- All mitigation measures need to be specified in tender and contract documents, and must be included in the Engineering Drawings, Specifications and Bills of Quantities.
- Diligence on the part of the contractor and proper supervision by the Project Engineer during construction and the initial operation phase is crucial for mitigating impacts.
- Periodic environmental and social monitoring is required by the project proponent to ensure that mitigation measures have been implemented in order to prevent or avert any negative impacts of the project.
- The implementing agency should set up proper and applicable Grievance Redress Mechanism (GRM) for the project to deal with grievances and issues on the project.
- Reporting of the implementation of safeguards should be incorporated in the monthly reporting of the project

10 REFERENCE

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2. Nairobi Metro 203 first edition of 2008
3. Feasibility study report Mwariro market 2015
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5. Kenya gazette supplement Acts Building code 2000 by Government Printer, Nairobi.
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10. Kenya gazette supplement number 56. Environmental Impact Assessment and Audit Regulations 2003. Government printer, Nairobi.
11. Noise prevention and Control Rules 2005,Legal Notice no. 24,Government Printers, Nairobi
12. Kenya gazette supplement Acts Public Health Act (Cap. 242) Government printer, Nairobi.
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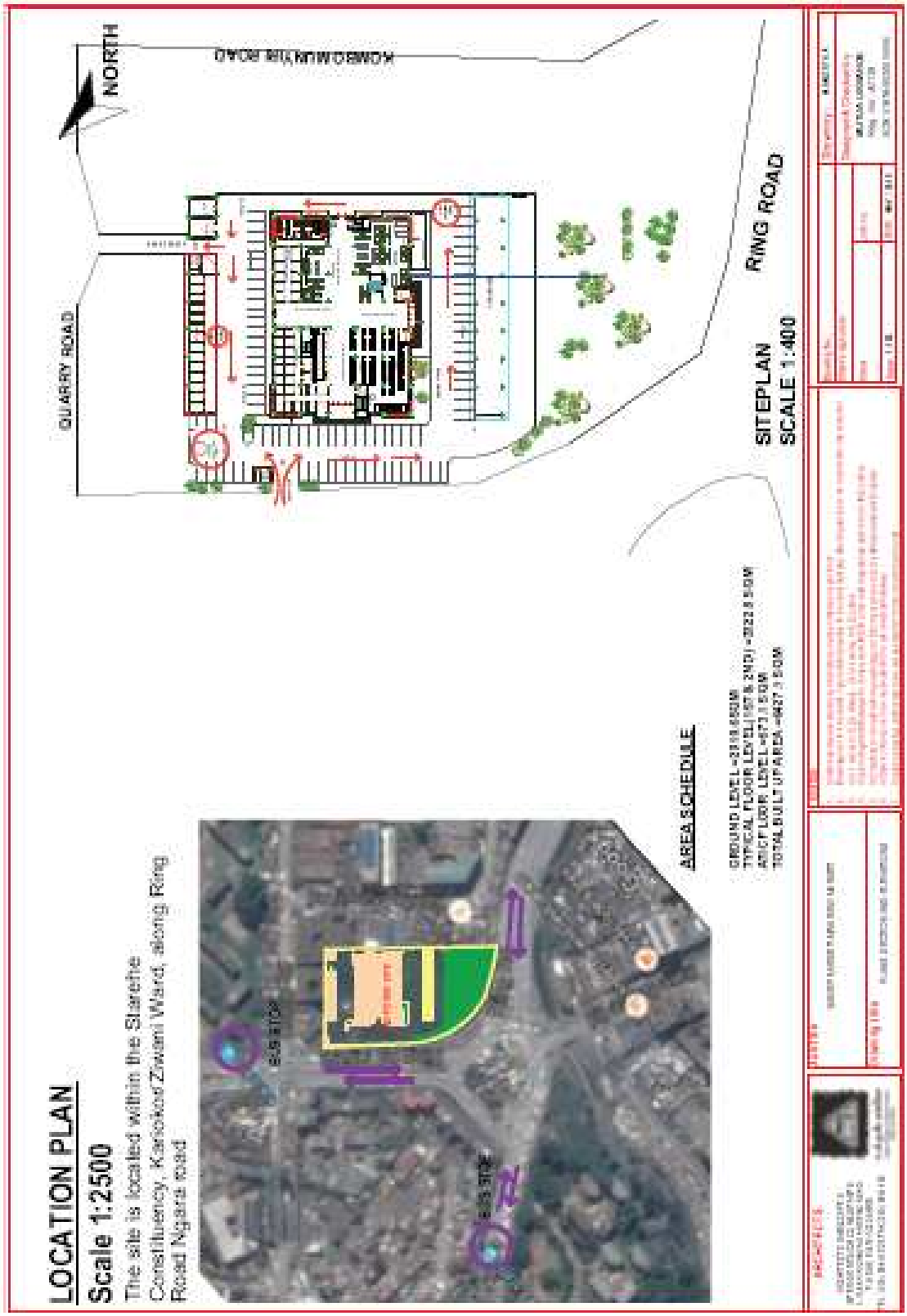
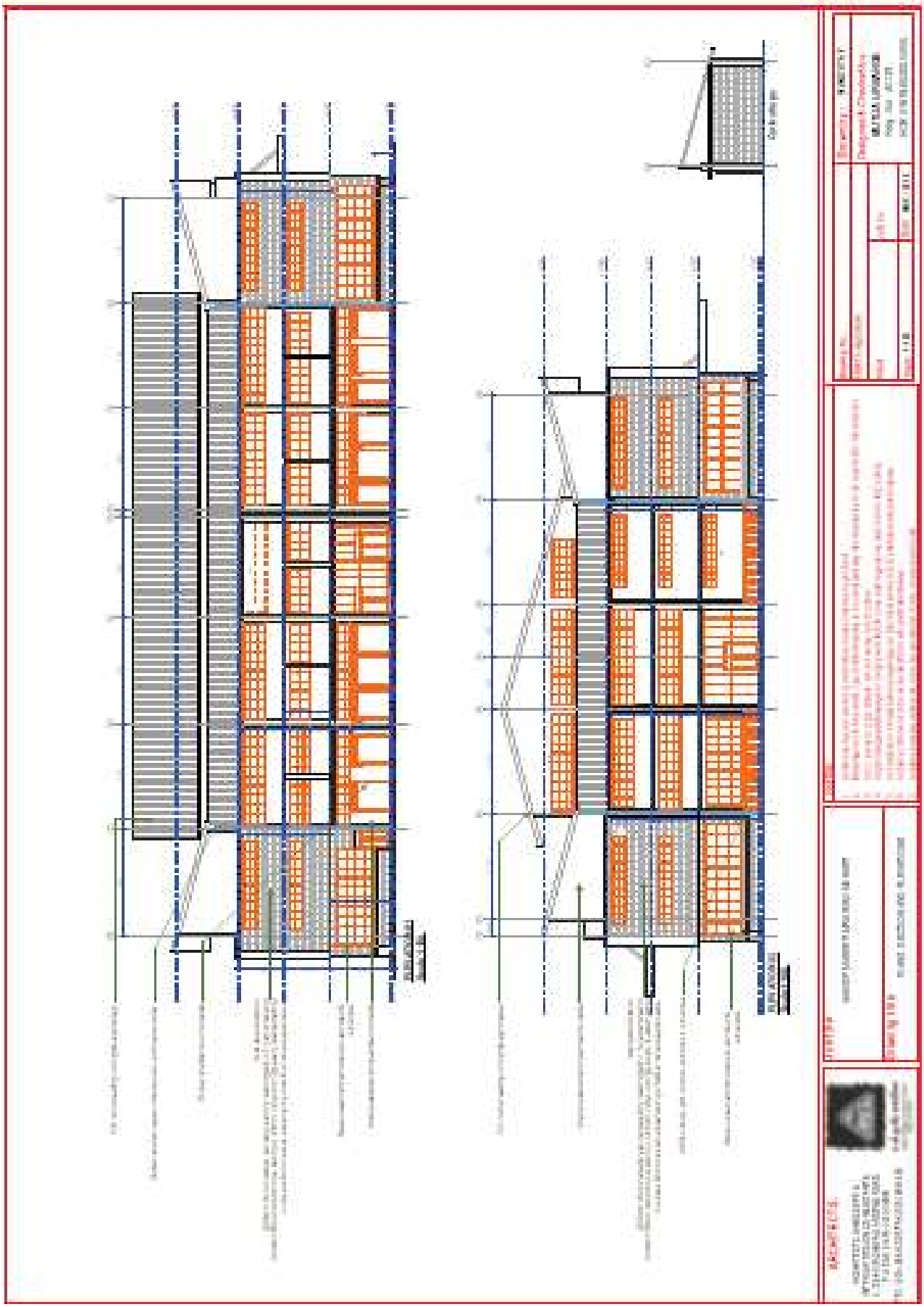
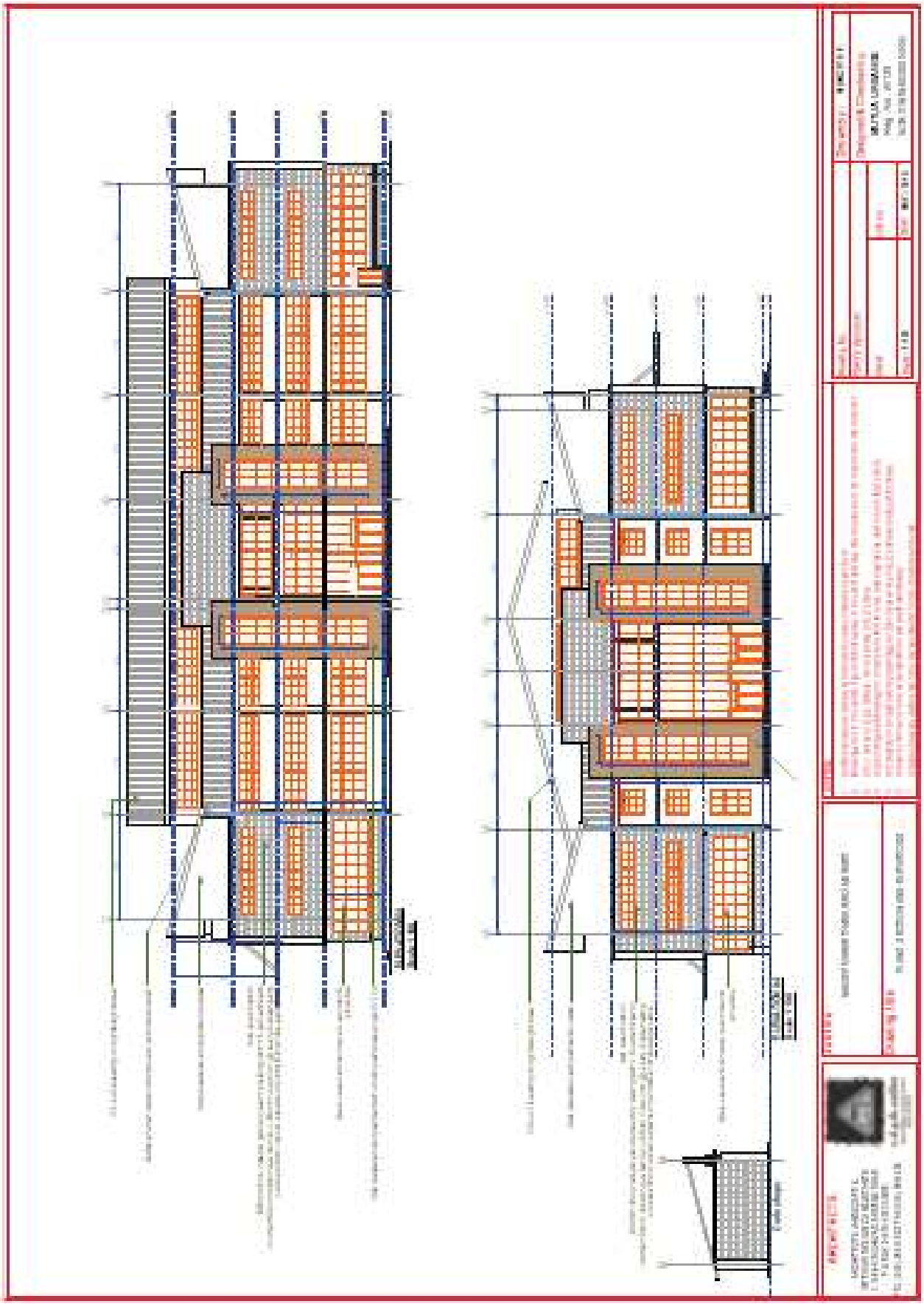
15. Environmental Management and Coordination (Waste Management) Regulations, 2006, Government Printers,
16. Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment, Operational Policy 4.04: Natural Habitats, 2001, Operational Policy 4.36: Forests, 2002, Operational Policy 4.12: Involuntary Resettlement, 2001

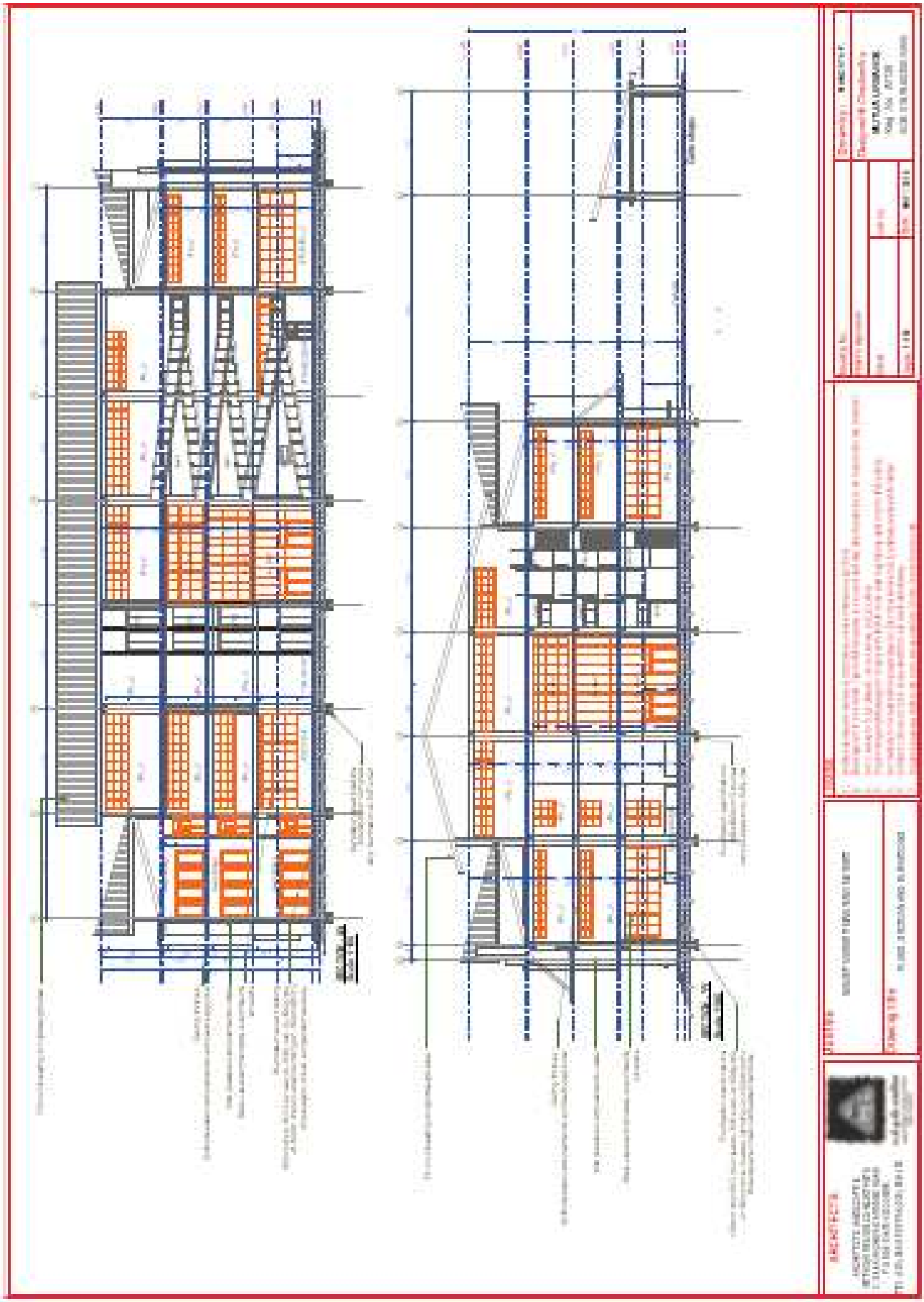
ANNEXES

Annex 1 : Site Layouts









Annex 2 : SAMPLE CHANCE FIND PROCEDURES

Chance find procedures are an integral part of the project ESMMP and civil works contracts. The following is proposed in this regard:

- If the Contractor discovers archaeological sites, historical sites, remains and objects during excavation or construction, the Contractor shall:
- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry of State for National Heritage and Culture take over;
- Notify the supervisor, Project Environmental Officer and Resident Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less).
- Responsible local authorities and the Ministry of State for National Heritage and Culture would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archaeological importance) conservation, preservation, restoration and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.
- Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.

Annex 3: Grievance Redress Process

Process	Description	Time frame	Other information
Identification of grievance	Face to face; phone; letter, e-mail; recorded during public/community interaction; others	1 Day	Email address; hotline number
Grievance assessed and logged	Significance assessed and grievance recorded or logged (i.e. in a log book)	4-7 Days	Significance criteria: Level 1 –one off event; Level 2 – complaint is widespread or repeated; Level 3- any complaint (one off or repeated) that indicates breach of law or policy or the ESIA provisions
Grievance is acknowledged	Acknowledgement of grievance through appropriate medium	7-14 Days	
Development of response	Grievance assigned to appropriate party for resolution Response development with input from management/ relevant stakeholders	4-7 Days 7-14 Days	
Response signed off	Redress action approved at appropriate levels	4-7 Days	Project staff at project proponent to sign off
Implementation and communication of response	Redress action implemented and update of progress on resolution communicated to complainant	10-14 Days	
Complaints Response	Redress action recorded in grievance log book Confirm with complainant that grievance can be closed or determine what follow up is necessary	4-7 Days	
Close grievance	Record final sign off of grievance If grievance cannot be closed, return to step 2 or refer to sector minister or recommend third-party arbitration or resort to court of law.	4-7 Days	Final sign off on by project proponent

Annex 4: List of Participants Consulted

PUBLIC CONSULTATION – NAMSIP/NAIROBI CITY COUNTY – ESIA FOR PROPOSED CONSTRUCTION OF MODERN MARKET AT MWARIRO HELD ON 2ND JUNE 2016 (SGS KENYA)

NAME	DESIGNATION	CONTACTS	SIGNATURE
James Kamau	Chairman	0720852159	
Daniel muiruri	Secretary	0720587341	
Naomi Njeri	Treasurer	0722306147	
Raver Gitau	Youth Rep		
peter Macharia	Organiser		
Stephn Kimani	Youth	0791736767	
Julius Wawero	Youth	0726223061	
Stanley Gichuhi	Member	0736060400	
Joseph Wambugu	Member	0723489111	
Phanuys Ndirity	Vice chairman	0714347558	
Caleb Olduka	Machakos	0725297605	
JOSEPH MUIURI	BENSON	0723361533	
JOHN M. KABATA	Committee member	0721286357	
JACKSON OGOYO	OCHIENGE	0721168606	
JOSEPH KAGGI MWAURA		0723700740	
Zakayo mkhini	Kemebu	0720419479	
John mwangi	chege	0712642488	
George Thuku	Machakia	0726 622 517	
Jeremia Ngwamba	mwangi	0722 785 752	
SAMUEL M. KUKANIA		0723270424	
DENNIS Kwaigi	Youth	0714489870	
[illegible] David wawa		0720148304	
Jack Mubindja	Kamome	0742959775	
[illegible] Kim	Incut	0710354[illegible]	
FRANCIS MURITHI	Njeri	0733 408148	
CHARITY WANGECI MUTO	Member	0722 553622	
GEORGE KIAGO	Mwegh	0718790911	
JANE SHEILA MWENDIA	MEMBER	0721358755	
JOHN MUU NDUNGO	MEMBER	0722-521637	
BENSON ADEGIKA	Com. Member	0702016342	
DUNCAN KIHUMBA	MEMBER	0723387332	
GLADYS MUTHONI	C. member	0722661723	

ANNEX 5: Selected Consultation Photographs

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Annex 6: Minutes of Stakeholder Meeting

Minutes of the Public Consultation Meeting held at Mwariro Market on 2/6/2016 (NaMSIP Proposed construction of Modern Market)

Present;

- Godwin Sakwa Lidahuli - Consultant (Social Assessment Team Leader – SGS Kenya
- Peter Obiero - Social Assessment Team Member – SGS Kenya
- Stakeholders as per attached attendance list.

Agenda

Public/Stakeholder consultation- ESIA for proposed construction of a modern market at Mwariro in Nairobi County.

Min 01:

This public consultation meeting took place at the proposed site for Mwariro Market in Nairobi County. The meeting was attended by diverse project stakeholders that included Women, Men and the youth. The meeting began at 11:00am pm by a word of prayer from Naomi Njeri.

Min 02:

James Kamau, the market committee chairperson gave the stakeholders present an opportunity to introduce themselves and indicate their interest in the meeting.

Min 03:

The SGS team introduced themselves to the assembled stakeholders. They then went on to explain their presence to the community members. The public was made aware that the consultants were there to undertake a Social Assessment exercise in regard to the proposed construction of the market.

Min 04

The stakeholders presented their views as summarized below.

Questions/Comments	Responses
▪ Dennis Kung'u – Who is the Contractor given the responsibility of building the market?	SGS is not aware of the identity of the contractor or firm given the responsibility of constructing, this will be communicated to the public once tendering process is finalized.
▪ Raphael Gitau – This area is has poor security, how will this issue be addressed?	Security for the market has been addressed in the architectural plans.
▪ Joshua Maina Kabata – How much money has been set aside for constructing the market?	The overall cost/budget for the markets is estimated at kshs. 15 Billion. Individual market budgets will be released to the public once all plans have been finalized.
▪ Mary Akoth – I sell vegetables, since the proposed market is modern, will I still be able to sell?	Yes, a census will be undertaken of all traders at Mwariro and all will be accommodated within the new market. .
▪ Workers from outside the community engaged in construction may bring with them alien cultures, which may corrupt our youth.	All in-migration workers will be furnished with an ethics code on how to interact with the locals in a respectable manner.
▪ Stanley Gichoi - Will the Youth be involved in construction?	The contractor identified for construction will be advised to make use of local labour and materials as much as possible.
▪ Is there a grievance redress mechanism system in place and will it	There will be a grievance redress mechanism in place which with corporation from the traders

be effective?	is expected to handle any issues fairly. The RAP report will present the mechanism which will be disclosed to the traders.
▪ Irene Wambui – In the past contractors have done shoddy jobs. Can NaMSIP have a monitoring and evaluation system to ensure the contractor complies?	This is noted and the proponent will be advised to ensure an M&E system is part of contractual agreement with identified contractor.
▪ Caleb Angati – Will we get space for garages?	The proposed market has planned for stalls. Car mechanics are advised to utilize space set aside by Nairobi City County.

Conclusion

There being no A.O.B, the meeting ended at 1:00pm: with a prayer from Charity Wangeci. The Traders resolved to support the project to its conclusion and stressed the need for them to be involved in all aspects of the project.

Sign……...Date ……..
Recorded by – Peter Obiero
SGS Kenya
Sign……Date…….
Checked by – Environment and Social Specialist
SGS Kenya