



**Kenya National Highways Authority**

*Quality Highways, Better Connections*

## **Feasibility Study in the Mombasa Gate Bridge Construction Project, Mombasa County**



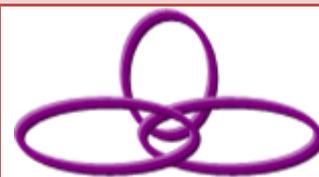
**Environmental and Social Impact Assessment Study Report for the  
Mombasa Gate Bridge Construction Project  
Volume Two-Appendices  
July 2018**



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## **Appendix 1.1: NEMA Approved Terms of Reference**

## **Terms of Reference (TOR) for Environmental Impact Assessment (EIA) of the Preparatory Survey for the Mombasa Gate Bridge Project in the Republic of Kenya**

### **1. General**

#### **1.1 Introduction**

These technical specifications shall be applied to the Environmental Impact Assessment (EIA) of the Preparatory Survey for the Mombasa Gate Bridge Project in the Republic of Kenya (hereinafter to be referred as the Survey).

Katahira & Engineers International (KEI) engages a qualified local consultant (hereinafter to be referred as the Local Consultant) to carry out the preparation of EIA Report (hereinafter to be referred as the Works) on the Study. The Study is to be undertaken with JICA study team including KEI. Throughout the Works, the Local Consultant shall work in coordination with KEI and supervised by KeNHA who implements the project and JICA.

#### **1.2 Survey Sites**

The Works shall be carried out at the project sites around the Kilindini port in Mombasa county as shown in Appendix A.

- Lands:
  - 1) The side of Mombasa Island
  - 2) The side of Likoni or Mtongwe area
- Marine:
  - 1) The vicinity of the channel between Mombasa Islands and Likoni or Mtongwe area

#### **1.3 Scope of the Works**

The Works consist of the following components. Details are specified in the each section.

- 1) To collect information and carry out baseline surveys which are necessary for EIA;
- 2) To predict and assess the impacts on natural and social environment;
- 3) To propose mitigation measures and monitoring plans;
- 4) To prepare the materials for Stakeholder meetings and Public Consultation meetings, and assist KeNHA and KEI during the meetings; and
- 5) To assist KeNHA on the submission of a project report which is required under the NEMA process and an EIA study report to NEMA and the acquisition of the licence.

As for now the Project is categorized as Category B of the JICA Guidelines for Environmental and Social Considerations (April 2010) (hereinafter to as the “JICA Guidelines”). However, the project may be fallen into Category A by JICA’s judgement. In such case, the Local Consultant shall conduct the EIA survey and prepare the EIA report which satisfies the requirements for the Category A project. (Refer to JICA Guidelines, Appendix 2. EIA Reports for Category A projects

[http://www.jica.go.jp/english/our\\_work/social\\_environmental/guideline/pdf/guideline100326.pdf#search='jica+guidnes+environmental'](http://www.jica.go.jp/english/our_work/social_environmental/guideline/pdf/guideline100326.pdf#search='jica+guidnes+environmental'))

On the Category A project, the JICA Advisory Committee involves the audit of EIA and RAP. During the Works period the Local Consultant shall submit the materials required by the JICA Advisory Committee without delay.

#### **1.4 Schedule**

If the delay beyond the control of the Consultant due to the circumstances does not occur, the final EIA shall be completed by the beginning of July 2016 unless otherwise instructed by KEI. The proposed schedule and main milestones are shown in **Table 1**. Please comment if there are any problems with the schedule.

**Table 1 Proposed Schedule of the Work**

| Year<br>Month | 2018     |    |    |    |          |    |    |    |    |
|---------------|----------|----|----|----|----------|----|----|----|----|
|               | M1       | M2 | M3 | M4 | M5       | M6 | M7 | M8 | M9 |
|               | (Phase1) |    |    |    | (Phase2) |    |    |    |    |

|                              |             |     |   |   |   |   |  |   |  |
|------------------------------|-------------|-----|---|---|---|---|--|---|--|
|                              |             | ←   |   |   | → |   |  | ← |  |
| Contract                     |             | *   |   |   |   |   |  |   |  |
| Submission of Project Report |             |     | ▧ |   |   |   |  |   |  |
| Baseline Surveys             |             |     | ▨ |   |   |   |  |   |  |
| Coordination Meetings        | ▲<br>(Done) | ▲ ▲ | ▲ |   |   | ▲ |  |   |  |
| Stakeholder Meetings         |             |     | ▲ |   |   |   |  |   |  |
| Public Consultation Meeting  |             |     | ▲ |   |   | ▲ |  |   |  |
| Preparation of EIA           |             |     |   | ▨ |   |   |  |   |  |
| Submission of draft EIA      |             |     |   |   | * |   |  |   |  |
| Deadline of final EIA        |             |     |   |   |   | ○ |  |   |  |
| EIA License Application      |             |     |   |   |   |   |  | → |  |

The master schedule of the Works are divided into two terms: Phase1 and Phase2. The Phase 1 is “the examination phase of alternatives”. On the Phase1, after the decision of alternatives the Local Consultant shall carry out mainly an EIA survey and prepare an EIA report. JICA and KeNHA discuss the results of the Phase1 survey, and decide the implementation of the Phase2 survey. On the Phase2, the Local Consultant shall assist the KeNHA in the submission of the EIA report to the EIA authority and the acquisition of the environmental license.

### 1.5 Report

The Consultant shall submit the draft final report to be reviewed by KeNHA and KEI, and disclosed to the public. The reports should be submitted in English by paper (ten (10) original and three (3) copies for each) and digital format (1 CD). The metric system of measures shall be used in throughout the works. Details are specified in the ensuing sections.

### 1.6 Others

- (1) All equipment, materials, labors and incidentals necessary for the Works shall be provided by the Local Consultant. All transportation, including transportation of the Local Consultant personnel and equipment to/from the job site and local transportation between job sites, shall be provided by the Local Consultant. All accommodation and other expenses (per diem, coordination fees, communication fees, income tax, etc.) shall be provided by the Consultant. The Consultant shall insure his staff and be solely responsible for any accidents, injuries, damages, etc.
- (2) The quotation shall be submitted to JICA Survey Team by e-mail or facsimile, and the original document shall be submitted to hand in. The form of the cost proposal is shown in **Appendix D**.
- (3) Lowest quotation with a methodology to meet the specification shall be selected as the prioritized negotiator.

## 2. Preparation of Environmental Impact Assessment Report

### 2.1. General

The Local Consultant shall prepare the Environmental Impact Assessment (EIA) Report in accordance with Kenyan EIA regulations and guidelines and the JICA Guidelines as follows.

- Environmental Management and Co-ordination (Amendment) Act, 2015. [Kenya Gazette Supplement No.74 (Acts No. 5)] and its Schedule II;
- The Environmental (Impact Assessment and Audit) Regulations, 2003;
- JICA Guidelines for Environmental and Social Considerations 2010
- The Environmental Impact Assessment Guidelines and Administrative Procedures (2002), NEMA; and
- World Bank Safeguard Policies Operational Manual OP 4.01- Environmental Assessment (hereinafter refer to WB OP 4.01). KeNHA guidelines for Environmental and Social Management

#### (Phase 1)

### 2.2. Data Collection and Review

The Local Consultant shall collect and review the existing data, EIA-related regulations from various sources including reports of feasibility studies / pre-feasibility studies, information from governmental agencies, literature, universities, research institutions and other organizations concerned, etc. Particularly the Local Consultant also shall collect and review the reports or documents concerned the EIA on the projects on Mombasa area.

### 2.3. Assistance for the selection of alternatives

The JICA survey team will examine the alternatives for the bridge construction location, and recommend suitable alternative. The Local Consultant shall assist the selection of the optimal alternative by providing the materials on the environment and social situations around the sites.

## 2.4. Scoping

The Local Consultant shall identify the significant issues/impacts of the Project, and then, delimit the extent of baseline information to those necessary to evaluate and mitigate the impacts.

The impact items are based on the JICA Guidelines, including but not limited to, are listed in Appendix B

## 2.5. Surveys on Baseline Environmental Conditions

### 2.4.1 Field Surveys

The Local Consultant shall carry out the field surveys on the following environmental conditions around the project location in order to predict and assess the impacts, and consider the mitigation measures.

- Settlement density, land use and livelihood patterns
- Public facilities, services and infrastructure
- 
- Ambient air quality, Noise and vibration levels
- Coastal water quality
- Marine Sediment quality
- Surface water resources
- Aquatic and terrestrial biodiversity and ecological systems
- Cultural condition in the project area of influence including MamaNgina Park

#### (1) Sampling / Measurement Locations

Prospective sampling and measurement locations are specified in Table3. At least one staff of the KEI will accompany the Local Consultant's survey team and determine the sampling and measurement locations.

The samples of water and aquatic organisms can be collected by hiring a boat by the Local Consultant.

Permissions and authorizations which are required for survey shall be acquired by the Local Consultant.

#### (2) Laboratory Analysis

For the parameters that cannot be measured in situ, those parameters shall be analyzed at SGS Kenya Ltd. with the international standard analytical methods. Preservation and transport of the samples to the laboratory shall be the responsibility of the Local Consultant.

#### (3) Evaluation

The result of the surveys shall be evaluated by the Local Consultant in the EIA report, by comparing with the criteria of Kenya and international standards (refer to Table 4), and other survey results if any. The Consultant shall request a qualified laboratory to analysis the samples.

**Table 3 Criteria/Standards of Environmental Quality**

| Items                                          | Kenya                                                                                                                  | International                                                                                                                                                                  |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient air quality                            | • (Draft) The Environmental Management and Coordination (Air Quality) Regulations, 2008.                               | • WHO Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide, Global Update 2005<br>• Air Quality Standards European Commission Environment |
| Noise                                          | • The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. | • General EHS Guidelines; Environmental Noise Management, International Finance Corporation: IFC 2007<br>• The WHO Guidelines on Community Noise                               |
| Vibration                                      | -                                                                                                                      | • Guide to Evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz), BS 6472: 1992                                                                               |
| • Sea water quality<br>• Surface water quality | • Environmental Management and Co-ordination (Water Quality) Regulations, 2006                                         | • USEPA, National Primary and Secondary Drinking Water Regulations<br>• WHO Guidelines for Drinking-water Quality, 4th edition                                                 |

|          |                                                                                 |                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sediment | •                                                                               | •(example) Sediment quality guidelines, Australian and New Zealand Guidelines for Fresh and Marine Water Quality                                        |
| Flora    | •The Forests Act, 2005, LN 160 of EMCA                                          | •International Union for the Conservation of Nature and Natural Resources (IUCN) Red List                                                               |
| Fauna    | •The Wildlife (Conservation and Management) Act (Cap. 376) Revised Edition 2014 | •International Union for the Conservation of Nature and Natural Resources (IUCN) Red List<br>•The African-Eurasian Migratory Waterbird Agreement (AEWA) |

## 2.6. Ambient Air Quality Survey

### (1) Air quality parameters

The following Table 5 shows the parameters of ambient air quality and metrological to be surveyed by the Local Consultant. Sampling shall be carried out for 24 hours in one day. Please describe your proposed measurement methods for the parameters in Table 5 when submitting the quotation.

**Table 5 Parameters of the Ambient Air Quality Survey**  
(Please fill in the Table by describing the method.)

| Parameter                          | Method | Quantification limit |
|------------------------------------|--------|----------------------|
| Total Suspended Particulates (TSP) |        |                      |
| Carbon Monoxide (CO)               |        |                      |
| Nitrogen Oxides (NO <sub>x</sub> ) |        |                      |
| Sulphur Oxides (SO <sub>2</sub> )  |        |                      |
| Lead (Pb)                          |        |                      |
| Ozone(O <sub>3</sub> )             |        |                      |

### (2) Survey sites

The Local Consultant shall conduct the survey of ambient air quality at two (2) sites. The survey sites are supposed to be in the vicinity of existing roads, residential area, or schools which are located close the project site. Details of the survey sites are designated by the KEI.

## 2.7. Noise and Vibration Survey

### (1) Noise level and vibration level on the road side

The Local Consultant shall measure sound level and vibration level along the roadside in the vicinity of the project site to evaluate the present noise and vibration levels. Traffic volume shall be measured at the same time as the noise and vibration measurement.

**Table 6 Parameters of Noise and Vibration Survey**

| Parameters                       | Period of time                          |
|----------------------------------|-----------------------------------------|
| Equivalent Sound Level (Leq: dB) | Every hour                              |
| Vibration level (dB)             | Every hour                              |
| Traffic volume                   | Same time as noise and vibration survey |

### (2) Survey sites

The Local Consultant shall conduct the noise survey at two (2) sites. The survey sites are in the vicinity of existing roads. Details of the survey sites are designated by the KEI.

## 2.8. Coastal Water Quality Survey

### (1) Water quality parameters

The following Table 7 shows the coastal water quality to be surveyed by the Local Consultant. With the water quality, basic parameters of physical conditions of marine shall be surveyed. Please describe your proposed analytical methods for parameters in Table 7.

### (2) Survey sites

The coastal water quality survey shall be conducted at two (2) sites: Mombasa side and Likoni or Mtongwe side, which shall be proposed by the Local Consultant. Receiving the proposal of the Local Consultant. The KEI

designates details of the survey sites. Water samples shall be collected from a representative layer (e.g., 20% depth from the surface) by using proper sampling equipment. All the field survey shall be completed in one day.

**Table 7 Parameters of Coastal Water Quality Survey**  
(Please fill in the Table by describing the method.)

| Parameter                             | Analysis method | Quantification limit |
|---------------------------------------|-----------------|----------------------|
| Color                                 |                 |                      |
| Water Temperature                     |                 |                      |
| pH                                    |                 |                      |
| Dissolved oxygen (DO)                 |                 |                      |
| Chemical Oxygen Demand (COD)          |                 |                      |
| Turbidity                             |                 |                      |
| Oil/Grease (Petroleum Ether Extracts) |                 |                      |
| Suspended solids (SS)                 |                 |                      |
| Total Coliforms                       |                 |                      |
| Tide                                  |                 |                      |
| Tidal Current                         |                 |                      |
|                                       |                 |                      |

## 2.9. Sediment Survey

### (1) Sediment survey under the channel

The Local Consultant shall survey matters included in the sediment of the bottom under the channel of the project site. Matters that should be surveyed are shown in Table8. (These refer to the criteria of New Zealand.) Considering international standards, Kenya's standard and environmental conditions around the project site including locations of factories or warehouses, the Local Consultant shall propose sediment matters that should be surveyed and revise the contents of Table8 as necessarily.

### (2) Survey sites

The sediment survey shall be conducted at two (2) sites: Mombasa side and Likoni or Mtongwe side, which shall be proposed by the Local Consultant. Receiving the proposal of the Local Consultant, the KEI designates details of the survey sites. Sediment samples shall be collected from a bottom of the channel around the pier locations of the project by using proper sampling equipment. All the field survey shall be completed in one day.

**Table 8 Matters of Sediment Survey**  
(Please fill in the Table and revise.)

| Matters        | Analysis method | Quantification limit |
|----------------|-----------------|----------------------|
| METALS         |                 |                      |
| Antimony       |                 |                      |
| Cadmium        |                 |                      |
| Chromium       |                 |                      |
| Copper         |                 |                      |
| Lead           |                 |                      |
| Mercury        |                 |                      |
| Nickel         |                 |                      |
| Silver         |                 |                      |
| Zinc           |                 |                      |
| METALLOIDS     |                 |                      |
| Arsenic        |                 |                      |
| ORGANOMETALICS |                 |                      |
| TributCsylin   |                 |                      |
| ORGANICS       |                 |                      |

|                            |  |  |
|----------------------------|--|--|
| Acenaphthene               |  |  |
| Acenaphthalene             |  |  |
| Anthracene                 |  |  |
| Fluorene                   |  |  |
| Naphthalene                |  |  |
| Phenanthrene               |  |  |
| Low Molecular Weight PAHs  |  |  |
| Benzo(a)anthracene         |  |  |
| Benzo(a)pyrene             |  |  |
| Dibenzo(a,h)anthracene     |  |  |
| Chrysene                   |  |  |
| Fluoranthene               |  |  |
| Pyrene                     |  |  |
| High Molecular Weight PAHs |  |  |
| Total PAHs                 |  |  |
| p,p'-DDE                   |  |  |
| O,p'-+p,p'-DDD             |  |  |
| Chlordane                  |  |  |
| Dieldrin                   |  |  |
| Endrin                     |  |  |
| Lindane                    |  |  |
| Total PCBs                 |  |  |

Source: 3.5 Sediment quality guidelines, Australian and New Zealand Guidelines for Fresh and Marine Water Quality

## 2.10. Aquatic Organisms and Ecosystem Survey

### (1) Aquatic organisms survey and analysis

The Local Consultant shall survey aquatic organisms on the both sides; Mombasa side and Likoni or Mtongwe site around the project site. The aquatic organisms, which should be surveyed, include nekton, benthos, reptile, aquatic insect and coral. The local Consultant shall identify the surveyed aquatic organisms, list it, and highlight rare species in the light of criteria such as the IUCN Red List. The Local Consultant shall care coral reef, protected species and the existing of rare species. Based on the results of the survey, the Local Consultant shall analysis the marine ecosystem and diversity around the site.

### (2) Survey site

The survey site shall be conducted on the both sides, Mombasa side and Likoni or Mtongwe side around the project site. Details of the survey sites are designated by the KEI.

## 2.11. Prediction and Assessment of Environmental Impacts

On the basis of the scoping results, the Local Consultant shall predict and assess the project's likely positive and negative impacts, in quantitative terms to the possible extent. The methods of prediction and assessment are suggested in Appendix B. Also, the Local Consultants shall identify mitigation measures and any residual negative impacts that cannot to be mitigated.

## 2.12. Mitigation Plan

Based on the results of the EIA, the Local Consultant shall prepare a Mitigation Plan. The Mitigation Plan shall be contained in the EIA report.

## 2.13. Environmental Monitoring and Management Plan

Based on the results of the EIA and the mitigation plan, the Local Consultant shall prepare an Environmental Monitoring Plan (Environmental Management Plan). The plan shall specify the organization and budget on the implementation of the project.

## 2.14. Preparation of draft EIA report

The Local Consultant shall prepare the draft EIA report including the contents required by JICA Guidelines and NEMA. (see Appendix C).

The draft Resettlement Action Plan (RAP) and the summary of a draft Cultural Impact Assessment, both shall be

prepared by another consultant, shall be included in the draft EIA report.

### 2.15. Assistance for Coordination Meetings and Stakeholder Meetings

A lot of stakeholders is involved in the Project. To gather stakeholder opinions and ensure project feasibility, KeNHA and JICA survey team which includes the KEI organize stakeholder meetings in Mombasa County. The Local consultant shall assist KeNHA and the JICA survey team in the followings:

- To attend the stakeholder meetings,
- To preparation materials on environmental and social considerations when necessary,
- To take notes at the meetings and prepare the minutes.

Tentative schedules of the coordination meetings are shown in Table 9.

**Table9 Tentative Schedules of Coordination Meetings**

| Schedule |                                               | Agenda                                                                                                                                                                                                                          |
|----------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | 23 <sup>rd</sup> March 2016<br>(already done) | <ul style="list-style-type: none"> <li>• Review of previous kick-off meeting results</li> <li>• Presentation on updating of alternative bridge routes and initial comparison</li> <li>• Questions and clarifications</li> </ul> |
| 2        | 6 <sup>th</sup> April 2016                    | <ul style="list-style-type: none"> <li>• Discussion on the comparison of routes</li> </ul>                                                                                                                                      |
| 3        | 20 <sup>th</sup> April 2016                   | <ul style="list-style-type: none"> <li>• Discussion on the comparison of alternatives and conclusion</li> </ul>                                                                                                                 |
| 4        | 4 <sup>th</sup> May 2016                      | <ul style="list-style-type: none"> <li>• Presentation and discussion of the Progress Report</li> </ul>                                                                                                                          |
| 5        | 27 <sup>th</sup> July 2016                    | <ul style="list-style-type: none"> <li>• Presentation and discussion of Interim Report</li> </ul>                                                                                                                               |

To reflect the public opinions into the alternative selection, stakeholder meetings including the public around the project site are required besides the coordination meetings. The Local Consultant shall organize stakeholder meetings gathering the public around the project site. The tasks of the Local consultant include the followings:

- To organize and hold stakeholder meetings (including securing venues),
- To propose relevant stakeholders and invite them,
- To prepare materials to explain the project including the alternatives,
- To prepare refreshment,
- To make the minutes of the meeting.

A tentative schedule of the stakeholder meetings is shown in Table 10.

**Table10 Tentative Schedule of Public Stakeholder Meetings**

| Schedule                        | Venues                                                      | Target                                                                                           | Agenda                                                                                                                                                               |
|---------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stakeholder Meeting<br>May 2016 | Two locations<br>Mombasa Island side<br>Mainland South side | Representatives of residents, commerce, MCAs, Central Government, authorities, NGOs, CBOs, FBOs, | <ul style="list-style-type: none"> <li>• Present the outline of the Project and alternatives of the sites</li> <li>• Collect the opinions of participants</li> </ul> |

### 2.16. Public Consultation (Phase 1)

#### 1. Scheduled Meetings

order to ensure public involvements through the process of EIA, KeNHA will hold public consultation meetings as shown in Table10.

The Local Consultant shall assist KeNHA to organize these activities.

The Work of the Local Consultant includes:

- i. To prepare the materials for presentation and leaflets/handouts;
- ii. To record the meetings and prepare the Minutes of Discussion to be attached in the draft EIA report; and
- iii. To describe how the public opinions are reflected in the draft EIA report.

The specification and times of the public consultation meetings shall meet NEMA and JICA Guidelines requirements.

**Table11 Tentative Schedule of Technical Consultation Meetings**

| Schedule                                                        | Venues                                                | Target                                         | Agenda                                                                                                                            |
|-----------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Meeting with Kenya Navy                                         | Royal Court Hotel                                     | Representatives of Kenya Navy                  | <ul style="list-style-type: none"> <li>• Obtain Military perspective of proposed alternatives</li> </ul>                          |
| 1 <sup>st</sup> Round Public Consultation Meeting<br>April 2016 | Two locations<br>Mombasa Island side<br>Mainland side | Representatives of residents, Local government | <ul style="list-style-type: none"> <li>• Present the outline of the Project</li> <li>• Explain the alternatives of the</li> </ul> |

|                                                                |                                                       |                                                                                        |                                                                                                                                                                                              |
|----------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                |                                                       | authorities, NGOs and relevant authorities                                             | <ul style="list-style-type: none"> <li>· sites</li> <li>· Collect the opinions of participants</li> </ul>                                                                                    |
| 2 <sup>nd</sup> Round Public Consultation Meeting<br>May 2016  | Two locations<br>Mombasa Island side<br>Mainland side | Residents, Estimated PAPs, Local government authorities, NGOs and relevant authorities | <ul style="list-style-type: none"> <li>· Present the outline of the Project</li> <li>· Explain the implementation of an EIA study</li> <li>· Collect the opinions of participants</li> </ul> |
| 3 <sup>rd</sup> Round Public Consultation Meeting<br>July 2016 | Two locations<br>Mombasa Island side<br>Mainland side | Residents, Estimated PAPs, Local government authorities, NGOs and relevant authorities | <ul style="list-style-type: none"> <li>· Explain the main findings of the EIA study</li> <li>· Collect the opinions of participants</li> </ul>                                               |

Note: 1) It is desirable that the 1<sup>st</sup> and 2<sup>nd</sup> Public Consultation Meeting for EIA and RAP are conducted together.

2) Environmental Regulation (2003) directs “at least three public meetings”. The Local Consultant shall hold public consulting meetings as satisfying the regulation.

### (3) Key Informant Interviews

Towards gathering information and data for the EIA Study, the Consultant will conduct Key informant interviews with all Lead Agencies and other representatives of other relevant Agencies to ensure that their views are incorporated in the environmental and social considerations. These should include:- NMK, KFS (Ferry), KFS (Forests), KWS, KMA, CDA, CWSB, NLC, MCGov, KCGov, KURA, KeRRA, among others.

## 3. Submission of EIA Report and Acquisition of Environmental License

### (i) Public Review

The Local Consultant shall prepare and submit the EIA report for review and approval of JICA survey team and KeNHA. The approved Draft Report shall be submitted to NEMA for review and approval for Public Review following which, the Consultant will assist KeNHA to comply with all conditions for Public Review including booking of newspaper and Kenya Gazette space, preparing the advertisement, paying for the advertisement, among others. KEI will meet the cost for media advertisement.

### (ii) Final EIA Report

Upon expiry of Public Review period, the Consultant will obtain all comments and integrate into the EIA report to make the final version. The same will be submitted to NEMA through KEI and KeNHA. After the submission of the EIA report, the Local Consultant shall deal with according to the instruction of NEMA and acquire Environmental License.

Annex A. Location Map for the Project



## Annex B. Items to Be Examined for Scoping in EIA Study

|                                         | Items to be examined                 | Contents                                                                                                                                                                                      |
|-----------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A) Socio-economic conditions</b>     |                                      |                                                                                                                                                                                               |
| 1                                       | Demography                           | Population including gender, elders and children.<br>The poor, ethnic minorities and indigenous people                                                                                        |
| 2                                       | Resettlement                         | Potentially affected persons and assets due to the ROW acquisition (in coordination with the RAP survey)                                                                                      |
| 3                                       | Land use                             | Land use plan and developing pattern<br>Agricultural and natural protected areas<br>Mining sites, borrow pits and quarries<br>Marine resource use                                             |
| 4                                       | Local economy                        | Industry and employment. Tourism.<br>Livelihood of the residents, especially farmers and fishermen                                                                                            |
| 5                                       | Social infrastructure                | Schools, hospitals, church and mosque, community facilities<br>Electricity, transportation and wastewater drainage systems                                                                    |
| 6                                       | Usage of water and natural resources | Usage of domestic and irrigation water and their sources (surface and ground water). Water rights<br>Usage of natural resources (wood, soil and rocks)                                        |
| 7                                       | Health and sanitary conditions       | Health and sanitation facilities in local communities<br>Local health issues including morbidity of infectious diseases such as HIV/AIDS, Protection measures and programs.                   |
| 8                                       | Historical and cultural heritage     | Cultural antiquities around the MamaNgina Park, and not only protected by National Museums of Kenya but also preserved by local communities                                                   |
| 9                                       | Landscape resources                  | Landscape resources and aesthetic views to be preserved for tourism and cultural and historic heritages                                                                                       |
| <b>B) Natural environment</b>           |                                      |                                                                                                                                                                                               |
| 10                                      | Topography and geological features   | Geomorphological and geological characteristics, e.g., soft ground<br>Hazardous locations of slope failures and landslides due to cutting and filling                                         |
| 11                                      | Soil erosion                         | Present status of land alteration due to anthropogenic activities, especially due to the over farming of hillsides. Records or history of soil erosion and siltation of the creeks and rivers |
| 12                                      | Climate and meteorology              | In particular, rainfall, wind speed and direction along the proposed alignments                                                                                                               |
| 13                                      | Hydrology and hydraulics             | Floodplains and flood records of rivers and creeks<br>Underground water vein, location of boreholes and wells                                                                                 |
| 14                                      | Tidal flat estuaries                 | Tidal exchange and sea water flows and levels                                                                                                                                                 |
| 15                                      | Flora and fauna, biodiversity        | Baseline conditions<br>Designated protected areas, parks and habitats<br>Present status of flora and fauna in the vicinity of project site especially for marine ecosystem                    |
| 16                                      | Global warming                       | Kenya's policy and measures against climate change<br>Present estimate and trend of GHG emission                                                                                              |
| <b>C) Pollution Prevention Measures</b> |                                      |                                                                                                                                                                                               |
| 17                                      | Ambient air quality                  | Baseline conditions<br>Stationary emission sources of air pollutants in the vicinity of project site and monitoring data, if any                                                              |
| 18                                      | Noise and vibration                  | Baseline conditions (refer to Section 3.3)<br>Past monitoring data in the vicinity of project site, if any                                                                                    |
| 19                                      | Surface and groundwater quality      | Baseline conditions (refer to Section 3.4)<br>Emission sources of water contaminants in creeks and rivers, and monitoring data, if any                                                        |
| 20                                      | Soil quality                         | Present condition of the soil, and records or history of soil contamination, if any.                                                                                                          |
| 21                                      | Bottom sediment                      | Present conditions of bottom sediment and mud flats in channel, and records or history of contamination, if any                                                                               |
| 22                                      | Waste management                     | Current waste management practice, disposal procedure and dumping sites                                                                                                                       |

## Appendix C. Draft Table of Contents of EIA report

## JICA Guidelines for Environmental and Social Considerations (April 2010)

### Draft Table of Contents of EIA report

#### I. Environmental and Social Considerations

1. Project Description (Outline of the project components which will impact to environmental and social condition)
2. Baseline environment and social condition
3. Policy, legal and administrative framework in the Republic of Kenya
4. Analysis of alternatives (including “without project” case)
5. Scoping and TOR for EIA survey
6. Result of EIA survey, including prediction of possible impacts
7. Environmental impact assessment
8. Impact mitigation actions and cost for implementation
9. Environment monitoring plan
10. Stakeholders meetings

The main items and contents of the EIA report are as follows (refer to NEMA EIA Guidelines and JICA Guidelines):

- Signed Declaration by the EIA Team Leader and Proponent
  - Signed NEMA Form 1/(2)
  - a. Executive summary
  - b. Project description
  - c. Analysis of prevailing policy, legal and administrative framework in Kenya
  - d. Baseline environmental and social conditions Analysis of Stakeholders and Stake holder concerns
  - e. Analysis of alternatives (including “without project” case)
  - f. Environmental impacts (prediction and assessment)
  - g. Environmental Management Plan (refer to WB OP 4.01 Annex C)
  - Mitigation measures
  - Environmental Monitoring Plan
  - Implementation schedule and Cost estimates
- Appendices
- CVs for the EIA Team
  - Records of the stakeholders meetings
  - Results of field monitoring and Laboratory Analysis Matrices for impact analysis
- Environmental monitoring form (Draft)
- JICA environmental checklist for the bridge project
- Other documents

## **Appendix 1.2: Profiles for core staff**

## APPENDIX TWO: CURRICULUM VITAE FOR ESIA TEAM

### The ESIA Team

| <b>SN</b> | <b>Requisite skills</b>                        | <b>Name of proposed Expert</b> |
|-----------|------------------------------------------------|--------------------------------|
| 1         | ESIA Team Leader and Lead Expert               | Michael M. Wairagu             |
| 2         | Development Economist                          | David M. Mboni                 |
| 3         | Sociologist and SH mapping specialist          | Nancy Kanyi                    |
| 4         | Systems Planner/ Engineer                      | Eng, KB. Mwaniki               |
| 5         | Policy Analyst/ Stakeholder mapping specialist | Janet Murikira                 |
| 6         | Environmental Chemist                          | Mweru Mbugua                   |
| 7         | OHS Expert                                     | Richard Nganga                 |
| 8         | Marine Biologist                               | Jeean B. Ngatia                |
| 9         | Taxonomist/ Biologist                          | Dr. Mohamed Pakia              |

## CURRICULUM VITAE for MICHAEL WAIRAGU: Team leader

### PERSONAL DATA

**Name:** Michael Mwangi Wairagu

**Date of Birth:** 1960

**Marital Status:** Married

**Nationality:** Kenyan

**Address:**

| Head Office                                                                                                                                                                                                                                   | Mombasa Branch Office                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| The Repcon Center,<br>Sigona 410 of KEFRI/KARI Rd, Muguga<br>Mailing address: P.O. Box 79605, Nairobi<br>Telephone: 254 (20) 2248119<br>Mobile 0721-274-358, 0764 274358;<br>E-mail: <a href="mailto:info@repcon.co.ke">info@repcon.co.ke</a> | The Repcon Center<br>MMS/Block I/244; Shelly Beach Rd, Mombasa<br>Telephone: 0775 274358/ 0732 274358<br>Email: repconassociates@gmail.com |

**Profession:** Environment and Social Impact Assessment Specialist/Hydrologist

### ACADEMIC BACKGROUND

**B.Sc. Forestry & Wildlife Management, Moi University - 1985**

**MSc in Environmental Hydrology; University of Toronto - 1989**

- *Courses taken include:-*
- Hydrology of surface and sub-surface waters
- *Groundwater hydrology*
- *Land-use hydrology*
- *Environmental issues in developing countries*
- *Environmental issues in managing arid and semi-arid lands*
- Advanced Soil Science
- *Graduate seminar on research and communication skills*

### OTHER PROFESSIONAL TRAINING

- Certificate in Mathematical Groundwater Modeling, **Institute of Meteorological Training and Research, Nairobi. 1994.**
- Certificate in Watershed Management, **Forest and Forest Products Research Institute, Tskuba, Japan 1986.**
- Certificate in Environmental Protection and Planning. Third Annual Course for NTZDC Managers, **April 1998, KEFRI Muguga.**
- Certificate in Participatory Skills Development and Training of Trainers, **Social Forestry Training Center- Kitui, 1991.**
- Certificate in Research Methods and Bio-statistics, **Social Forestry Training Center, KEFRI, Muguga 2005**
- Certificate in Strategic Environmental Assessment from the Southern African Institute for Environmental Assessment: Courtesy of African Wildlife Conservation.

### KEY QUALIFICATIONS

Wairagu is a qualified Environmentalist with over 18 years experience (after

Msc.). Other key qualifications are as follows: -

- Practical experience in Environmental Impact Assessment in the fields of Rural Development, Roads, Urban Civil Works, Agriculture, ASAL and Water Resource Development, Irrigation and Drainage, Forestry, Tourism etc. Under EIA for Civil Works, the main objective is to minimize and mitigate land degradation associated with development of paved surfaces which act as micro-catchments.
- Practical experience in the formulation of ESMFs and RPF documents. I have participated in more than six studies targeting formulation of ESMF and RPF documents. In four of these projects, I was hired directly by the World Bank to work on projects in Nairobi and Zanzibar. They include:
  - a. Formulation of and ESMF and RPF for the Zanzibar Secondary education project. This included formulation of EIA guidelines for harnessing solar power for the education sector.
  - b. Formulation of an ESMF/ RPF for the World Bank Community Driven Development project (WKCDD&NRM project)
  - c. Formulation of and ESMF and RPF for the OBA Water and Sanitation project for the Greater Nairobi area.
  - d. Formulation of and ESMF for the Phase II of the Arid Lands Resource management project (ALRMAP II) in 2003. As part of the assignment, environmental assessments on potential of tapping both solar and wind energy to power health centers in Garissa and Wajir Districts were explored.
  - e. Specialist capacity for environmental impact assessment for all sectors;- rural development, water, roads, energy, power generation and transmission, etc.
- Multi-disciplinary specialist training in the fields of Hydrology and Watershed Management, Water and Sanitation, Environmental Concerns, Irrigation and Drainage, Soils Science, Groundwater modeling, Land-use, Fuel wood and bio-energy issues,
- Practical experience in project management cycles- **feasibility studies, appraisal, implementation, monitoring and evaluation etc** acquired when serving as Forestry and Environmental Advisor to the African Development Bank,
- Analytical and report writing skills developed when working as a researcher in the Kenya Forestry Research Institute,

#### **PROFESSIONAL EXPERIENCE:**

**1994 –To date:** Consultant in Water, Forestry and Environmental Planning trading as Repcon Associates.

**2016/ To date:** Team Leader in the Supplementary environmental Assessment of the Detailed Planning of Integrated Transport Policy and Loop line for the Nairobi Urban Core. This Study is aimed at better elaborating a Transport Policy for Nairobi County. Client: Nairobi County Government and Nippon Koei.

**2015-2017:** Lead Expert in the ESIA and RAP Study for the Mombasa Northern Bypass and Bamburi Link Road Construction Project. In association with Katahira Engineers, Wairagu was Team Leader in the ESIA and RAP Studies in the Bank funded Feasibility Study and Design of the Mombasa Northern Bypass and Bamburi Rd Construction Project. A RAP Study entailing delineation of the alignment and road reserves, stakeholder participation and engagement, baseline social-economic mapping, asset inventory and costing, Resettlement Cost Study, review of prevailing legal framework, development of an entitlement matrix, development of a

resettlement budget, proclamation of a cutoff date among others was undertaken leading to development of RAP reports already reviewed and accepted by KeNHA. **Client: KeNHA and the World Bank.**

**2016: Lead Expert in the RAP Studies under KISIP:** In association with ITC of India, Wairagu has been Team leader in the RAP Studies for interventions in in slum upgrading proposed under the Kenya Informal Settlements Improvement Programme- KISIP. RAP Reports for projects in Manyatta Arab, Kaloleni (Kisumu), Nubian (Mumias) Talai (Kericho) and Somali (Kakamega) slums were developed. **Client: KISIP and World Bank.**

**2016: Lead Expert in the Strategic Assessment for the LAPSSET Corridor Infrastructure Development Project:** Wairagu was Team Leader in the SEA Study for LAPSSET Corridor which traverses nine Kenyan Counties from Lamu to Nakadok Lodwar and Isiolo to Moyale. As part of the SEA, resettlement issues in the 1800Km long corridor were analyzed and recommendations made. **Client: The LCDA**

**2016: RAP Expert in the World Bank advisory Mission to the National Land Commission.** Wairagu was part of an international mission put together by the World Bank to prepare guidelines for Resettlement Planning in Compulsory land Acquisition. Appropriate guidelines were prepared. **Client: The World Bank.**

**2014/15: Team Leader in the SEA Study for the Kenya Industrial Park.** I was Team Leader for Repcon Associates which was competitively recruited by the EPZA to conduct a Strategic Environmental Assessment for the Kenya Leather Park proposed for the Kinanie Area of Athi River Machakos County. Diverse options in delivering on this Kenya Vision 2030 Flagship were explored.

**2013: Lead Expert in the SEA for the Mombasa Special Economic Zone:** Under auspices of Nippon Koei, Wairagu was Team Leader in the Study of Strategic Environmental Assessment for the Mombasa Special Economic Zone targeted for development in the Dongo Kudu area of Likoni sub County. The SEA Study examined many aspects of interrelationship of Mombasa CBD and the proposed development in Mombasa Mainland South including the Bypass road and proposed Special Economic Zone.

**2012: Environmental impact assessment for the Kwale-Kinango (C106) Road:** I was the lead expert in the Joint Venture (Uniconsult/Repcon) involved in the feasibility and detailed design of the C106 road. My detail was to prepare the environmental impact assessment Study. **Client: KeNHA**

**2012: Lead Expert in the Environmental impact assessment for the Mariakani-Kwale - Kinango (C107) Road:** I was the lead expert in the the Joint Venture (Samu Engineers/Repcon) involved in the feasibility and detailed design of the C107 road. My detail was to prepare the environmental impact assessment Study. **Client: KeNHA**

**2012: Environmental impact assessment for the Changamwe-Magongo-Miritini and the Changamwe-Kwa Jomvu-Magongo (A109A and A109) Roads:** Our Company was part of the Joint Venture (Samu Engineers/Repcon) involved in the feasibility and detailed design in the proposed expansion of the proposed roads serving the gateway area of Mombasa Town. Our detail was to prepare the environmental impact assessment Study. **Client: KeNHA**

**2011: Lead expert on the Supplementary EIA studies on the proposed Mombasa Southern bypass.** Wairagu was Team leader in the ESIA Study for the Mombasa Southern Bypass road which is targeted to bypass Mombasa by linking the A14 road to the A109 highway

between Shika Adabu in South Coast to Miritini in Mainland West. Client: Katahira Engineers and KeNHA.

**2011: Lead expert on the preparation of the Resettlement Action Plan for the proposed Mombasa Southern bypass.** A RAP was prepared to guide compensation for the close to 2000 people likely to be displaced by the proposed Mombasa Southern Bypass to be funded by JICA. Client: Katahira engineers and KeNHA.

**2011: Team Leader and Consultant in the Final Evaluation of MATF-Round V projects in Kenya, Uganda and Tanzania.** Wairagu led a team of 4 consultants who evaluated the 5th Round of projects implemented by FARM-Africa under the Maendeleo Agricultural Technology Fund-MATF. Client: FARM-Africa.

**2010: Team Leader and lead Expert: Environmental and Social Impact Assessment in the proposed Juba River Port expansion Project- Southern Sudan.** Our team was commissioned by Katahira Engineers to undertake the environmental and social Assessment for the proposed expansion of the Juba River Port on the Nile. Client: This assignment had a component on investigating potential; impacts of tapping solar power to power the expanded port. JICA and GOSS.

**2010: Team leader/Lead Expert: ESIA and RAP studies for the 80km long Lanet- Suswa 33kV transmission line.** RAP and ESIA reports were prepared and approved by NEMAS. Client: KPLC.

**2010: Environmentalist/ Hydrologist on the ADB-funded District Agriculture Sector Investment Project-DASIP.** Under auspices of CODA, I was contracted to provide specialist input in Hydrology and Environmental Management for 27 irrigation projects funded by the ADB under DASIP within 5 regions of Northern Tanzania. The project is ongoing.

**2010 Lead Expert and team leader in the Development of an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) for the World Bank funded Kenya Informal Settlements Improvement programme (KISP).** Under this Programme, the GOK is supporting 15 Kenyan Municipalities to invest in projects such as roads, water supply, sewage, that improve informal settlements and Repcon Associates has been contracted to prepare modalities for guiding resolution of environmental and displacement impacts in the Programme. The studies culminated in formulation of ESMF and RPF documents in line with World Bank's Environmental Safeguards. Client: GOK and the World Bank.

**2009: Team Leader in the Environmental and Social Impact Assessment for the 274 Km 132kV transmission line from Nanyuki-Meru, Ishiara Kieni, Mwingi- Kitui-Wote-Sultan Hamoud Transmission.** Wairagu was Team Leader in the development of the Resettlement Action Plan and Environmental Impact Assessment. The purpose of the EIA and RAP was to give general guidelines for the EIA and Resettlement policies as stipulated in the laws of Kenya. Advice on the mechanisms for compensation claims triggered by the 274km way leave created was documented. A Resettlement Action Plans was prepared for the Transmission Line Projects. *Client: KPLC*

**2009: Development of an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) for the World Bank funded Kenya Municipal Programme (KMP).** Under this Programme, the GOK is supporting 15 Kenyan Municipalities to undertake Institutional Reforms and simultaneously invest in

infrastructural development towards enhanced service delivery. Wairagu has been contracted to prepare modalities for guiding resolution of environmental and displacement impacts in the Programme. The result was an ESMF and RPF documents formulated along the World Bank's Environmental Safeguards. **Client: GOK and the World Bank.**

**2009: Impact Assessment of Dairy Goat Enterprises in Meru and Kitui/Mwingi areas.** Wairagu led a team of 2 consultants who undertook impact assessment studies for the Dairy Goat Project implemented in Meru and Kitui Mwingi by FARM-Africa. **Client: FARM-Africa.**

**2008/09: Environmental Impact assessment studies in respect of 24 flood control projects in the Nyando Basin Kenya.** EIA studies were undertaken for 24 flood control schemes where proposed mitigations included weirs, evacuation centers, boreholes, dispensaries, etc. **Client: JICA and WRMA.**

**2008: Environment/ Catchment conservation Specialist to the Africa Development Bank funded Monduli Water Supply and Sanitation Project:** With funds from the Africa Development bank, The Government of Tanzania was implemented and Water supply and Sanitation Project covering 18 villages and 2 small towns in Monduli District. Wairagu was contracted to review the ESMF and RPF prepared under auspices of the project following which, he organized communities in the project area to implement the ESMF in aspects of catchment and environmental conservation including sanitation. **Client: Monduli District Council and the ADB.**

**2008: Final Evaluation of MATF-Round IV projects in Kenya, Uganda and Tanzania.** Wairagu led a team of 4 consultants who evaluated the 4th Round of projects implemented by FARM-Africa under the Maendeleo Agricultural Technology Fund-MATF. **Client: FARM-Africa.**

**2007: Formulation of ESMF and RPF documents for the Gok/ EDF (of France)- funded Rural electrification project.** Both the EDF and GoK were financing a rural electrification project targeting construction of 72 rural electrification schemes spread out in six Kenyan provinces and Wairagu was contracted to prepare the ESMF and RPF to guide resolutions of Socio-environmental and displacement impacts occasioned by this Project. **Client: EDF/GOK.**

**2006: Development of an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) for the World Bank funded Zanzibar Secondary Education project.** Under this Programme, the WB was supporting upgrading of Secondary Education Infrastructure in Zanzibar and Wairagu was contracted to prepare modalities for guiding environmental management in the project. The result was an ESMF prepared along the World Bank's Environmental Safeguards: **The World Bank and the RGZ.**

**2006: Environmental Advisor on the JICA funded study on Integrated Flood Management for the Nyando River Basin, Kenya.** My specific role is to prepare a Watershed Management Plan for the Nyando Basin. **Client, Ministry of Water and irrigation in association with JICA .**

**2006: Development of an ESMF and RPF for the World Bank funded Western Kenya Community Driven Development project.** Under this project, the World Bank

was financing community based projects in the field of Water resources, and natural resource management including flood mitigation in three basins of rivers Nzoia and Yalla in Western Kenya. Wairagu was contracted as part of the ERM Team that drafted both ESMF and RPF frameworks for this project that is currently under implementation. Office of the President, Special Programmes and the World Bank.

**2006: Development of an Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for the World Bank funded OBA Pilot Project in Kenya.** This project involves developing capacity for Rural Community Water projects in the Athi Water Services board are to adopt use of commercial funding to invest in water supply. **Client: The World Bank (WSP-Africa).**

**2005; Environmental advisor to the Government of Malawi-funded Shire Valley irrigation Design Study.** My role is to coordinate the EIA process for the proposed development of irrigation in the Lower shire area of Southern Malawi.

**2005:** Team leader in the execution of the baseline survey for the Mount Kenya East Pilot Project (MKEPP) on Natural Resource Management . **Client/MKEPP /GOK/ IFAD**

**2004:** Capacity building for community-based natural resource management in the Jamame Region, Southern Somalia. **Client: Agrosphere /European Commission- Nairobi.**

**2004:** Impact Assessment/ capacity building for range utilization within the Elangata Wuas Ecosystem Management Programme (EWEMP) Area, Kajiado District. **Client: Center for Biodiversity Conservation, National Museums of Kenya.**

**2003:** Study of Environmental Impact Assessment in the feasibility study and design of the Mombasa- Malindi and Mombasa Lungalunga Roads Rehabilitation Projects. **Client: Ministry of Roads and Public Works/Uniconsult.**

**2003: An environmental assessment for the proposed Phase Two of the Arid Lands Resource Management Project (ALRMP II).** Client: Office of the President and the World Bank.

**2003:** Development of an Environmental and social management Framework (ESMF) Management Framework for proposed Phase Two of the Arid Lands Resource Management Project (ALRMP II). **Client: Office of the President and the World Bank.**

**2002 Environmental advisor to the Ewaso Ng'iro North Catchment conservation and Water Resource Management Study conducted by Nippon Koei:** In this capacity, I led teams that undertook several studies as follows:-

- ✓ **Environmental Baseline Study of the Ewaso Ng'iro North Drainage Basin**
- ✓ **Feasibility Study and Design of an Integrated Catchment Conservation and Management Programme for the Ewaso Ng'iro North Drainage Basin.** Study and was executed in association with Nippon Koei of Japan. Client: The Ewaso Ng'iro North Development Authority and the African Development Bank.
- ✓ **Environmental Impact Assessment in the Feasibility Study and Design of Small-Scale Irrigation Projects within the Lower Ewaso Ng'iro North Drainage Basin.** The assignment investigated potential environmental impacts of small-scale irrigation development in the ASAL districts under the ENNDA jurisdiction. It was undertaken as part of the Ewaso Ng'iro North Catchment Conservation and Water

Resource Management Study and was executed in association with Nippon Koei of Japan. Client: ENNDA/ADB/Nippon Koei (Japan).

- ✓ **Environmental Impact Assessment in the Feasibility study and design of rural community water supply projects within the Ewaso Ng'iro North Drainage Basin.** The assignment involved an analysis of the current water supply scenario in the 21 districts drained by the Ewaso Ng'iro North River. Costed investment packages to enhance supply of water for domestic and livestock watering were developed followed by an analysis of Environmental Impacts. The study was undertaken as part of the Ewaso Ng'iro North Catchment Conservation and Water Resource Management Study and was executed in association with Nippon Koei of Japan. Client: ENNDA/ADB/Nippon Koei (Japan).
- ✓ **Feasibility Study to Develop a Research, Training and Information Center for the Ewaso Ng'iro North Development Basin.** Among other duties, the center would undertake drought monitoring to provide Early Warning Systems on all resources for districts within the ENNDA jurisdiction.
- ✓ **Feasibility study and EIA in the use of solar power in small scale water supply projects.**

#### **1985-1993 KENYA FORESTRY RESEARCH INSTITUTE**

**1989-1993:** Hydrologist/Research Officer: Hydrology Section, Kenya Forestry Research Institute

**1985 - 1989:** Trainee Hydrologist: Environment and Silviculture Department, Kenya Forestry Research Institute

#### **LANGUAGE PROFICIENCY**

|           | <b>WRITTEN</b> | <b>READING</b> | <b>SPOKEN</b> |
|-----------|----------------|----------------|---------------|
| English   | Excellent      | Excellent      | Excellent     |
| Kiswahili | Excellent      | Excellent      | Excellent     |
| Japanese  | Poor           | Poor           | Poor          |

# CURRICULUM VITAE DAVID MWALIKA

**MBONI**

## 1.0 PERSONAL INFORMATION

**NAME:** DAVID MWALIKA MBONI  
**DATE OF BIRTH:** 5<sup>th</sup> MAY 1965  
**MARITAL STATUS:** MARRIED  
**SEX:** MALE  
**ADDRESS:** BOX 42326-00100, NAIROBI  
**Mobile Phone:** 254 0722 2226967  
**LANGUAGES:** ENGLISH, KISWAHILI, KIKAMBA

## 2.0 CAREER PROFILE:

I am interested in developing a broad economic career in economic research, planning and development. In addition I have strong interest in organisation development. This is founded on several years I have worked as an Economist/Statistician in the Government specifically the former Central Bureau of Statistics and later Kenya National Bureau of Statistics where I have been charged with collecting, analysing, and report writing of various economic publications. This has given me wide experience in applied quantitative work which includes data management backed by excellence knowledge of statistical/econometric software application. It is also founded on the experience gained in the National Statistical System (NSS)/STATCAP project, a project which was funded by the World Bank where I started as the Technical Manager and later promoted to the position of the Project Manager. The project object is/was to create an efficient National Statistical System which included organisational change in the entire National Statistical System. The Project covered sixteen(16) Ministries and Parastatals.

I have Master Arts degree in Economic Policy Management and a Bachelor of Arts in Economics. In addition I have attended several professional courses in Economic Planning and Development, Statistics and Management .

## 3.0 EDUCATION BACKGROUND

|              |                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1999 to 2001 | M.A. ( <i>Economic Policy Management</i> ), University Of Ghana, Legon<br>Concentration: Micro, Macro, and quantitative Methods<br>Research Project Title: 'Kenya's External Debt and its Implication to Economic Growth' |
| 1987-1990    | BA, <i>Hons(2<sup>nd</sup> Class-Upper Division) In Economics</i> , Nairobi University                                                                                                                                    |
| 1985-1986    | K.A.C.E ( <i>3 Principal and 1 Subsidiary In Mathematics, Economics and Geography</i> ), Shimo-La-Tewa High School                                                                                                        |
| 1981-1984    | K.C.E (O-Level) <i>Division II, 22 Points</i> , Kisasi Secondary School                                                                                                                                                   |

## 4.0 EMPLOYMENT HISTORY

### MINISTRY OF PLANNING AND NATIONAL DEVELOPMENT

(*Central Bureau of Statistics/Kenya National Bureau of Statistics*).

I was Chief Economist/ Statistician in the Central Bureau of Statistics later Kenya Bureau of Statistics. In 2005 I was seconded to the National Statistical System (NSS)/STATCAP project as the Technical Manager in 2005 and later promoted to a Project Manager in 2007 a

post I held up to September 2012. This involved development of the National Statistics Strategic Plans and their implementation.

October to December 2012, I was engaged by UNDP as a National Economist on short term consultancy.

#### ***Progression in the STATCAP Project***

October 07 To September 12: Project Manager–STATCAP/NSS Project

August 07 To September 07: Ag. Project Manager/Technical Manager - STATCAP/NSS Project

March 2007 To July 07: Technical Manager/Deputy Project Manager-STATCAP/NSS Project

May 2006 To March 2007: Ag. Project Manager/Technical Manager - STATCAP/NSS Project

May 2005 To May 2006: Technical Manager/Deputy Project Manager-STATCAP/NSS Project

#### ***Progression in the Government***

2010 to 2012 Chief Economist/Statistician

2007 To 2010: Deputy Chief Economist/Statistician

2004 To 2005: Principal Economist/Statistician

1998 To 2004 : Senior Economist/ Statistician

1995 To 1998: Economist/Statistician I

1991-1995: Economist/Statistician II

## **5.0 DUTIES AND RESPONSIBILITIES**

### ***5.01 STATCAP / NATIONAL STATISTICAL SYSTEM PROJECT***

#### ***Project Manager( October 2007 to September 2012)***

- Managed the day-to-day operations including technical, financial and administrative affairs of the project as a whole; plan, direct, control and coordinate project implementation at all levels;
- Managed staff of the STATCAP Transitional Support Unit(TSU);
- Compile Annual Workplans and Budgets and make sure they are in line with the project objectives and the available resources;
- Implemented the project according to the overall plan of operations and activity schedules and reporting changes thereto;
- Facilitated regular internal and external consultative meetings towards achieving the objectives of the project;
- Monitored the implementation of project activities in the Kenya National Bureau of Statistics and other agencies benefiting from the STATCAP project;
- Liaised with the National Technical Committee, Development Partners or any other body that may be formed by the Board on the project implementation activities;
- Ensured that Government and donor financial regulations and procurement procedures are adhered to, and that project accounting and auditing are regularly undertaken;
- Ensured that there is structured and consistent monitoring of progress of implementation, including regular progress and audit reports;
- Established and maintaining effective communication and collaboration between producers and users of official statistics; including research and academic institutions;
- Provided essential continuous feedback to development partners, the government and stakeholders in general;
- Enhanced liaison with the World Bank, DFID(K)and other development partners, statistical units in line Ministries/Departments and state-owned agencies during the Project implementation period; and

- Performed any other responsibilities assigned by the Director General, Kenya National Bureau of Statistics.

***Technical Manager(2005 to September 2007)***

- Deputy to the Project Manager
- Provided Technical guidance to the National Statistical System in the following areas:-
  - ❖ Design and commissioning of studies to evaluate local and international statistics needs and user satisfaction;
  - ❖ Identification of data gaps and development of indicators for monitoring and evaluation;
  - ❖ Provide guidance in the standardization of methodologies and standards for data collection, reporting and dissemination;
  - ❖ Undertake liaison between Government, Private Sector, NGO's, Research and Training Institutions and Development Partners on the technical requirements and monitor the implementation of Statistical activities.
  - ❖ The role of Statistics in monitoring and evaluation of Government programmes and strategies.

**Major Achievements in the Project**

- ✓ Made sure that the Development Partners are disbursing the funds to the project in regular basis
- ✓ Managed to facilitate undertaking of several surveys and censuses including the Kenya Intergrated Household Budget Survey(KIHBS), Disability Survey, Foreign Investment Survey, Integrated Survey of Services, Manpower Survey, population and Housing Census, Census of Establishments etc.
- ✓ Managed to train over 4000 staff in basic statistics and computer, and management courses
- ✓ Established statistical units in police, prison, judiciary and Ministries of Trade and Industry
- ✓ Harmonized data collection instruments in Education and Industrial sectors
- ✓ Spearheaded the reforms in the Kenya National Bureau of Statistics and indeed the entire National Statistical System.

**5.02 KENYA NATIONAL BUREAU OF STATISTICS**

***Chief Economist***

- responsible for the general direction of the economic planning function and production of statistical data at national level preparation of national Development plans, strategies, policies and programmes;
- monitoring and evaluation of policies and programmes;
- collation and presentation of statistical data in the form of survey reports and bulletins in ministries; and
- direction, control and coordination of all the various planning or statistical activities of professional and supporting staff within the Planning Departments as well as those serving in similar capacities in other Ministries.

**6.0 PREVIOUS DUTIES AND RESPONSIBILITIES IN CENTRAL BUREAU OF STATISTICS/ KENYA NATIONAL BUREAU OF STATISTICS**

**2001-2004:** I was in charge of **National Accounts Section** in Central Bureau of Statistics. Between 2004 to 2005 I was the Head of Macro-Economical and National Account Division in Central Bureau of Statistics which consist of National Accounts, Tourism and Migration, Transport and Communication and, Public Finance. My duties were:-

- ❖ Collecting, analysing, compiling and computerization of National Accounts aggregates, Tourism and Migration, Transport and Communication, Public Finance, Balance of Payments, and Financial statistics,.
- ❖ Implementation of National Accounts aggregates, Tourism and Migration, Transport and Communication, Public Finance, Balance of Payments, and Financial methodologies
- ❖ Providing Economic Analysis, Statistical and other related services,
- ❖ Conducting statistical studies, determining project viability and setting project priorities within the division,
- ❖ Writing and submitting economic reports on specific assignments.
- ❖ Control and supervision of technical and other supporting staff working in the sections. In total there were 31 staff divided into 14 Professionals, 15 Statistical Officers/Clerks and 2 Secretaries

### **Major Achievements as Head of Macro Economics and National Accounts Division**

***System of National Accounts:-*** As the Head of National Accounts Section in the Central Bureau of Statistics I was involved in the implementation of the System of National Accounts 1993 (SNA93). I also initiated the implementation of the quarterly GDP compilation.

***Government Financial Statistics 2001 Manual:-*** As the Head of Macro Economic division, I was involved in the implementation of the Government Finance Statistics Manual 2001(GFSM 2001).

***Tourism Satellite Accounts:-*** I was in charge the of the task force which worked on Tourism Satellite Accounts whose objective was to measure the total economic impact in the country.

***International Comparison Programme (ICP):-*** I was the National Co-ordinator of the ICP from 2004 to 2005. The ICP objective was to collect product prices and compile Consumer Price Index (CPI), Purchasing Power Parities (PPPs) and GDP for comparison purposes across countries. My duties in the programme were:-

- Co-ordination and compilation of products list
- Compilation of the budget
- Compilation of the Workplan for the implementation of the project
- Liaising with the African Development Bank and the relevant Government Ministries for smooth implementation of the project.

### ***General Data Dissemination System (GDDS) Project***

I was the National Co-ordinator of the General Data Dissemination System in Kenya and my duties includes:-

- Compilation and updating of the Metadata for the five sectors (Real, Financial, Fiscal, External and the Demographic and the poverty sector),
- Compilation and updating of the Plans for Improvement under the GDDS Project,
- Compilation and updating of the list of Technical Assistance for the National Statistical System,
- Liaising with the donors who are funding the Technical Assistance and the beneficiary sectors/institutions.

Monitoring the implementation of the Technical Assistance to ensure it meets the intended purpose and objective of improving the national statistical system in the country.

### **Other Achievements**

- **Statistical Strategic Plan 2003/04-2007/08:** Between 2002 and 2004 I was involved in the preparation of the fist strategic plan and its Implementation Master Plan

- **National Statistical System (STATCAP) Project:-** From 2002 I was fully involved in the project design document preparations and negotiations of the credit.

**1995-1999:** Worked in the Industry Division as the Head of Energy Section. My duties were collecting, analysing and compilation of energy data. Authoring Chapter 10 and editing of all the chapters of the annual economic survey and supervising of staff working under me.

**1992-1994:** Worked in the Labour and Industry Division, Manufacturing Section in the Central Bureau of Statistics. My duties were collecting, analysing and compilation of manufacturing data.

**b) 7.0 NATIONAL SURVEYS/STUDIES PARTICIPATED**

**c) As a Researcher/Consultant**

- |                                                |                                                                                                                                                       |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) March 2014 to Date<br>Economic Growth       | Currently a consultant with African Centre for updating the African Peer Review Mechanism report 2006 for Kenya.                                      |
| 2) October-December 2012<br>provide support to | Engaged by the UNDP on Short term basis to the UNDP management and projects, policy advice, creation of strategic partnerships and fund mobilization. |
| 3) 2007                                        | ‘Disability Survey’                                                                                                                                   |
| 4) 2007                                        | ‘Benchmark Survey on STATCAP/NSS Project’                                                                                                             |
| 5) 2007                                        | ‘Training Needs Assessment Study’                                                                                                                     |
| 6) 2007<br>Education and                       | ‘Harmonization of Data Collection Instruments in Industrial Statistics’                                                                               |
| 7) 2006                                        | ‘Governance Survey with GJLOS’                                                                                                                        |
| 8) 2002-2003<br>Statistical                    | Participated in the development of the National Strategic Plan(2002/03-2007/08)                                                                       |
| 9) Nov. 2001                                   | ‘Study on Globalisation and poverty’                                                                                                                  |
| 10) April /Sep 1999                            | ‘Study on National Education Financing’                                                                                                               |
| 11) Jan/May 1999:                              | ‘Study on the National Health Accounts’                                                                                                               |
| 12) Aug./Sept. 1997:<br>An<br>Environment      | “Water Sources and Management in Makueni district.”<br>Evaluation Study undertaken with Billtech Consultants Ltd                                      |
| 13) December 1993:<br>and Their<br>survey’.    | “Effective Protection Activities for Local Industries Effect on Export Promotion.” “A World Bank                                                      |

**d)**

**a) As a Team Leader/Trainer in Data Collection**

- |                     |                                                 |
|---------------------|-------------------------------------------------|
| 1) 2012<br>(NASSEP) | National Sample Survey and Evaluation Programme |
| 2) 2011             | Manpower Survey                                 |
| 3) 2011             | Integrated Services Survey                      |
| 4) 2010             | Census of Industrial Production                 |
| 5) 2010             | Register of Establishment/Masterfile            |
| 6) 2010             | Informal Cross Border Survey                    |

- 7) 2010 Survey of Apartments, Villas and Cottages
- 8) 2009 Rapid Health Facility Assessment (R-HFA) Survey
- 9) 2009 Population and Housing Census
- 10) 2010 Foreign Direct Investments Survey
- 11) 2004: Inbound-Outbound Tourism Expenditure Survey
- 12) 2002-2003 Participated in the training of KNBS staff on Strategic planning
- 13) July 2002: Study on measles coverage
- 14) July 2002: ‘Study on Measles coverage in Kenya’
- 15) March 2002: ‘Study on Drug Abuse’.
- 16) Nov./Dec. 1998: “Labour Force and Child Labour”: Central Bureau of Statistics/UNDP
- 17) February 1997: “Solar Energy survey.” Central Bureau of Statistics and K-REP.
- 18) Feb./Mar. 1996: “Multiple Indicator cluster survey.” Government of Kenya/UNICEF
- 19) May/June 1995: “Micro and Small Enterprises Survey.” Government in conjunction with K-REP/USAID.
- 20) April/May 1995: “Evaluation and Mid Decade Goals Survey.” Government of Kenya/UNICEF.
- 21) July 1994: “Welfare Monitoring Survey II.” Government of Kenya/World Bank.
- 22) November 1993: “Kenya Health and Demographic Survey.” Government of Kenya.
- 23) September 1993: “Micro and Small Enterprises Survey” Government in conjunction with K-REP/USAID
- 24) Oct./Nov. 1997: “Participatory Poverty Assessment survey.” Ministry of Planning and National Development in Collaboration

with

ODA/AMREF

e)

## **8.0 ECONOMIC PUBLICATIONS AND OTHER REPORTS PARTICIPATED IN WRITING**

- 2007 Benchmark Survey on STATCAP/NSS Project Report
- 2007 Training Needs Assessment Study Report
- 2004 Participated in the compilation of the Strategic Implementation
  - Master Plan for the National Statistical System
- 2003: Participated in the compilation of the Statistical Strategic Plan
- 2001 to 2005: Author of Chapter one on ‘International Scene’ and Chapter two
  - on ‘Domestic Economy’ in the Annual Economic Survey
- Jan 2003: Participated in writing a paper on Kenya Trade Balances
- Jan 2002: Developed the Country’s Loss compensation according to the COTONOU arrangements
- Nov. 2001: Participated in writing the on Globalisation and poverty reports
- June/Sep 2001: Participated in writing the General Data Dissemination System (GDDS) and the Plans for Improvement document documents
- April /Sep. 1999: Participated in writing the National Education Financing report
- Jan/May 1999: Participated in writing the National Health Accounts report

- Feb. 1999: Analysed data and participated in report writing for PLAN International in evaluation of its programme in Eastern province
- 1998: Author of the Chapter on Household Income and Expenditure in the **“Poverty and Social Indicators Volume II of 1998.”**
- 1998: Edited part of the Analytical reports on **“Population Census of 1989**
- 1997: Analysed data and participated in report writing on **“Water Sources in Makeni District’**
- 1997: Co-author in the **“Participatory Poverty Assessment Report of 1997.”**
- 1996: Co-author in **“Multiple Indicator Cluster Survey Report**
- 1994: Author of the Chapter on Household Income and Expenditure in the **“Welfare Monitoring II Basic Report.”**
- 1994: Author of the Chapter on Household Income and Aid in the **decade Goals Report on North Eastern Province.”**
- 1994 to 1999: Author of Chapter 10 on Energy in the annual **“Annual Kenya Economic Survey.”**
- 1992 to 2005 Provision of data for the Statistics Abstract

## 9.0 PREVIOUS TASK GROUP MEMBERSHIPS

- Member of the National Technical Committee on statistics
- Member of the Sectoral Working Groups of Statistics (Real, Social, Justice, and External, Fiscal and Financial.
- ◆ A member of the task force working on Tourism Satellite Accounts
- ◆ A member of the Macro-Economic Working Group in the Ministry of Planning and National Development

## 10.0 PROFESSIONAL TRAINING

- May 2011 Certified International Manager from International Academy of Project Management
- April 2006 **“Certificate in Participatory Project Monitoring and Evaluation Course”** Kenya Institute of Administration.
- Feb/March 2005 **“Certificate in Special Data Dissemination Standard (SDDS)”**, IMF course offered conducted in South African Reserve Bank College in Pretoria.
- Oct/Nov.2003 **“Certificate in Compilation of National Accounts using the SNA 93”**. IMF Institute , Washington D.C.
- Sept./Oct.1996: **“Certificate in Statistics for Social Policy.”** Germany-Munich Centre for Advanced Training in Applied Statistics for Developing Countries.

## OTHER TRAININGS

- August 2011 Corporate Governance
- February 2011 ISO process
- May 2010 Enterprise Risk Management

## 12.0 COMPUTER KNOWLEDGE

February 1996: Ministerial training.  
Lotus 123, Dbase, Word Perfect.  
Conversant with both DOS and WINDOWS environment.

On job training: SPSS (Social Statistical Package), Eviews 3.1, STATA,  
Microsoft Office (MS Word, Excel and Power Point)

### **13.0 WORKSHOPS**

I have attended various national and regional workshops aimed at improving national statistical systems either as a participant or a resource person. among them are various GDSS workshops in South Africa in April 2008, Namibia, Botswana nad Kenya, national accounts aggregates and compilation (2004), education accounts(1998), health accounts(1999), tourism satellite accounts(2002), environmental accounts(2001), non-profit institutions in the system of national accounts(2005), and workshops on strengthening national statistical system.

### **14.0 AWARDS RECEIVED**

2002: World Bank funded my training in National Account Course in Washington D.C

1999-2001: Japan World Bank Scholarship to Study Masters Programme in Economics

1996: GTZ funded my course in **Statistics for Social Policy** -Germany-Munich Centre for Advanced Training in Applied Statistics for Developing Countries.

### **15.0 SOCIAL RESPONSIBILITIES COMMUNITY**

- Board Chairman, Mbitini Mixed Secondary School, Kitui
- Board Member, Kisasi Secondary School, Kitui
- Board Member, Kisasi Mixed Secondary School, Kitui
- Chairman, Tausi Mawazo Welfare Association, Nairobi

## CURRICULUM VITAE: NANCY WANGUI KANYI-SOCIOLOGIST

1. PROPOSED POSITION : SOCIAL DEVELOPMENT AND GENDER SPECIALIST
2. NAME OF STAFF : NANCY WANGUI KANYI
3. DATE OF BIRTH : 1974
4. NATIONALITY : KENYAN
5. EDUCATION

**University of Exeter (UK):2015 to date:** Climate Change Challenges and Solutions.

**University of Nairobi:** M.A Rural Sociology and Community Development

**Kenyatta University (1995\_1999)** Bachelor of Environmental Studies-Community Development

### 6. MEMBERSHIP IN PROFESSIONAL SOCIETIES

Environment Institute of Kenya (EIK 1,000,546)

Lead Environmental Impact Assessment Expert (7348)

### 7. OTHER PROFESSIONAL TRAINING

**2000:** Soil fertility and crop nutrition Seminar:

**2001:** Certification of organic produce at Fairview Hotel, Nairobi.

**2001:** International Forum of Organic Agriculture Movement (IFOAM).Anglophone Africa Workshop at Hotel Senate, Juja.

**2002:** International Horticulture and Floriculture trade exhibition- at Kenyatta International Conference Center.

### 8. COUNTRIES OF WORK EXPERIENCE: Kenya, Tanzania and Sudan.

### 9. LANGUAGE PROFICIENCY

|           | <u>WRITTEN</u> | <u>SPOKEN</u> | <u>READING</u> |
|-----------|----------------|---------------|----------------|
| English   | Excellent      | Excellent     | Excellent      |
| Kiswahili | Excellent      | Excellent     | Excellent      |

### 10. EMPLOYMENT RECORD

Year: From January 2005 to date

Employer: **Repon Associates** –

Positions held: Sociologist/ EIA Lead Expert

Year: 2004

Employer: **Africa Harvest**

Positions held: **Research Assistant**

From Year: **2002 to year 2003**

Employer: **Mengit Farm Limited**

Positions held: Passion fruit **Manager**

From Year: **2000-2002**  
Employer: **Kakuzi Limited**  
Positions held: **Research Supervisor**

### **Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**

#### **Preparation Of Environmental And Social Impact Assessment Of Preliminary And Detailed Engineering Design For The Upgrading To Bitumen Standard Of The Daraja Sita – Chebole – Chebunyo - Dikirr (D233/D234/C14/E1768) Road**

Period : *January 2015*  
Activity : ESIA  
Client : *KeRRA*  
Position : EIA Lead Expert/Sociologist

My detail was to undertake stakeholder consultations and community consultations leading to the formulation of environmental management plan in line with the NEMA requirements.

#### **Preparation of Environmental and Social Impact Assessment and Resettlement Action Plan Of the proposed design and supervision of construction works of the Kangundo Road (Tala)- Kenol, Kenol- Kangundo Road( Koma) and Katumani- Mombasa Road and Rehabilitation of Kenol-Machakos Town-Katumani Link road.**

Period : *November 2014 – To date*  
Activity : EIA &RAP (Ongoing)  
Client : *Intercontinental Consultants &Technocrats Ltd and GEODEV/World bank*  
Position : EIA Lead Expert/Sociologist

My detail was to undertake stakeholder consultations and community consultations leading to the formulation of environmental management plan in line with the NEMA requirements. I also supervised the census and asset inventorying of the project affected people (PAPs) which was occasioned by the road realignment. This will lead to the formulation of an asset register and an entitlement matrix will be developed after determination of the type of ownership or claim in combination with the severity of impact of each PAP.

#### **Strategic Environmental Assessment For The Project On Masterplan For Development Of Mombasa Special Economic Zone**

Year : 2014  
Location : Mombasa  
Client : Nippon Koei/JICA

##### **Main Features:**

Stakeholder analysis, identification prediction and evaluation of potential impacts and alternative comparisons, impact mitigation and opportunities enhancement, and facilitating stakeholder meetings

**Position held:** Coordinator

**Activities performed:** Liasing with the team leader to organize for stakeholder meetings.

#### **Supplementary Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP)for the dualling of Nairobi-Dagoretti Corner Road C60/C61 Phase II.**

Year : 2014  
Location : Nairobi

Client : Katahira and Engineers International/JICA

**Main Project features:** Conduct analyses which shall detail the positive and negative effects of the development of the project on the environment, and prepare an ESIA report recommending appropriate solutions to minimize any undesirable effects resulting from the road project.

**Position:** EIA Expert/ Sociologist

**Activities performed:** I was a team member & My role was to carry out the community consultation process, Socio economic survey and inventorying of PAPs, data analysis and impact prediction leading to formulation of Environmental Management Plans to NEMA requirements for the proposed development of the road.

**Preparation of a Resettlement Action Plan and Replacement cost Study for the Mombasa City Road Development Project in the Republic of Kenya**

Period : July 2011 – November 2011

Location : Mombasa

Client : Katahira & Engineers International/JICA

**Main Project features:** The project aims to construct a Mombasa City-Southern Bypass to ease pressure on the Kenya Ferry Services Ltd and make movement of people and cargo between Nairobi- Mombasa and Tanzania easier and stress-free. Further, the project will entail construction of a link road connecting the Bypass at Mkupe to the new container Terminal currently being constructed near the Kenya Oil Terminal

**Position :** Sociologist

**Activities performed:** My detail is to carry out the Socio economic and census surveys of existing social environmental situation such as land-use, condition and prepare a social economic report. Am also involved in leading consultations with all PAP categories.

**Environmental and Social Impact Assessment and Resettlement Action Plan Of the proposed Nanyuki-Isiolo-Meru, 132 transmission line -Kenya**

Period : July 2011 – December 2011

Location : Meru

Client : KeTRACO/World Bank

**Main Project features:** The purpose of the EIA and RAP was to give general guidelines for the EIA and Resettlement policies as stipulated in the laws of Kenya. Advice on the mechanisms for compensation claims triggered by the 80km way leave created and documented.

**Position :** Sociologist

**Activities performed:** My detail is to do a socio economic survey and a census of the Project Affected People in the areas of traverse and prepare an Environmental Impact Assessment and Resettlement Action Plan reports I was also involved in carrying out of the community consultation process for the proposed development of the power transmission line.

**Environmental Impact Assessment & Social Impact Assessment for Juba River Port Expansion Project-Sudan**

Period : October 2010 – November 2010

Location : Juba/South Sudan

Client : *Katahira & Engineers International/JICA*

**Main Project Features:** Funded by JICA and GOSS, Juba River Port Expansion project aims at expanding the capacity of the River Port to handle cargo and passengers. The River Port is adjacent to the Juba airport and so activities also touch on interconnectivity of both ports.

Position : Sociologist

**Activities Performed :** My detail was to prepare an Environmental Impact Assessment and Resettlement Action Plan reports and carry out the community consultation process for the proposed development of Juba River Port Expansion Project.

### **Preparation of Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF), Kenya**

Period : October 2010

Location : 15 Municipalities

Client : MOH/ World Bank

**Main Project Features:** The KISIP tackles the rapid growth of slums in urban Kenya—it focuses on improving living conditions in slums by enhancing security of tenure and investing in basic infrastructure, while supporting mechanisms to prevent the emergence of new slums. Repcon Associates was required to develop an ESMF and RPF as a general guideline on how to address social, environmental and resettlement issues that may arise during project implementation.

**Position :** Sociologist

**Activities performed:** I was involved in the stakeholder consultation in the development of an ESMF and RPF for the World Bank/GoK funded Development Project targeting of improving living conditions in slums by enhancing security of tenure and investing in basic infrastructure, while supporting mechanisms to prevent the emergence of new slums. My task involved going to selected municipalities and advising on issues of displacement in cases where the projects passed through developments.

### **Preparation of Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF), Kenya**

Period : Nov 2009

Location : 15 Municipalities

Client : MOL/ World Bank

**Main Project Features:** The Kenya Municipal Programme had the objective of supporting pilot LAs in the development of integrated urban plans and the development and implementation of these projects. Lessons were to be learnt from the pilot LAs and documented for replication into other LAs in the country

Position : Sociologist

**Activities performed:** I was involved in the development of an ESMF and RPF for the World Bank/GoK funded Development Project targeting of the development of integrated urban plans and the development and implementation of these projects

### **Provision of consultancy services for Designing and Supervision of water control structures, Tanzania**

Period : June. 2010 –Dec 2010

Activity :Implementation

Client : African Development Bank/ Government of Tanzania

Position : Environmental Sociologist

I was responsible in carrying out a socioeconomic survey for the beneficiary communities in the 27 water control infrastructures in the five regions of Kagera, Kigoma, Mwanza, Shinyanga, and Mara regions. The work also involved formation of groups and building their capacity to enable them manage the water resource and the project after completion.

**Environmental Social Impact Assessment (ESIA) Studies for Flood Control In the Nyando Flood plains. Kenya**

Year : Nov. 2008-February 2009

Main project features :EIA

Client : JICA & WRMA

Position : Environmentalist

JICA supported construction of flood coping /mitigation measures:- Evacuation centres, Weirs, Footbridges, Health centres at 24 sites in Kisumu & Nyando Districts for which we managed the EIA process. I was involved in data analysis and drafting of the report.

**Environmental and Social Impact Assessment and Resettlement Action Plan Of the proposed Nanyuki-Meru, Ishiara-Kieni-Embu, Mwingi-Kitui-Wote -Sultan Hamud 132 transmission line -Kenya**

Period : *Dec 2009 – Feb 2010*

Location: Eastern and Rift Valley Province

Client : *KPLC/World Bank*

**Main Project features:** Funded by WB and GOK, the Rural Electrification objectives are to electrify the rural areas in order to foster the development in the rural areas. The motivation of the project is to offer easy credit access and payment terms to rural population. The purpose of the EIA and RAP was to give general guidelines for the EIA and Resettlement policies as stipulated in the laws of Kenya. Advice on the mechanisms for compensation claims triggered by the 274km way leave created was documented. A Resettlement Action Plans was prepared for the Transmission Line Projects.

**Position :** Sociologist

**Activities performed:** My detail was to do a socio economic survey in the areas of traverse and prepare a draft Environmental Impact Assessment and Resettlement Action Plan reports I was also involved in carrying out of the community consultation process for the proposed development of the power transmission line

**Integrated Study of the Nyando Flood Master Plan, Kenya**

Period : 2006 (2 months intermittently)

Activity :EIA

Client : Nippon Koei/ Japan International Cooperation Agency (JICA)

Position Team member/ Associate EIA Expert

Associate consultant on the Study of Environmental Impact Assessment in the Kachweo, Odesso, Millennium, Kasiru and Chilchila Pilot Projects.

## CURRICULUM VITAE: KWAME BAHAYE MWANIKI / SYSTEMS ENGINEER

### **PERSONAL INFORMATION:**

**Name of Firm:** Repcon Associates  
**Name of Staff:** Kwame Bahaye **Mwaniki**  
**Profession:** Civil Engineer/Systems Analyst  
**Date of Birth:** 1964  
**Years With Firm** 3                      **Nationality:** Kenyan

### **Membership in Professional Societies:**

- Professional Engineer, Wisconsin #33168.
- Professional Engineer, Texas #89830.
- Member: National Society of Professional Engineers.
- Member: Texas Society of Professional Engineers.

### **KEY QUALIFICATIONS:**

Mr. Mwaniki has a solid background of over 21 years of diverse civil engineering design, project management and construction field work experience related to public utilities and facilities, transportation, airports, light rail transit, schools, irrigation, municipal engineering and site development. He has worked in both the public and private sectors of engineering services gaining valuable and diverse experience from both perspectives. Mr. Mwaniki's professional experience includes seven (7) years of international consulting engineering work on various infrastructure development projects financed by the World Bank, United Nation agencies and other international donor organizations. His past projects include new rural highways, rehabilitation of urban and rural road networks, public utilities, irrigation scheme pump-stations and canals, airport infrastructure improvements, schools/universities and numerous commercial and residential site developments. He has strong computer and CAD skills and is proficient in several industry standard design and project management application programs. Mr. Mwaniki has effective managerial experience, strong analytical and technical writing skills. He is well versed and experienced with quality control and quality assurance measures for management and delivery of engineering design and construction services. He has provided business development leadership with proven results and added value for engineering consulting services. He has lead engineering design teams and project consultants in the preparation of construction plans, specifications, quantity/cost estimates, legal documents, bid schedules and other construction documents for successful project services delivery. He has served in various capacities such as Director, Technical Manager, Project Manager and Project Engineer on construction sites and design offices in the States of Texas, Wisconsin, New York and Georgia, USA and Countries of Tanzania, Kenya, Uganda, Malawi, Zimbabwe and South Africa.

## **EDUCATION:**

- 1992 M.B.A. (Master of Business Administration) School of Business, University of Wisconsin, Milwaukee, USA.
- 1987 B.Sc., (Civil Engineering), College of Engineering, University of Wisconsin, USA. Concentration in structural engineering with computer applications. Additional courses in economics, business and computer application.

## **Other Training**

- 2006 - Turner School of Construction management Course.
- 2005 - TXDOT Traffic Control Design Seminar.  
- Erosion Control & BMP Training Seminar
- 2003 - CSI-Construction Specification Institute-Construction management Course.  
- PSMJ-Project Manage "Boot Camp" Workshop.

## **EXPERIENCE RECORD:**

October 2007 to date **Regional Technical Director**, Coda And Partners and Senior Associate-**Repron Associates**

- Serve as Project Director on Consulting projects, within Coda's areas of consulting services including irrigation, roadways, water resource infrastructure, sanitation and building facilities. All within our regional offices located in Kenya, Tanzania, Uganda, Malawi, Botswana and South Africa
- Performed and responsible for various duties related to business development, and technical project administration.
- Project Management of the successful delivery of consulting projects.
- Technical leadership on engineering services project delivery.
- Marketing and promotion of Coda's professional services, within Eastern and Southern Africa.
- Proposals and Expressions of Interest, project pursuit lead, teaming coordination and presentations.
- Staff recruitment, technical personnel management; contracts and work schedules administration; and project budgets and accounts.
- Project Management and Project Engineering

*Representative project experience includes:*

2007 2010 **Project Coordinator, DASIP Consultancy** services in undertaking Designing and Supervision of Construction/Improvements of Water Controls Structures for 28 Lake Basin districts. Undertake design and supervision of construction/ improvements of water control structures and associated reticulations or amenities for surface water storage and distribution of water for irrigation purposes.

**Technical Assistance and Capacity Building on Roads Maintenance, Development, Planning and Management in the Local Authorities, Cluster 3, Ministry of Local Government, Kenya** Served as Project Director, providing overall project management and head office support in a principal-in-charge capacity, for the successful delivery of the project services. This project involved technical assistance and capacity building of local Authorities road maintenance staff in roads maintenance, development, planning and management.

The project involves assisting local authorities in preparing Annual Road Works Programme (APRP), supervising the implementation of the programs and preparation of reports.

**Review of Design and Construction Supervision of Rehabilitation of Hola Irrigation Scheme, National Irrigation Board, Kenya.** Served as Project Director, providing overall project management and head office support in a principal-in-charge capacity, for the successful delivery of the project services. Also provide design review and redesign technical input of the intake works. This was a Ksh 580 million project, involving water resources assessment and review of design for rehabilitation of the Hola irrigation scheme to serve 1100 ha of land and construction supervision of the entire development.

**Consultancy services for the Detailed Engineering Design for the Rehabilitation of District Roads in Twelve (12) Districts in Southern and Western Uganda, Ministry of Works and Transport.** Served as Project Director, providing overall project management and head office support in a principal-in-charge capacity, for the successful delivery of the project services. This project involved the design for the rehabilitation of 2,105km total sections of roads of different classes under the district road network classification

2001- 2008 **Senior Project Manager/Technical Manager**, Dikita Engineering, Inc., Dallas, Texas.

**Project Manager**, Stephen F. Austin State University, \$30m 2-Year Bond Program, Nacogdoches, TX. This was Program Management Services in association with Turner Construction Group for various projects within the Bond Program. Projects to date April 2008 include: New Nursing Building \$13m budget; New Chemistry Building \$15m budget; and Student centre HVAC Upgrade \$2m budget. Services entail: budgeting and scheduling tasks at program and project levels; planning and program development; facilities assessment; user group(s) mobilization and needs assessment; architectural, engineering and design consultant services scope articulation and RFQ review and evaluation; quality control; project documents review; construction manager scope articulation and RFP review and evaluation; project meetings, reporting and presentations; and Owner's representation. Overall management of the programming, design and construction delivery services for each project.

**Project Manager/Engineer**, City of Cedar Hill New Government Complex, Cedar Hill, TX. Involved civil engineering services for planning, design and construction administration and supervision for a 15-acre site development of a \$16m budget complex.

**Project Manager/Engineer**, Arlington Park, Recreation Centre – Site Improvements, City of Dallas Parks and Recreation Department, Dallas TX. Involved in civil engineering services for planning, design and construction documentation and contract administration for drainage, paving, grading, exterior lighting, irrigation and soccer field improvements for a 4-acre site.

**Project Manager/Project Engineer**, Ransom Howard Street-Roadway Improvement, City of Port Arthur Public Works, Port Arthur, TX. Involved civil engineering services for planning, design, construction documentation, contract administration and construction administration for drainage, pavement widening and rehabilitation, grading, public utilities (water and sanitary sewer) and storm water.

**Project Manager/Engineer**, Legacy Senior Housing Complex – Site Development, Port Arthur, TX. Involved civil engineering services for planning, design and construction documentation and construction administration for civil site design related to drainage, paving, grading, public utilities and erosion control for a 13-acre site.

**Contractor's Quality Control Representative**, Fare Collection Equipment, Dallas, TX. Installation inspection of fare collection equipment such as Ticket Vending Machines (TVM), Stand Alone Validators (SAV) and various communication components installed within the communications cabinets. Total of five stations/terminal sites were performed.

**Project Manager**, Cedar Hill Independent School District, Educational Facilities Development, Cedar Hill, TX. Involved civil engineering services for planning, design and construction administration and supervision for the development and construction of new K-12 schools/educational facilities and renovation of existing school sites for the 2002-2005 bond program. Services included coordination of survey services, utilizes coordination and relocation, site design (roads, parking, grading, erosion control, drainage, water and sanitary) hydrological study, construction cost estimate, construction bid documentation, contract administration and construction administration.

**Project Manager**, Central Pointe church of Christ, Dallas, TX. Involved the renovation and expansion of an existing two-story 49,000 sq.ft United Artist Cinema multiplex into a two-story 60,000 sq.ft. worship and community centre. Performed project management tasks; which included budgeting, scheduling, program development, scope articulation of contracted services, permitting and contracting architect, consultants and general contractor services. Manage/coordinated multi-disciplinary team of architects, engineers and contractors and all project tasks during planning, programming, design, and construction phases. General services included feasibility study, environmental assessment, geotechnical investigation, platting, structural and site evaluation, schematic planning, facilities needs assessment and program development, renovations and additions design (architectural, structural, MEP), plans, and specifications, bid documents, bidding and contract administration, construction management and inspection.

**Project Civil Engineer**, DeSoto ISD – Strategic Planning Study, DeSoto, TX. Performed a comprehensive detailed site condition civil assessment on all twelve DeSoto-ISD schools and five selected facilities. Prepared a detailed report of the assessment findings, stating prevailing civil related site conditions, recommendations and prioritized actions. Analyzed various impacting factors such as site suitability for future additions or athletic/recreational facilities, capital improvement projects and conformance to current City of DeSoto design guidelines for any future construction. Implemented particular solutions which were related to traffic, drainage, erosion, general topography, vehicular and pedestrian accessibility, landscaping, exterior lighting, ADA accessibility, parking, fire lane configuration, signage, public utilities (sanitary and water services), driveway pavement, concrete walks, recreational.

**Project Manager/Design Engineer**, South Dallas, Oak Cliff Subdivision Development, Dallas, TX. Involved for the entire planning and design of an 85-acre residential subdivision of 360 lots. Responsible for overall coordination and management of all engineering related planning and design tasks, as well as preparation of cost estimates, reports, client correspondence, invoices, schedules and meetings with various public boards, authorities and the client. Co-design tasks include lot/street layout planning, preliminary plat design, grading and drainage design, water and sanitary design, and erosion control plans. Included the design of an off-site 2,100 ft. 27-inch sanitary sewer interceptor main.

**Project Engineer**, DFW-Airport, Automated Parking System, Dallas, TX. Design/ Build project for the development and installation of a state-of-the art automated parking system at the north and south toll booth plazas and all interior public parking lots. Provided planning input for in-lane construction work, traffic control, construction sequence/schedule and booth locations. Reviewed and appraised design deliverables, plans, estimates and specifications at the 50% draft and final submittal by the design consultant. Supervised a full time construction administrator representative, during construction phase of work.

**Project Manager**, Southeast Area Service centre Store Renovation Project, Dallas, TX. City of Dallas, Department of Water Utilities (DWU) project involved architectural and engineering services for planning, design and construction administration for the renovation and expansion of the Southeast Area Service Centre Materials Store, along with site improvements. Responsible for coordination of Architectural, MEP and all sub-consultant work and services and project management services, as the prime consultant. Site improvement planning and design included driveways, water services extension, sanitary sewer service extension, parking reconfiguration, storm drainage improvement, erosion control plan, utilities coordination and relocation and design of material storage bunkers. Prepared construction cost estimate and construction bid documentation. Performed contract administration tasks. Post construction services included preparation of as-built drawings and Operations and Maintenance Manuals for all major electrical and mechanical installations.

**Project Manager/Engineer**, Water Transmission Main System Improvements Project, Port Arthur, TX. Prepared preliminary engineering reports, design and construction plans and specifications for 20,927 ft (3.96 miles) of 20-inch main Phase I and 12,945 ft. (2.45 miles) of 16-inch main Phase II. Prepared quantity/cost estimates and bid document package. Performed bid evaluation, contract

administration tasks and construction administration services. Coordinated surveying sub contacted services, and identification and relocation of impacting private utilities and petroleum pipelines. Also involved drainage canal and TXDOT roadway permitting.

**Project Manager/Engineer**, Lake Charles, Sanitary Sewer Rehabilitation, Port Arthur, TX. Involved replacement of 56 old main lines varying 8-15 inches size for a total of 35,403 ft. (6.71 miles). Performed analysis of alternative locations, sizing and priority of lines to be rehabilitated. Involved extensive field verification. Designed replacement mains and prepared construction plans and cost estimates.

**Design Engineer**, Jefferson County Airport, Beaumont, TX. Designed the taxiway/runway realignment, markings and pavement joint layout and prepared the respective special provisions.

**Project Manager/Co-Designer**, General Mitchell International airport, Milwaukee, WI. Involved planning and design of roadway sections and storm sewers, roadway lighting design, surface parking reconfiguration and relocations design, preparation of cost estimates and special provisions, construction supervision quality control support and project management tasks.

**Project Manager/Co-Designer**, N 43<sup>rd</sup> Street Roadway Rehabilitation design Project, Milwaukee, WI. Involved in pavement rehabilitation design, environmental documentation (programmatic type III), pavement design selection report, design report, public involvement, utility coordination, and road markings and signage, assessment of alternative rehabilitation and improvements works, construction administration, and preparation of PS&E documents, and various project management related tasks.

1998 – 2000 **Civil Engineer**, Civil Design Inc. and D.A. Burre Engineers Inc., Atlanta GA.

Site Development Civil Engineering design for Architectural Engineering Consulting Firms. Worked on over 30 site design projects for residential and commercial site development. Planned and designed civil works and services, such as sanitary sewers, roadways, driveway access, water mains, storm drainage, grading parking, and erosion control. Performed hydrology studies and prepared construction plans and specifications for permitting and bidding. Prepared cost estimates and construction specifications. Performed periodic site inspection of construction work and staking.

1993 – 1998 **Project Manager/Civil Engineer**, Coda And Partners, International, New York/ Several International Locations.

Worked on various major international infrastructure development projects for local government bodies within Eastern and Southern Africa. Financed by donor agencies such as the World Bank, UNDP, and the African Development Bank.

Some of the projects and related tasks/responsibilities were as follows:

**Transportation Engineer**, Rehabilitation Works of Awasi-Kisumu-Yala Road Project, Ministry of Public Works, Kenya. Supervised traffic and road geometry surveys. Designed road geometry improvements (realignments), junctions and road furniture. Prepared project reports and correspondences.

**Resident Engineer, Kasinthula Irrigation pump Station Project, Ministry of Water Development and Irrigation, Malawi. “Design and Build” turnkey project**, supervised day-to-day construction of civil works. Prepared work schedules, “as-built” plans, progress reports, and material cost estimates. Procured material and equipment. Liaison with Ministry Engineers and Government officials.

**Civil Engineer, Lower Shire Valley Irrigation project, Ministry of Irrigation and Water Development, Malawi.** Designed support infrastructure like access roads, footbridges, and canals. Supervised preparation of drawings. Prepared bills of quantities and provided CAD applications support.

**Project Manager**, Botshabelo Township Rural Development Project,

Development of Public Works, Free State province, South Africa. Coordinated various project design and fieldwork tasks. Supervised the surveying of 45 km of road segments for upgrade to bituminous urban standard.

**Technical Auditor**, Monitoring and Evaluation System, Smallholders Irrigation Program, Ministry of Agriculture, Kenya. Determined technical factors to monitor, and measures of evaluation for the systems requirements. Assisted the systems analyst in defining the systems parameters.

**Measurement Engineer**, Construction Supervision of the Msulira-Nkhotakota Road project, Ministry of Works, Malawi. Computed bills of quantities for the tender/bid document. Evaluated pre-qualification and tender/bid applications from contractors. Assisted the resident engineer in project management.

**Civil Engineer/Project Manager, Economic Feasibility Study and Detailed Design of Bangula-Nsanje-Marka Road Project, Ministry of Works, Malawi.** Designed and coordinated a training program of nine courses for 25 ministry government personnel. Procured a variety of equipment and material totaling a value of \$780,600. Supervised and coordinated various project design tasks. Managed CAD drafting of construction plans and prepared project reports and correspondence.

#### **Business Development, Marketing and Promotion: Consulting Engineering Services**

Besides project work, involved in marketing and promoting Coda's Consulting Services in 5 countries within Eastern and Southern Africa region. Duties performed involved:

- Prepared capacity statements and tender/bid proposals.
- Registered the firm with various governmental bodies, professional societies and donor agencies, World Bank, UN agencies, EU, ECA, OAU, USAID etc.
- Performed public relations follow up, and developed a database of potential associates (individual and firms) for teaming and collaborative partnership.
  
- Represented the firm at conferences, seminars and workshops.

Tangible **Added-value** contributed to the firm were as follows:

- Formulated and implemented the CODA Institute, a new division specializing in commercial computer training, and related services in January 1997.
- Solely secured and executed an AutoCAD R13 training project, contract value of \$65,000 for 6 weeks.
- Secured procurement component valued at \$780,600 on the Bangula-Nsanje-Marka Road project which was not part of the initial consulting services contract.

1990 – 1993

**Civil Engineer II**, Water Engineering Division, City of Milwaukee, Bureau of Engineers, Milwaukee, WI. Designed water mains (relay and feeder mains) public utilities and supporting structures, of varying size. Prepared contract bid documents and easement documents. Estimated project costs for final contract resolution. Member of the "CAD Conversion Team" developed standards and procedures for the integration and conversion to Intergraph MicroStation CAD system.

- 1988 – 1990 **Civil Engineer I**, Construction Division. Inspected and tested construction material. Supervised and inspected construction of roads (concrete and asphalt pavements), sewers and water mains. Prepared daily progress and “as-built” drawings. Performed site investigation for construction stake-out and pre-construction inspection.
- 1992 **Volunteer, Construction Worker**, Habitat for Humanity, Milwaukee, WI. Habitat for humanity is a national Christian Organization that builds and renovated houses for low-income families. Volunteered a full week to construct new houses.
- 1988 **Civil Engineer**, Highway Design Section, Wisconsin Department of Transportation, Waukesha, WI. Performed calculations for pavement and highway curve design. Prepared design drawings and worked on various highway planning and design tasks as instructed by the project engineer. Worked on a survey crew for 8 weeks.

## CURRICULUM VITAE

MOHAMED PAKIA

Personal Information \* Nationality: Kenyan  
\* Date & Place of birth: 12<sup>th</sup> October 1968; Tsimba, Kwale County, Kenya

\* Private Post Office address: c/o Coastal Forest Conservation Unit

P.O. Box 86, UKUNDA - 80400.

\* Telephone: +254 721212079 (Mobile)

\* E-mail: [pakiamohamed@yahoo.co.uk](mailto:pakiamohamed@yahoo.co.uk); [m.pakia@pwaniuniversity.ac.ke](mailto:m.pakia@pwaniuniversity.ac.ke)

\* Marital status: Married

Education 2002 – 2004 University of Bayreuth (Bayreuth, Germany)

Doctorate Degree, (Doctor of Natural Sciences - Ethnobotany) Faculty of Bio, Chem. & Earth Sci.

Nov. – Dec. 2001 - University of Bayreuth (Bayreuth, Germany)

Program Student, Dept. of Plant

Physiology.

1998 – 2000 -University of Natal (Durban, South Africa)

Masters of Science Degree (Environmental Sci.)Forest Ecology & Ethnobotany, Dept. of Biology

Jan. – Dec. 1996 - University of Natal (Durban, South Africa)

Bachelor of Science (Honours) Environmental Sci. Environmental Studies, 2<sup>nd</sup> Class Upper Division

1989 – 1992 -Egerton University (Njoro, Kenya)

Bachelor of Education (Honours degree) Majors: Botany & Zoology, 2<sup>nd</sup> Class, Upper Div.

1987 – 1988 -Shimo La Tewa School Kenya Advanced Certificate of Education

Mathematics, Chemistry, Biology and IRE, Three Principals and two subsidiaries

1983 – 1986 -Voi Secondary School (KCE), First Div, 17 points

1976 – 1982 -Vuga Primary School (Kwale) (CPE); 30 points

## WORK EXPERIENCE

August 2010 – to date: Lecturer at Pwani University. Responsibilities: Head of Academic Botany Division; Chairman Botanical Garden Technical Committee; Teaching Botany courses and conducting related research work.

March 2011 to December 2012, Chairman, the University Inspection and Acceptance Committee.

August 2007 to July 2010: Lecturer at Masinde Muliro University of Science and Technology. Responsibilities: taught Botany courses (undergraduate and post graduate), conducting related research work, and developed the University Botanical Garden concept.

March 2006 to August 2007: Lecturer at University College of Education Zanzibar, Constituent College of University of Khartoum University. Responsibilities: taught Botany courses, co-ordinated research work and developed a University Arboretum and a Herbarium.

October 2005 – to March 2006: Research Associate with Southern Environmental and Agricultural Policy Research Institute (SEAPRI) in a project titled: ‘The protection of community rights over their Bio-cultural Heritage (BCH) and their Traditional Knowledge (TK)’.

2001 to 2004 – Research Associate with the Sonderforschungsbereich 560’ (SFB) under the University of Bayreuth, Germany, in a project that investigated ‘Traditional Plant Knowledge Concepts’ of selected Kenya Coastal tribes, and determination of the influence of Globalization on local knowledge and practices, with reference to Botany related knowledge.

This culminated to the documentation and publication of a case study of African traditional plant knowledge and concepts.

2001 - Research Scientist with the Coastal Forest Conservation Unit (CFCU/NMK), focusing on the Coastal Forest Ecology and Ethnobotany. Responsibilities: developed draft ecological monitoring plan for small sized coastal forests; enrichment planting to rehabilitation degraded forest areas; research in the control and management of invasive and aggressive plant species; and research on sustainable harvesting methods of local plant resources in the sacred kaya forests.

1995 - Research Scientist in the CFCU/NMK focusing on the Ethnobotany of the Mijikenda ethnic groups at the Kenya Coast. Responsibilities: investigating the Mijikenda traditional uses and values for the flora in the coastal forests and other landscapes. A research project funded by UNESCO.

Sept 1994 – April 1995 - Teacher (Biology) at Ramisi Secondary School.

1993 – August 1994 - Research Assistant at the Coast Development Authority (CDA), investigating the traditional medicinal plants among the Coastal tribes.

#### PROFESSIONAL MEMBERSHIP:

Member of Research Gate (An International Network of researchers)

Member of DAAD Scholars Association, Kenya (An International Network of Scholars)

#### RESEARCH

Ongoing:

Smallholder Innovation for Resilience: Strengthening innovation systems for food security in the face of climate change (In collaboration with KEFRI and IIED)

Domestication and scented compound extractions from *Mkilua fragrans* (in collaboration with colleagues at Pwani University)

Survey of Mangrove resource for a 'Mangrove management Plan' (in collaboration with KFS, KWS, KMFRI, Fisheries and KEFRI)

Pending (Proposal submitted)

Strengthening Livelihoods Support and Environmental Stability in Kilifi County (In collaboration with ELCI)

#### SHORT CONTRACTS:

2011 – Vegetation Survey for the South By-pass (Kwale-Mombasa, Kenya) for Rep-Conn Associates.

2011 – Lessons learned document in the WWF Kwale Landscape Restoration Project..

2004 - Project leader in tree resource inventory for Good Woods Project (Malindi, Kilifi and Kwale). Contracted by WWF-EARPO (Nairobi) / Coastal Forest Conservation Unit.

2001 - Project Co-ordinator, Diani-Chale Marine Area Conservation Project, IUCN, Nairobi.

-Develop a floral inventory for Ocean Village Beach Hotel, Diani.

2000 - Survey & documentation of flora of a 'nature walk route', Leopard Beach Hotel, Diani.

1999 - Research Associate in an Environmental Impact Assessment (EIA) for Ethnobotanical data, at the Kwale Tiomin mining sites; by Coastal and Environmental Services (CES), of South Africa.

#### OTHER COURSES

1995 - Ethnobotany Database Computing & Management, Fort Portal (Uganda)

#### WORKSHOPS ATTENDED

1997 Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT), Harare, Zimbabwe.

1998 -Experts Training Workshop – Plant conservation techniques, Voi, Kenya.

- *Kaya* forests for World Heritage sites; Tiwi, Kenya.

2001 - Shimba Hills National Reserve Management Plan. Tiwi, Kenya  
 - Indigenous wild food plants; Diani, Kenya.

Diani-Chale Management Area Stakeholders workshop. Diani, Kenya.

2002 - Diani-Chale Management Area, Collaborative Management Plan. Diani, Kenya.

2004 - Second Symposium of the SFB/FK 560: Synchronisation in traditional societies. Organised by SFB University of Bayreuth, at Iwalewa House, Bayreuth, Germany

2005 - Biota East African Workshop: Towards a sustainable use of East African rain forest systems. Organised by UN at the United Nations offices, Nairobi, Kenya.

2006 - National Symposium on Intellectual Property Education, Training and Research Workshop. Organiser - World Intellectual Property Organization (WIPO), at Bwawani Hotel, Zanzibar, Republic of Tanzania.

2007 - Workshop on Scientific and Technological Approaches for Community Development in the Lake Victoria Basin. Organised by DAAD, at Kisumu Hotel, Kisumu, Kenya.

2007 - Experts workshop on Credit Accumulation and Transfer System (CATS). Organised by Commission for Higher Education (CHE), at the Kenya Wild Life Services Training Institute, Naivasha, Kenya.

2008 - National Stakeholders workshop on Credit Accumulation and Transfer System. Organised by Commission for Higher Education, at Kenya School of Monetary studies, Nairobi Kenya.  
 - Value chain of fruits for local market, export and processing in the Tropics, jointly organized by Horticultural Association of Kenya (HAK), German Academic Exchange Service (DAAD) and Leibniz Universität Hannover and Masinde Muliro University of Science and Technology, held at Masinde Muliro University, Kakamega, Kenya.

2009 - Value addition on Traditional Medicines, Bungoma (Western Kenya). Funded and organised by Indigenous Knowledge Research Team from Masinde Muliro University of Science and Technology.  
 - Training workshop on Alcohol and Drug Abuse (ADA) in a workplace; organised by National Campaign Against Drug Abuse Authority (NACADA), at Nairobi  
 - Analysis of the Education Standards at the Kenya Coast; organised by DAAD Scholars (Kenya), and held at Mombasa Polytechnic University College.

2010 - Consultative Workshop of Regional Centre Experts (For Kenya Coast), Mombasa. Synergy and Networking to Enhance Research and Development (Alexander Von Humboldt Alumni Kenya Kolleg), Nairobi

2011 - ESD – RCE

2012 - Consultative Workshop on Green Economy – for Kenya Coast region (Organised by UNEP, NEMA, WWF and Ministry of Environment and Natural Resources)  
 IUFRO-FORNESSA Regional Congress & ITTO/AFF Forest Policy- ICRAF, Nairobi Kenya.  
 Humboldt Kollog – Taita Hills Hotel, Voi, Kenya.

Smallholder Innovation for Resilience: Strengthening innovation systems for food security in the face of climate change - Planning and Methodology Workshop, Beijing and Nanning, in China.

2013 - Methodology Coordination Workshop for the Research Project- Smallholders Innovation for Resilience' Project (SIFOR), Cusco, Peru.  
 Forest Policy consultation forum for Kenya Coast Region, Mombasa Beach Hotel, Kenya.  
 Consultative Workshop for 'Mangrove Forest Management Plan', Kenya School for Government, Matuga, Kenya.  
 Consultative meeting with Bee-keepers and Charcoal producers in Lunga-lunga area  
 Consultative meeting with Shimba Hills adjacent Communities on Human-Wildlife conflicts issues.  
 Consultative meeting with stakeholders of Tiwi, Diani Chale Management Trust (DCMT) on governance and Community participation.

Consultative Workshop on Climate Change Guidelines for Forest Managers, Sai Eden Rock Hotel, Malindi.

Charcoal Rules and Regulations Training workshop for CPAs and other Stakeholders, Kilifi, Kenya.

Regional East Africa RCEs Workshop, Kakemega, Kenya.

#### ACADEMIC SUPERVISION

Masters Program

Godrick Khisa ; An investigation on how farmer field school and their network assist farmers to manage farming as a business: a case study for Kakamega District. (MMUST, Opted out after transfer).

Wilson Oduor Abangi; Factors influencing farming sustainability in Western, Eastern and Coast Provinces of Kenya (MMUST, Opted out after transfer).

Simon Mugi Kimuhi – Biocontrol of damping disease using *Pseudomonas* fluorescence bacteria. (Pwani University, ongoing)

Godfrey Wafula - ASSESSING CARBON STORAGE IN THE AFRICAN TROPICAL DRY FOREST; a case study of KOMAZA eucalyptus Woodlots in Ganze district, Kilifi County, Kenya

#### LEADERSHIP AND SOCIAL RESPONSIBILITIES

1982 – Deputy Head Boy, Vuga Primary School, Tsimba – Kwale.

1988 – House Captain, Ngala House, Shimo la Tewa High School

2005 to 2007 – Patron for Tsimba Development Forum (TDF), a community based organisation concerned with local development and community empowerment.

2006 to 2008 – Chairman, Board of Governors, Tsimba Secondary School, Kwale.

2006 to Date – Trustee, Asante Tiwi Project for orphan children.

2006 to July 2007 – Patron, Environmental Society of University College of Educ., Zanzibar.

2007 to June 2008 – Masinde Muliro University of Science and Technology (MMUST) representative in the Credit Accumulation and Transfer System (CATS) Project coordinated by Commission for Higher Education (CHE), Kenya, where I worked as a programme specialist in the preparation of minimum requirements (core and elective of courses) for undergraduate Botany curriculum.

June - Dec. 2008 – Masinde Muliro University of Science and Technology (MMUST) workshop organizing team leader for the Horticultural Association of Kenya (HAK) workshop - Value chain of fruits for local market, export and processing in the Tropics.

Jan 2009 to Date – Member, Board of Governors, Tsimba Secondary School, Kwale.

Jan 2011 to Date – Member, Board of Governors, Golini Secondary School, Kwale.

Jan 2011 to Date – Trustee and Member School Board, Kristina Academy, (A special School for the educational support of Needy Children in Tiwi, Kwale.).

Jan 2012 to Date – Chairman Forest Conservation Committee (FCC), Coast Conservancy, an appointment within KFS structure, as entrenched in The Forest Act 2005.

Jan 2012 to Date – Chairman Kwale Country Natural Resources Network, a CBO that advocates for Environmental Conservation and Community participation on issues of environmental management.

#### PUBLICATIONS

Papers

Pakia M. & JA. Cooke 2003 a. The ethnobotany of the Midzichenda tribes of the coastal forest areas in Kenya: 1. General perspective and non-medicinal plant uses. *South African Journal of Botany* 69 (3): 370- 381.

Pakia M & JA. Cooke 2003 b. The ethnobotany of the Midzichenda tribes of the coastal forest areas in Kenya: 2. Medicinal plant uses. *South African Journal of Botany* 69 (3): 382 – 395

Books and Book Chapters

Pakia, M. 2006. African traditional Plant knowledge today: An ethnobotanical study of the Digo at the Kenya Coast. LIT, Berlin.

Nyamweru C., S. Kibet, M Pakia, & J.A. Cooke 2008. The kaya forests of Coastal Kenya: Remnant patches or dynamic entities (pp 62 – 86). In: Michael J. Sheradin and Ceilia Nyamweru (Eds). African Sacred Groves – Ecological Dynamics and Social change. James Currey, Oxford; Ohio University Press, Athens; UNISA Press, Pretoria.

Munyi P., Mutta D., Pakia M. and Opati L. 2008 Protection of Community Rights Over Traditional Knowledge: Implications for Customary Laws and Practices in Kenya. *ICIPE Science Press*, Nairobi. ISBN 92 9064 198 3.

#### REVIEWED MANUSCRIPT

Attitude towards traditional consumptive uses of wildlife among residents of Nakuru Municipality, Kenya – For the Journal of Science and Technology Education and Management (J-STEM), Apublication of Masinde Muliro University of Science and Technology.

Persistence and Loss of Cultural Values of Tiriki Sacred Groves among Local Communities in Hamisi District, Kenya: Implications For Management by Fredrick Nyongesa Kassilly and Harrison Mugatsia Tsingalia for Journal of Human Ecology.

## CURRICULUM VITAE

Name Murikira Janet WAIRAGU  
Address P.O box 79605  
00200 NAIROBI  
Kenya  
Telephone +254 773710294 / +254 739498795  
E-mail jmurikira@gmail.com  
Date of birth 22 August 1986  
Nationality kenya  
Sex Female  
Marital status Single

### Education/Qualifications

2006-2013 The Catholic University of Eastern Africa, LL.B in Common Law obtained in 2013.  
2005-2006 Strathmore University, Certificate in I.T (gives entry to university) in the subjects:  
Network Programming, Business English ,Web design and Business Communication.

### Employment to Date/Work Experience

2013-present *Repcon Associates* Nairobi, Kenya.  
Post: *Resettlement Action plan and government & stakeholder liaison manager*

#### **Strategic Environmental Assessment (SEA) for the Mombasa (Dogo-Kundu) Special Economic Zone**

Year : 2014

Location : Mombasa & Kwale Counties

Client : Nippon Koei /JICA / Ministry for Industrialisation and Enterprise Development

**Main Project features:** Conduct analyses which shall detail the positive and negative effects of the development of the project on the environment, prepare the Project affected people for resettlement ,hold public consultative meetings with them as well as the government ,periphery and private sector stake-holders.

**Position:** Resettlement action Plan Inventory and government stake-holder liason.

**Activities performed:** I was a team member & My role was to carry out the community consultation process, Inventory for the various stakeholders ,Socio economic surveys, planning and organizing the public meetings with the village leaders and the chiefs , organizing the government stake-holder meetings, taking an inventory of the Project affected people which will be used in the RAP process.

**Main stakeholders:** K.P.A, Min of Industrialization & Enterprise KAM , The Kenya Navy , Kenya Wildlife Society, Kenya Forest , Coast Development Authority, Kwale County Government, Mombasa County Government , Kenya Chamber of commerce, Kenya Maritime Authority, Kenya Fisheries Institute.

#### **Supplementary Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP)for the dualling of Nairobi-Dagoretti Corner Road C60/C61 Phase II.**

Year : 2014

Location : Nairobi

Client : Katahira and Engineers International/JICA / Kenya Urban Roads Authority

Value: 3.4million

**Main Project features:** Conduct analyses which shall detail the positive and negative effects of the development of the project on the environment, and prepare an ESIA report recommending appropriate solutions to minimize any undesirable effects

resulting from the road project.

**Position:** Resettlement action Plan Inventory

**Activities performed:** I was a team member & My role was to carry out the community consultation process, Inventory for the various stakeholders, Socio economic surveys, data analysis and impact prediction leading to formulation resettlement action Plan Inventory that gave the Kenya Urban Roads Authority the modalities for payment.

**Environmental Associate Expert/Sociologist in the Study of Environmental and Social Impact Assessment in the feasibility study and design of the Kwale-Lunga lunga road Upgrading Project.**

Year : 2013

Location : Mombasa

Client : Uniconsult Engineers/Ministry of Public Works

Value: 8,648 pounds

**Main Project features:** Conduct analyses which shall detail the positive and negative effects of the development of the project on the environment, and prepare an ESIA report recommending appropriate solutions to minimize any undesirable effects resulting from the road project.

**Position:** Associate EIA Expert/ Sociologist

**Activities performed:** I was a team member & My role was to carry out the community consultation process, literature review, data analysis and impact prediction leading to formulation of Environmental Management Plans to NEMA requirements for the proposed development of the road.

2011-2013 Ministry for Foreign Affairs (Foreign service) Nairobi Kenya  
Post: Trainee Legal attaché

**Other Experience/Activities**

short trainings attended.-Kenya, Nigeria & Tanzania

2010 Balance scorecard and Performance Management Systems-Kaduna Business School

2010 Benchmarking Emerging Markets 3- Kaduna business School, NEPAD Nigeria and NEPAD Kenya

2007 -Effects of the New Kenyan Tax system& Auditing Post Enron Saga-Accounting Students Association

2006 UNESCO International Bio-ethics conference (Youth delegate) June, 2007

**Languages** English: near native speaker; French: basic

**Other Skills** Computer literate: Windows applications.  
Clean Driving Licence.

**Interests** Travelling, international affairs, European history, meeting friends.

**Publications**

2003 Increasing transparency among Africa's Oil Exporters-  
<http://www.ventures-africa.com/2013/03/maximizing-africas-oil-discovery/>

2010 CSR in Kenya- The Legal perspective. – Undergraduate Dissertation –  
Supervised by Counsel Mr. Kariuki Muigua - scored an A.



## Curriculum Vitae for Mweru Mbugua- Environmentalist/Chemist

### PERSONAL DETAILS

|                 |                    |              |                                                                                 |
|-----------------|--------------------|--------------|---------------------------------------------------------------------------------|
| Family name:    | <b>Mbugwa</b>      | Nationality: | Kenyan                                                                          |
| First Names:    | <b>Mweru Alice</b> | Gender:      | Female                                                                          |
| Marital status: | <b>Single</b>      | Address:     | P.O. BOX 21146-00505, Nairobi, Kenya                                            |
|                 |                    | Telephone:   | Tel: 254 20 4349403 254 20 4348308<br>(leave message)<br>Mobile: 254 724 044740 |
|                 |                    | E-mail:      | <a href="mailto:mweruam@yahoo.com">mweruam@yahoo.com</a>                        |

### EDUCATION

|                            |                                                                                                                                                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Jan-1978 Feb-1981</b>   | Southern Illinois University at Carbondale, USA. <b>MSc in Chemistry</b>                                                                                      |
| <b>Sep 1975 – Dec 1977</b> | Mississippi University for Women [M.U.W.] Columbus U.S.A., <b>B.Sc. in Chemistry</b> , minors in mathematics and biology                                      |
| <b>Sep 1987 – Jun 1988</b> | Norwegian Technical University Trondheim, Norway.<br><b>Diploma in Pulp and Paper Technology</b>                                                              |
| <b>1995 Jan-Feb</b>        | <b>Certificate in integrated Environment Management (IEM)</b> at University of Cape town, South Africa.                                                       |
| <b>1993 Jan</b>            | <b>Certificate in Waste Management</b> with particular reference to Basel Convention at National Environmental Engineering Research Institute (NEERI), India. |
| <b>1990 Aug-Oct</b>        | <b>Certificate in 'Management of Quality Control in Industry'</b> in Stockholm, Sweden                                                                        |

### PUBLICATIONS

**1994 Apr.** Co-authored the Kenya National Environment Action Plan [NEAP] process document chapter on 'Pollution Control and Waste Management'

**1992 Aug.** Authored and presented a paper on 'Establishing a Regional Centre for Hazardous Waste Management for Africa, in Nairobi-Kenya, and its Initial Activities'. This was prepared for the Commonwealth Science Council Committee meeting in Nairobi. The proposed project was accepted pending availability of funds.

**1991 Jun.** Co-authored and presented a paper on 'Management of Hazardous Waste in Kenya-An Overview', in a workshop in Trinidad and Tobago.

**1988 Jun.** Wrote a research paper 'Making Paper from Cotton'.

**1982** Co-authored paper; 'Voltammetric Ion –Selective Electrode for Chromium [VI]-Ana. Chem. 54, 787-789 1982.

**1981** Wrote a research thesis; 'Investigation of Donnan Dialysis of Chromium'.

### OTHER RELEVANT TRAININGS AND WORKSHOPS

**1992 Aug, for 1 Week-** Meeting of Commonwealth Science Council Committee on Hazardous Waste Management, Nairobi. Presented paper on local status.

**1991 Jun, for 1 Week.** Workshop on 'Management of Hazardous Waste' in Trinidad and Tobago. Presented paper on local status.

**1990 Aug-Oct, for 10 Weeks.** Course in 'Management of Quality Control in Industry' in Stockholm, Sweden. Topics covered: Control charts and other statistical tools, sampling plan and inspection, product quality audit and seriousness classification, reliability and its tools, new product quality, industrial experience, consultancy and human relations. Reference was made to ISO 9000 series standards.

**1978Jan-1980 Jan.** Teaching/Research Assistant, Southern Illinois University at Carbondale [S.I.U.-C], Chemistry Department was in charge of assigned laboratory classes for supervision, grading etc.

### **Additional skills**

- Quality control management
- Solid waste management
- Wastewater management techniques
- Environmental impact assessment
- Management and administration
- Land use planning and management
- Design and development of social surveys and research to capture information on environmental conditions and the willingness of stakeholders to participate in mitigative measures
- Use of ZOPP participatory tools with urban stakeholders, and also data gathering and compiling.
- IT skills-MS Office Suite and internet

### **EMPLOYMENT & EXPERIENCE RECORD**

#### **December 2012- November 2013.**

Research Scientist Environment Division, Kenya Industrial Research and Development Institute, KIRDI.

Currently I am doing a project on water quality control data collection and analysis for Lake Naivasha basin. I am team leader of seven researchers and have collected data in Nairobi and Naivasha.

#### **January 2011- 2012.**

##### **Environmentalist, Water Scarcity Study, 5 Districts in North Western Bangladesh.**

I did literature study through documents and internet followed by field study with communities in the 5 districts using questionnaires and open discussion. I wrote a document on findings and presented at regional level and also at national level in an international donor forum. This work was done under the auspices of Voluntary Services Overseas, VSO, and a Bangladesh NGO, Gram Bikash Kendra, GKB.

#### **January –March 2010.**

##### **Mushroom Farming.**

I grew and marketed Oyster mushrooms. My work included the recommended mushroom husbandry, traveling to popularize them, and also doing sales.

#### **February 2008.**

##### **Assistant to Engineering Consultant, Nippon Koei, in Nairobi.**

Duties:

My work was to collect technical documents from various institutions, attend technical meetings with the consultants and take minutes, and to proof-read the technical documents written in English. The job was about writing a proposal for the Nairobi Metropolitan plan, in

order to get donor funding for the main work. It was in conjunction with the Ministry of Lands. The work was for a period of three weeks.

**August 2007.**

**Lecturer [part time] for Ordinary Diploma level Biochemistry class at Department of Applied Science, Kenya Polytechnic Nairobi.**

Duties:

Presenting 2 hour lectures for 3 times a week, including provision of laboratory work.

**August 2005 to August 2006.**

**Community Educator/Awareness Raiser on Water leakage Reduction.**

**Guyana Water Incorporated, Georgetown, Guyana, S. America, under the Auspices of the Voluntary Service Overseas (VSO).**

Duties.

- I made a questionnaire which I used for house to house interviews, which was done in collaboration with Oxfam field staff. I then assessed it and wrote a report. This report enabled me to start this office which I did from scratch and without a local counterpart.
  
- I made presentations and carried out participatory activities with the community at the area of focus, at different locations.
  
- From these participatory activities, we successfully put a case to the water engineers, for increasing water pressure in one of the locations.
  
- I made presentations for school students, both primary and secondary levels, at different locations.
  
- I wrote a questionnaire at the end of my assignment to assess the success of the community education, and wrote a report on the assessment of the results.

Other activities.

- I wrote several papers on the subject of focus and made Power Point presentations, both for the community and for school students.
  
- I inducted a new employee who was to continue with the work I had begun, at the end of my assignment.
  
- I learnt some sign language [ASL], used by blind people, as extra curriculum activity with volunteers.

**March 2004 to May 2005**

**Environmentalist / Lecturer**

**Faculty of Environmental Management, Prince of Songkla University [PSU], Thailand under the Auspices of the Voluntary Service Overseas (VSO)**

Duties

- I supported the Environmental Education MSc Programme by working closely with MSc. students and community groups, where students did their research.
  
- I Conducted weekly 2 hours class discussion in environmental education in the curriculum for first year masters degree students

- I regularly participated in environmental activities in a nearby high school which was a location for research work for some of the Msc students. This was mainly on environmental interventions and conservation and management of U-Tapao Canal, which had great impact to this Songkhla Lake Basin.
- I wrote two questionnaires and did one on one interviews for the Network and the Community leaders of canal U-tapao, a canal/river passing through Had Yai town, Southern Thailand.
- I systematized data collection, research, planning, strategic thinking and analysis of research findings for the canal U-tapao activities.
- I provided new ideas and techniques on community based natural resource conservation.
- I Visited communities which were proactively building relationships with other organisations involved in environmental education.

#### Other activities.

- April 2005 I prepared a lecture in Environmental Health: Chemistry Aspects for presentation in June 2005.
- I proof-read some technical English language documents for lecturers.
- I learnt the Thai language and culture, as part of my volunteer activities.

#### **1999-2003**

**Manufacturing Part-Time.** I manufactured and marketed general detergent and drinking juices. This also involved Management, administration bookkeeping and marketing, business management strategy development and planning.

#### **2001-2003**

##### **Site Supervisor**

For 5 months part-time I supervised two construction sites in Nairobi for private individuals. This involved discussing with designers the environmental components of construction, and its impacts.

#### **June 2002 - Jan 2003**

##### **Consultant**

##### ***Kenya Draught Animals Technology (NGO)***

Assisting in the environmental component, my work was to identify environmental impacts caused by motorized and non-motorized transport in the rural areas identified for study. It was also to recommend remedial measures and also collect data for ergonomics assessment. I undertook household survey in a busy farming area (Lari, Kiambu), for Social economics and Engineering components of the same project. I also used participatory techniques to get community needs and designed appropriate interventions with communities.

#### **Feb-Aug 1997**

##### **Consultant**

##### **Gath Consulting Engineers**

As the environmentalist, my major responsibility was to address issues related to solid waste management, municipal wastewater contamination, industrial pollution, and land degradation, within the project. I assisted in the design of social surveys to capture information on environmental conditions and the willingness of stakeholders to participate in mitigative measures. Part of the work involved use of ZOPP participatory tools with urban stakeholders, and also data gathering and compiling.

**July 1995 to June 1996.**

**Head, Energy and Environment Division and Senior Research Officer 1, Kenya Industrial Research and Development Institute (KIRDI), Nairobi- Kenya**

My duties included industrial visits, identification of issues of environmental concerns in the industry, precipitation of joint activities to alleviate identified problems, and education on the importance of sustainable environment. Other duties included being internal seminar coordinator, for a weekly presentation.

**July 1994 to June 1995**

**Head, Laboratory Services Division and Senior Research Officer 1 [Job group P], KIRDI.**

The laboratory conducted the following tests and analyses: inorganic, organic, physical, leather-rubber, textiles, ceramics, food, and electrical-electronics. I supervised a team of 55, a majority of whom were technical officers. During my tenure, we completed analysis of a large number of surface water samples for environmental impact assessment for a consulting firm, and developed optimum conditions for the extraction of nicotine from tobacco leaves at laboratory scale for use as pesticide, among other activities.

**Oct 1989 to June 1994**

**Head of Analytical and Testing Division (ATD), Senior Research Officer 11, KIRDI**

I was in charge of laboratories and was involved in conducting inorganic analysis, organic analysis and physical tests. The division was made up of a total of 14 technical officers. Among samples analyzed were drinking water and wastewater, a wide range of chemicals, foods and feeds.

**July 1986 to 1989**

**Research Officer 1 ATD, KIRDI**

I was team leader in a project on identification and report (as reported in the press) of the "Black" water which fell as rain in Nairobi in 1989, and in a project on identification and report of a liquid fire-extinguisher formulation. I investigated drinking water quality as well as the quality of liquid effluent from various sources and characterized the chemical state of soil from various locations, as well as other chemicals and food and feeds.

**April 1983 to June 1986**

**Research Officer 11, ATD, KIRDI.**

I was involved in the determination of quality of liquid sodium silicate and sand for utilization in glass making, and in food and feed quality assessment from various sources, as well as a range of chemicals.

**July 1981 to March 1983**

**Chemical Analyst, Government Chemists Department, Office of the President, Nairobi.**

I did laboratory analysis of mycotoxins in foods especially meat and cereals. For mycotoxin analysis I sampled cereals from two provinces. I also analyzed a wide range of samples from industries including drugs, pesticides, mineral ore, food and feeds.

### **Other Relevant Experience**

**Mar 2005** Presented a lecture on EIA in Kenya for the final year Environmental Management students, PSU also

**1995 Member**, National Environmental Impact Assessment Plan (NEIAP), Industrial Subcommittee. This was an inter-departmental group operating under National Environmental Action Plan (NEAP) secretariat, to formulate the Kenya Guidelines for Environmental Impact Assessment (EIA).



Nganga has undertaken extensive Environmental Auditing for Unilever operations and collaborators in Kenya, Uganda, Tanzania, South Africa, Ethiopia, Egypt, Turkey, Ghana, Nigeria and the UK. He therefore commands extensive experience in the auditing of industrial concerns.

He has been involved in baseline study, Environmental Impact Assessment, Environmental Assessment and Data collection and analysis in different road construction projects and on new and modified projects. He has for 7 years been Instrumental in implementation and sustenance of Quality (ISO 9001) and Environmental (ISO 14001) management systems – as a Quality Assurance and Environmental Manager in Unilever Kenya.

## **EDUCATION**

**Bachelor of Science (Hons) Chemistry major, University of Nairobi: 1984-1987**

## **OTHER TRAINING**

- Total Productive Management (TPM) by Japan Institute of Productive Management
- Accredited by Environmental Auditors Registration Association (EARA) as an Environmental Auditor –Manchester, United Kingdom.
- Unilever consumer Safety and Quality Lead Auditor-Durban SA
- Training of trainers-Nairobi
- ISO 9001 and 14001 Systems Implementation
- Unilever Frameworks Standards (Occupational Health & Safety, Environmental Management, Quality and Consumer Safety Management (SHEQ)-Durban
- Hazards Analysis and critical control points (HACCP)-Durban
- Hazards Operatability Studies (HAZOPs) Pre Hazard Analysis-Durban

## **EMPLOYMENT RECORD**

**2010-april 2014:** Safety, Health and Environment (SHE) Advisor to Ardan Risk and Support Services Ltd in the preparation of drilling pads for Tullow Oil in Ngamia 1&3, Twiga-1&2, Amosing 1&3, and Etuko 1, Drilling Sites; Supervising implementation of Safety and Health Management Plans on drilling sites, Training on SHE, Conducting risk assessments, safety awareness sensitization, Incidents and accidents investigations, Daily reporting of SHE performance.

**Jan 2006-2010:** Associate Consultant-Repron Associates. General duties included -Conducting Environmental Audits and self Audits for clients as per the requirements of Environmental Management Coordination Act 1999 and National Environment Management Authority guidelines. Past concluded assignments as follows:-

**2013: Environmental Audit for the operation of the Daystar University-Athi River campus.** An audit for Daystar was conducted in line with Legal Notice 101 of EMCA 1999. This included examination of all sources of environmental concerns including laboratory analysis of the effluent water. Client: Daystar University.

**2009: Environmental Audit** of Light Academy Primary School in Nyali area, Mombasa. **Client: Omeriye Educational and Medical Foundation Charitable Trust**

**2008: Environmental Audit in 24 Community Based Flood Management Projects on Nyando River Basin.** We carried out community consultation process which culminated with the writing of 24 Project Reports based on which, approval from NEMA was sought. **Client: Nippon Koei/JICA/GOK**

**2008: Environmental Impact Assessment (EIA) Studies in the preliminary and detailed engineering design of the Kagere –Munyange –Kihome/Ndunyu –Gitwiga –Kirai –Gura River**

Roads in Murang'a and Nyeri Districts. Client: **Client: Ministry of Roads and Public Works/Coda.**

**2008: Environmental Audit** for community water projects (boreholes) in Ndabibi ADP clusters/Sub locations in Naivasha district. **Client; World Vision International**

**2006: Environmental Audit for the Glacier Products Limited:** At the request of the proprietors, an audit of operations of this concern whose business is production of ice cream was undertaken. The audit covered important aspects such as resource use efficiency, waste reduction, pollution control, resource protection etc. Since this was the first audit exercise undertaken for this firm, I prepared an environmental management plan complete with baseline indicators.

**2006: Environmental Audit for Belfast Millers Limited:** It is a large scale manufacturer of animal feeds and it is located in Bamburi Road, Nairobi's Industrial area

**2006: Environmental Audit for the Coninx Industries Limited** which is a plastic pipes manufacturer located in Nairobi's Industrial Area.

**2006: Environmental Audit for the Highlite Industries Limited:** This is an industry located in Nairobi's Industrial Area off Likoni road. The factory mainly manufactures Goodlite candles, wicks for kerosene stoves and Goodlite bleach-a chlorine based bleach.

**2006: Environmental Audit for the Honeycomb Foods Industry:** It is a manufacturer of fried snacks namely: chevda, crisps (banana and potatoes) and green peas. In addition to the legumes and starches, Honeycomb also manufactures biscuits with the same brand name as the snacks.

**2006: Environmental Audit for the Kenapen Industries Limited** which is a large manufacturer of rigid plastics packaging and sundry items. Kenapen supplies its products to industrial corporate customers within Kenya and East Africa.

**2006: Environmental Audit for the Polysynthetics East Africa Limited:** It is a factory whose core business is manufacture of synthetic water based emulsions.

**2006: Environmental Audit for the Healthy U 2000 Ltd** whose main business activity is importation, warehousing and distribution of:-

- Breakfast cereals
- Dried fruits and oats
- Beverages such as herbal tea, fruit juices, energy drinks, canned carbonated soft drinks.

Cosmetics, air fresheners, baby lotions and giftware

**2006: Environmental Audit for the Kemia International:** This is a medium sized facility whose core business is to manufacture textile and leather auxiliaries, softeners and detergents for export and for local market.

**2006: Capitol Printers Limited:** It is situated at LR12596/143 on Road A in Nairobi's Industrial area and their core activity is printing of business stationary.

**2006: Environmental Audit for the Sian Roses,:** At the request of the proprietors, an audit of operations of this concern whose business is production of cut flowers for export was undertaken. The audit covered important aspects such as resource use efficiency, waste reduction, pollution control, resource protection etc. This was done in four of its farms (**Agriflora, Maji Mazuri, Winchester Farm and Equator Farm**) Since this was the first audit exercise undertaken for this firm, an environmental management plan complete with baseline indicators was prepared for the company: **Client: Sian Roses.**

**March 1995-Dec 2005 UNILEVER KENYA LIMITED**  
**Oct 2004-Dec 2005** Production Manager-Detergents Plant Unilever Kenya Limited  
**March 2003-Sept 2004** Supply Chain Manager-Unilever Ethiopia PLC, Addis Ababa Ethiopia  
**June 1999-Feb 2003** Quality Assurance/Environment Manager  
**Sept 1997-May 1999** Safety and Environment Officer  
**March 1995-Aug 1997** Production Supervisor-Non soap Detergent (NSD) Factory

**Dec 1987-Feb 1995 THIKA CLOTH MILLS LIMITED**

Printing Processing Assistant  
 Deputy Printing Master

**COMPUTER LITERACY**

Competent in Microsoft packages

**LANGUAGE PROFICIENCY**

|           | <u>WRITTEN</u> | <u>SPOKEN</u> | <u>READING</u> |
|-----------|----------------|---------------|----------------|
| English   | Excellent      | Excellent     | Excellent      |
| Kiswahili | Excellent      | Excellent     | Excellent      |

## **Appendix 6.1: Air quality monitoring data**



# ENVIRONMENTAL BASELINE SURVEY REPORT FOR MOMBASA - LIKONI BRIDGE CONSTRUCTION PROJECT

*Air quality Report*

*Reference: 524419*

PREPARED FOR:

**Repcon Associates**

**APRIL 2018**



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**PROJECT QA/QC**

| Rev. | Date       | Prepared | Reviewed | Approved |
|------|------------|----------|----------|----------|
| 00   | 04/05/2018 | WO       | CO       | PA       |
| 01   |            |          |          |          |
| 02   |            |          |          |          |
| 03   |            |          |          |          |

| Company Stamp | Signatures |
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## REPORT DETAILS

|                 |                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------|
| REFERENCE       | 524419                                                                                    |
| REPORT TITLE    | Traffic Volume Count Report                                                               |
| DATE SUBMITTED: | 7 May 2018                                                                                |
| CLIENT:         | <b>Repcon Associates</b>                                                                  |
| PREPARED BY:    | Wilfrida Ojwang – <a href="mailto:Wilfrida.Ojwang@sgs.com">Wilfrida.Ojwang@sgs.com</a>    |
| SIGNED:         | CO                                                                                        |
| REVIEWER:       | Chrisphine Oduor – <a href="mailto:Chrisphine.Oduor@sgs.com">Chrisphine.Oduor@sgs.com</a> |
| APPROVER:       | Philip Abuor – <a href="mailto:Philip.Abuor@sgs.com">Philip.Abuor@sgs.com</a>             |
| STATUS          | Draft Report                                                                              |

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**ENVIRONMENTAL BASELINE SURVEY  
REPORT FOR MOMBASA - LIKONI BRIDGE  
CONSTRUCTION PROJECT**

## EXECUTIVE SUMMARY

Repcon associates was appointed by the government of Kenya and the Japanese government to carry out environmental social impact assessment for the proposed Likoni bridge linking Mombasa Island and Likoni area. Subsequently, Repcon Associates contracted SGS Kenya Limited to carry out environmental baseline measurements at the designated sites for the proposed Likoni Bridge.

The objective of the survey was to collect baseline data at the nearest receptor points as part of assessment for the project. The survey involved taking measurements along Lumumba Road, Archbishop Macarius Road, Jamvi la Wageni area, New Mtongwe road and Kiteje area.

Air quality measurements were also done as part of the scope and the findings were compared against EMC (Air Quality) Regulations, 2014. This report presents the findings of the air quality measurements held between 4<sup>th</sup> and 27<sup>th</sup> April 2018.

## Results and Discussions

**Table 1: Summary of results**

| Location                    | PM <sub>2.5</sub><br>(µg/m <sup>3</sup> ) | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) | Lead, Pb<br>(µg/m <sup>3</sup> ) | Carbon<br>Monoxide,<br>CO<br>(mg/m <sup>3</sup> ) | Sulphur<br>Dioxide,<br>SO <sub>2</sub><br>(µg/m <sup>3</sup> ) | Nitrogen<br>Dioxide,<br>NO <sub>2</sub><br>(µg/m <sup>3</sup> ) | Ozone, O <sub>3</sub><br>(µg/m <sup>3</sup> ) |
|-----------------------------|-------------------------------------------|------------------------------------------|----------------------------------|---------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------|
| Archbishop<br>Macarius      | 58                                        | 78                                       | 0.0011                           | 3                                                 | TBR                                                            | TBR                                                             | TBR                                           |
| Lumumba<br>Road             | 97                                        | 126                                      | 0.0030                           | 3                                                 |                                                                |                                                                 |                                               |
| Jamvi la<br>Wageni          | 3                                         | 28                                       | 0.0001                           | 4                                                 |                                                                |                                                                 |                                               |
| Mtongwe<br>Polytechnic      | 16                                        | 16                                       | 0.0014                           | 4                                                 |                                                                |                                                                 |                                               |
| New<br>Mtongwe              | 31                                        | 103                                      | 0.0001                           | 4                                                 |                                                                |                                                                 |                                               |
| Kiteje area                 | 17                                        | 17                                       | 0.0001                           | 3                                                 |                                                                |                                                                 |                                               |
| EMC<br>regulatory<br>limits | -<br>25(WHO)                              | 50                                       | 1.00                             | 4                                                 |                                                                |                                                                 |                                               |

*TBR- To be reported once laboratory analysis is completed*



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### Particulate Matter

The measurements results show that concentrations of Particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) for the following points are above the limits stipulated in EMC Air Quality Regulations( 50 µg/m<sup>3</sup> for PM<sub>10</sub>) and WHO Global Updates, 2005 (50 µg/m<sup>3</sup> for PM<sub>10</sub> & 25 µg/m<sup>3</sup> for PM<sub>2.5</sub>):

Archbishop Macarius – 78 µg/m<sup>3</sup> for PM<sub>10</sub>; & 58 µg/m<sup>3</sup> for PM<sub>2.5</sub>;

Lumumba Road – 126 µg/m<sup>3</sup> for PM<sub>10</sub>; & 97 µg/m<sup>3</sup> for PM<sub>2.5</sub>;

New Mtongwe – 103 µg/m<sup>3</sup> for PM<sub>10</sub>; & 31 µg/m<sup>3</sup> for PM<sub>2.5</sub>

All other points have Particulate Matter concentration within the regulatory limits.

### Lead

Concentration of lead in all the monitored points are all within the permissible limits as stipulated in the EMC Air Quality Regulatory limits for Residential, Rural & Other area of 1.00 µg/m<sup>3</sup>. The highest concentration of 0.003 µg/m<sup>3</sup> was reported at the point along Lumumba Road.

### Sulphur Dioxide, Nitrogen Dioxide, Ozone

***To be included – awaiting results from SGS affiliate lab in Spain***

### Carbon Monoxide

The measurements results indicate concentrations of Carbon Monoxide are below the limit values proposed in EMC Air Quality Regulations (2014).



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## 1 INTRODUCTION

Repcon associates was appointed by the government of Kenya and the Japanese government to carry out environmental social impact assessment for the proposed Likoni bridge linking Mombasa Island and Likoni area. Subsequently, Repcon Associates contracted SGS Kenya Limited to carry out environmental baseline measurements at the designated sites for the proposed Likoni Bridge.

### 1.1 Scope of Work

The objective of the survey was to collect baseline data at the nearest receptor points as part of assessment for the project. The survey involved taking measurements along Lumumba Road, Archbishop Macarius Road, Jamvi la Wageni area, New Mtongwe road and Kiteje area.

Ambient air quality measurements were also done as part of the scope and the main objective was to quantify ambient air concentration of the following parameters:

Nitrogen dioxide, NO<sub>2</sub>

Sulphur dioxide, SO<sub>2</sub>

Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) Lead

Ozone

Carbon Monoxide

The findings were compared against the following national and international legislations:

World Health Organization, Air Quality Guidelines EMC  
(Air Quality) Regulations, 2014

This report presents the findings of the air quality measurements held between 4<sup>th</sup> and 27<sup>th</sup> April 2018.



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## 1.2 Project Location and Description

The map below shows the respective points where air quality measurements were conducted.

***To be included***

### 1.2.1 Identification of measurement points

**Table 2 : Measurement Points**

| SAMPLING POINT            | GPS LOCATION |
|---------------------------|--------------|
| Lumumba Road              |              |
| Archbishop Macarius Road, |              |
| Jamvi la Wageni area      |              |
| New Mtongwe road          |              |
| Mtongwe Polytechnic area  |              |
| Kiteje area               |              |



|                                                                                                                                                  |                    |
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## 2 LEGISLATION AND GUIDELINES

### 2.1 The World Health Organization, Air Quality Guidelines

The World Health Organization (WHO) Air Quality Guidelines (AQG) are intended to achieve air quality that protects public health in different contexts. The International Finance Corporation (IFC), Environmental, Health and Safety Guidelines also refer to WHO standards for ambient air quality. The guidelines are in table below.

**Table 3 : WHO Air Quality Guidelines**

| Pollutant                             | Time Weighted Average | Air Quality Guideline |
|---------------------------------------|-----------------------|-----------------------|
| Sulphur Oxides, SO <sub>x</sub>       | 24-Hr Mean            | 20µg/m <sub>3</sub>   |
| Nitrogen Dioxide, NO <sub>x</sub>     | Annual Mean           | 40µg/m <sub>3</sub>   |
| Respirable Particulate Matter (<10µm) | 24-Hr Mean            | 50 µg/m <sub>3</sub>  |
| PM <sub>2.5</sub>                     | 24-Hr Mean            | 25 µg/m <sub>3</sub>  |
| Ozone                                 | 8-Hr Mean             | 100 µg/m <sub>3</sub> |

- **2 Environmental Management and Co-Ordination (Air Quality Regulations), 2014**

The objective of this regulation is to provide for prevention, control and abatement of air pollution ensure clean and healthy ambient air. Under the first schedule, it lists various limits for air pollutants that must not be exceeded for various industries. The table 3 overleaf, shows the ambient air quality tolerance limits for Industrial, Residential, Rural and Other areas.



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**Table 4 : EMC (Air Quality Regulations) 2014 ambient air quality tolerance limits**

| POLLUTANT                             | TIME WEIGHTED AVERAGE | INDUSTRIAL AREA        | RESIDENTIAL, RURAL & OTHER AREAS |
|---------------------------------------|-----------------------|------------------------|----------------------------------|
| Sulphur oxides (SO <sub>x</sub> )     | Annual Average        | 80 µg/m <sup>3</sup>   | 60 µg/m <sup>3</sup>             |
|                                       | 24 hours              | 125 µg/m <sup>3</sup>  | 80 µg/m <sup>3</sup>             |
| Oxides of Nitrogen (NO <sub>x</sub> ) | Annual Average        | 80 µg/m <sup>3</sup>   | 60 µg/m <sup>3</sup>             |
|                                       | 24 hours              | 150 µg/m <sup>3</sup>  | 80 µg/m <sup>3</sup>             |
| PM <sub>10</sub>                      | Annual Average        | 70 µg/m <sup>3</sup>   | 50 µg/m <sup>3</sup>             |
|                                       | 24 hours              | 150 µg/m <sup>3</sup>  | 100 µg/m <sup>3</sup>            |
| PM <sub>2.5</sub>                     | Annual Average        | 35 µg/m <sup>3</sup>   | -                                |
|                                       | 24 hours              | 75 µg/m <sup>3</sup>   | -                                |
| Lead                                  | Annual Average        | 1.0 µg/m <sup>3</sup>  | 0.75 µg/m <sup>3</sup>           |
|                                       | 24 hours              | 1.5 µg/m <sup>3</sup>  | 1.00 µg/m <sup>3</sup>           |
| Ozone                                 | 1-Hour                | 200 µg/m <sup>3</sup>  | 0.12 ppm                         |
|                                       | 8 hour (instant peak) | 120 µg/m <sup>3</sup>  | 1.25 ppm                         |
| Carbon Monoxide                       | 8 hours               | 5.0 mg/m <sup>3</sup>  | 2.0 mg/m <sup>3</sup>            |
|                                       | 1 hour                | 10.0 mg/m <sup>3</sup> | 4.0 mg/m <sup>3</sup>            |



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### 3 AIR QUALITY MEASUREMENT METHODOLOGY

#### 3.1 Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and Lead

Exposure to dust contaminants was determined by use of static sampling where a battery powered sampling pump (Minivol) connected by tubing to a substance specific sample holder, was clamped and positioned in selected areas of concern.

Air is drawn through the particle size separator and then through a filter medium. Particle size separation is achieved by impaction at a flow rate of 5 l/min. The sampled filter papers were taken to our accredited laboratories for gravimetric weighing after around 24 hours of exposure time.

The filter papers were submitted for lead analysis to SGS Mombasa accredited laboratories. Analysis was done using SGS internal procedure D/SGS TW 12.

#### 3.2 Sulphur Dioxide, SO<sub>2</sub>, Nitrogen Dioxide, NO<sub>2</sub> and Ozone, O<sub>3</sub>

Sampling of SO<sub>2</sub> and NO<sub>2</sub> was done as per ISO 16200-2:2000 for the sampling and analysis of volatile compounds where the pollutants are passively sampled into diffusion tubes packed with adsorbents. The adsorption cartridges for the gases were mounted at about 1.5 - 2 meters above the ground Surface. The tubes were consequently dispatched to affiliate laboratories in Spain for analysis.

#### 3.3 Carbon Monoxide

##### 3.3.1 Sampling Procedure

Measurements for carbon dioxide and carbon monoxide were carried out in accordance with NIOSH 6604 as well as SGSK-COP-ENV012 on CO & CO<sub>2</sub> sampling; which entails the following:

Zeroing the monitor with CO-free air at the same temperature and relative humidity as the work environment, if possible.

For area monitoring, the monitor was located in an area with good air circulation about 60 to 70 inches above the floor.

Reading concentration directly from the monitor display. (which are expressed in parts per million)

## 4 RESULTS

### 4.1 Particulate Matter

**Table 5 : PM<sub>10</sub> Results**

| Date                     | Location               | Duration (Minutes) | Concentration (µg/m <sup>3</sup> ) | WHO Limits (µg/m <sup>3</sup> ) | EMC Limits (µg/m <sup>3</sup> ) |
|--------------------------|------------------------|--------------------|------------------------------------|---------------------------------|---------------------------------|
| 4/4/2018 –<br>5/4/2018   | Archbishop<br>Macarius | 1266               | 78                                 | 50                              | 50                              |
| 9/4/2018 –<br>10/4/2018  | Lumumba Road           | 1422               | 126                                |                                 |                                 |
| 10/4/2018 –<br>11/4/2018 | Jamvi la Wageni        | 1428               | 28                                 |                                 |                                 |
| 11/4/2018 –<br>12/4/2018 | Mtongwe<br>Polytechnic | 1242               | 16                                 |                                 |                                 |
| 12/4/2018 –<br>13/4/2018 | New Mtongwe            | 1290               | 103                                |                                 |                                 |
| 13/4/2018 –<br>14/4/2018 | Kiteje area            | 1188               | 17                                 |                                 |                                 |

**Table 6 : PM<sub>2.5</sub> Results**

| Date                     | Location               | Duration (Minutes) | Concentration (µg/m <sup>3</sup> ) | WHO Limits (µg/m <sup>3</sup> ) | EMC Limits (µg/m <sup>3</sup> ) |
|--------------------------|------------------------|--------------------|------------------------------------|---------------------------------|---------------------------------|
| 4/4/2018 –<br>5/4/2018   | Archbishop<br>Macarius | 1266               | 58                                 | 25                              | -                               |
| 9/4/2018 –<br>10/4/2018  | Lumumba Road           | 1422               | 97                                 |                                 |                                 |
| 10/4/2018 –<br>11/4/2018 | Jamvi la Wageni        | 1428               | 3                                  |                                 |                                 |
| 11/4/2018 –<br>12/4/2018 | Mtongwe<br>Polytechnic | 1242               | 16                                 |                                 |                                 |
| 12/4/2018 –<br>13/4/2018 | New Mtongwe            | 1290               | 31                                 |                                 |                                 |
| 13/4/2018 –<br>14/4/2018 | Kiteje area            | 1188               | 17                                 |                                 |                                 |



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## 4.2 Gases (SO<sub>x</sub> /NO<sub>x</sub> /OZONE) TO BE INCLUDED

**Table 7 : SO<sub>2</sub> Results**

| Location            | Start date | End date  | SO <sub>2</sub> concentration | WHO Limits (µg/m <sub>3</sub> ) | EMC Limits (µg/m <sub>3</sub> ) |
|---------------------|------------|-----------|-------------------------------|---------------------------------|---------------------------------|
| Archbishop Macarius | 25/4/2018  | 26/4/2018 |                               | 20                              | 80                              |
| Lumumba Road        | 25/4/2018  | 26/4/2018 |                               |                                 |                                 |
| Jamvi la Wageni     | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| Mtongwe Polytechnic | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| New Mtongwe         | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| Kiteje area         | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |

**Table 8 : NO<sub>2</sub> Results**

| Location            | Start date | End date  | NO <sub>2</sub> concentration | WHO Limits (µg/m <sub>3</sub> ) | EMC Limits (µg/m <sub>3</sub> ) |
|---------------------|------------|-----------|-------------------------------|---------------------------------|---------------------------------|
| Archbishop Macarius | 25/4/2018  | 26/4/2018 |                               | 40                              | 80                              |
| Lumumba Road        | 25/4/2018  | 26/4/2018 |                               |                                 |                                 |
| Jamvi la Wageni     | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| Mtongwe Polytechnic | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| New Mtongwe         | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |
| Kiteje area         | 26/4/2018  | 27/4/2018 |                               |                                 |                                 |

**Table 9: Ozone Results**

| Location            | Start date | End date  | Ozone concentration | WHO Limits (µg/m <sub>3</sub> ) | EMC Limits (ppm) |
|---------------------|------------|-----------|---------------------|---------------------------------|------------------|
| Archbishop Macarius | 25/4/2018  | 26/4/2018 |                     | 100                             | 1.25             |
| Lumumba Road        | 25/4/2018  | 26/4/2018 |                     |                                 |                  |
| Jamvi la Wageni     | 26/4/2018  | 27/4/2018 |                     |                                 |                  |
| Mtongwe Polytechnic | 26/4/2018  | 27/4/2018 |                     |                                 |                  |
| New Mtongwe         | 26/4/2018  | 27/4/2018 |                     |                                 |                  |
| Kiteje area         | 26/4/2018  | 27/4/2018 |                     |                                 |                  |

### 4.3 Lead

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**Table 10 : Lead Results**

| Sampling location   | Results ( $\mu\text{g}/\text{m}^3$ ) | EMC Limits $\mu\text{g}/\text{m}^3$ |
|---------------------|--------------------------------------|-------------------------------------|
| Archbishop Macarius | 0.0011                               | 1.00                                |
| Lumumba Road        | 0.0030                               |                                     |
| Jamvi la Wageni     | 0.0001                               |                                     |
| Mtongwe Polytechnic | 0.0014                               |                                     |
| New Mtongwe         | 0.0001                               |                                     |
| Kiteje area         | 0.0001                               |                                     |

### 4.4 Carbon Monoxide

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**Table 11 : Carbon Monoxide Results**

| Sampling location   | Results |                        | EMC Limits $\text{mg}/\text{m}^3$ |
|---------------------|---------|------------------------|-----------------------------------|
|                     | ppm     | $\text{mg}/\text{m}^3$ |                                   |
| Archbishop Macarius | 2.4     | 3                      | 4.0                               |
| Lumumba Road        | 2.2     | 3                      |                                   |
| Jamvi la Wageni     | 2.8     | 4                      |                                   |
| Mtongwe Polytechnic | 3.0     | 4                      |                                   |
| New Mtongwe         | 3.2     | 4                      |                                   |
| Kiteje area         | 2       | 3                      |                                   |



|                                                                                                                       |                    |
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## 5 CONCLUSIONS

### 5.1 Particulate matter

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The measurements results show that concentrations of Particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) for the following points are above the limits stipulated in EMC Air Quality Regulations( 50 µg/m<sup>3</sup> for PM<sub>10</sub>) and WHO Global Updates, 2005 (50 µg/m<sup>3</sup> for PM<sub>10</sub>; & 25 µg/m<sup>3</sup> for PM<sub>2.5</sub>):

Archbishop Macarius – 78 µg/m<sup>3</sup>) for PM<sub>10</sub>; & 58 µg/m<sup>3</sup> for PM<sub>2.5</sub>;

Lumumba Road – 126 µg/m<sup>3</sup>) for PM<sub>10</sub>; & 97 µg/m<sup>3</sup> for PM<sub>2.5</sub>;

New Mtongwe – 103 µg/m<sup>3</sup>) for PM<sub>10</sub>; & 31 µg/m<sup>3</sup> for PM<sub>2.5</sub>.

### o 2 Gases

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*To be reported once analysis is complete*

### 5.3 Lead

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Concentration of lead in all the monitored points are all within the permissible limits as stipulated in the EMC Air Quality Regulatory limits for Residential, Rural &Other area of 1.00 µg/m<sup>3</sup>. The highest concentration of 0.003 µg/m<sup>3</sup> was reported at the point along Lumumba Road.

### 5.4 Carbon Monoxide

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The measurements results show that concentrations of carbon monoxide are below the limit values proposed in EMC Air Quality Regulations (2014).



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## 6 APPENDICES

### 6.1 Appendix 1: Laboratory Analysis Results

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## 6.2 Calibration Certificates

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**Appendix 6.2: (a): Noise level measurements**



# ENVIRONMENTAL BASELINE SURVEY REPORT FOR MOMBASA - LIKONI BRIDGE CONSTRUCTION PROJECT

*Noise Measurement Report*

*Reference: 524419*

PREPARED FOR:

**Repcon Associates**

**APRIL 2018**



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**PROJECT QA/QC**

| Rev. | Date       | Prepared | Reviewed | Approved |
|------|------------|----------|----------|----------|
| 00   | 08/05/2018 | RB       | CO       | PA       |
| 01   |            |          |          |          |
| 02   |            |          |          |          |
| 03   |            |          |          |          |

| Company Stamp | Signatures |
|---------------|------------|
|               |            |



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### REPORT DETAILS

|                 |                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------|
| REFERENCE       | 524419                                                                                    |
| REPORT TITLE    | Noise Measurement Report                                                                  |
| DATE SUBMITTED: | 9 May 2018                                                                                |
| CLIENT:         | <b>Repcon Associates</b>                                                                  |
| PREPARED BY:    | Rashid Bendera – <a href="mailto:Rashid.Bendera@sgs.com">Rashid.Bendera@sgs.com</a>       |
| SIGNED:         | RB                                                                                        |
| REVIEWER:       | Chrisphine Oduor – <a href="mailto:Chrisphine.Oduor@sgs.com">Chrisphine.Oduor@sgs.com</a> |
| APPROVER:       | Philip Abuor – <a href="mailto:Philip.Abuor@sgs.com">Philip.Abuor@sgs.com</a>             |
| STATUS          | Draft Report                                                                              |

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## EXECUTIVE SUMMARY

Repcon associates was appointed by the government of Kenya and the Japanese government to carry out environmental social impact assessment for the proposed Likoni bridge linking Mombasa Island and Likoni area. Subsequently, Repcon Associates contracted SGS Kenya Limited to carry out environmental baseline measurements at the designated sites for the proposed Likoni Bridge.

The objective of the survey was to collect baseline data at the nearest receptor points as part of assessment for the project. The survey involved taking noise measurements along Lumumba Road, Archbishop Makarius Road, Jamvi la Wageni area, Old Mtongwe road (Mtongwe Polytechnic), New Mtongwe road and Kiteje area.

This report presents the findings of the ambient noise measurements held between 3<sup>rd</sup> and 13<sup>th</sup> April 2018. Noise measurements were done as part of the scope of baseline assessment.

## Results and discussion

### Noise measurement

Reported noise measurement results during the day and night schedule are summarized in table below

**Table 1: Diurnal and Nocturnal schedule noise results**

| Measurement point | RESULTS - dB(A)                          |                                        |                           |
|-------------------|------------------------------------------|----------------------------------------|---------------------------|
|                   | Diurnal schedule- day (06:00 – 20:00hrs) |                                        | Nocturnal schedule- night |
|                   | Morning session<br>(06:00- 12:00 noon)   | Afternoon session<br>(12:01- 20:00hrs) | 20:01 – 06:00hrs          |
| N01               | 78.8                                     | 74.6                                   | 66.4                      |
| N02               | 76.7                                     | 82.1                                   | 64.8                      |
| N03               | 65.1                                     | 63.0                                   | 50.0                      |
| N04               | 67.7                                     | 60.2                                   | 53.7                      |
| N05               | 71.8                                     | 69.6                                   | 54.3                      |
| N06               | 51.7                                     | 52.1                                   | 44.1                      |

During the day, noise levels reported at all the monitoring point surpassed the Noise and Excessive Vibrations Pollution Regulations 2009 of 50dB. N02 recorded the highest noise levels during the diurnal schedule 82.1dB (A).

During the night, noise levels at monitoring point N04 surpassed the Noise and Excessive Vibrations Pollution Regulations 2009 of 35dB. N01 recorded the highest noise levels during the nocturnal schedule 66.4dB (A).

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## 1 INTRODUCTION

Repcon associates was appointed by the government of Kenya and the Japanese government to carry out environmental social impact assessment for the proposed Likoni bridge linking Mombasa Island and Likoni area. Subsequently, contracted SGS Kenya Limited to carry out environmental baseline measurements at the designated sites for. SGS Kenya Limited was commissioned by Repcon Associates to undertake baseline noise measurements within and at the vicinity of the proposed the proposed Likoni Bridge; Mombasa County. The measurements were done to evaluate baseline Noise levels in the surrounding environment in relation to the applicable guidelines provided by The Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009.

The survey involved taking 24hr schedule Noise measurements along Lumumba Road, Archbishop Makarius Road, Jamvi la Wageni area, Old Mtongwe road (Mtongwe Polytechnic), New Mtongwe road and Kiteje area.

### 1.1 Scope of Work

---

The scope of work was as follows:



Undertake Noise measurement on 24hour schedule both during the day and night.



Compile the findings in a final report representing

This report presents the findings of the air quality measurements held between 3<sup>rd</sup> and 13<sup>th</sup> April 2018.



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## 1.2 Project Location and Description

Six representative monitoring points were selected. These points are within the vicinity of Mombasa Island, Likoni area, Mtongwe area and Kiteje area. The selected points were marked with a GPS for consistency in future monitoring campaigns. The selected monitoring points are presented table below:

### 1.2.1 Identification of measurement points

**Table 2: Selected Ambient Noise monitoring points**

| POINT ID | SAMPLING POINT           | POINT COORDINATE (Universal Transverse Mercator) | DESCRIPTION OF THE SAMPLING POINT                                                                                                                                                     |
|----------|--------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N01      | Lumumba Avenue           | S04° 03' 7.2"<br>E039°39' 29.0"                  | This point is along Lumumba Avenue next to Qubaa Academy. The findings have been impacted heavy traffic.                                                                              |
| N02      | Archbishop Makarius Road | S04°03' 52.8"<br>E039°39' 53.4"                  | This point is along Archbishop Makarius Road opposite Sea side hospital. The findings have been impacted heavy traffic.                                                               |
| N03      | Jamvi la wageni area     | S04°05' 0.4"<br>E039°38' 57.6"                   | The point is in a residential locality-along the boundary fence of Jamvi la wageni primary school. The findings have been impacted by relatively small traffic mostly of motor cycle. |
| N04      | Old Mtongwe road         | S04°05' 39.7"<br>E039°38' 19.1"                  | The point Old Mtongwe road near the Mtongwe Youth Polytechnic. The findings have been impacted by relatively small traffic mostly of motor cycle.                                     |
| N05      | New Mtongwe road         | S04°05' 54.4"<br>E039°38' 25.4"                  | The point New Mtongwe road near Café area. The findings have been impacted by relatively medium traffic.                                                                              |
| N06      | Ziwani, Kieje            | S04°06' 28.6"<br>E039°37' 23.7"                  | This point is located at Ziwani area in Kiteje- along the road to Mbuguni.                                                                                                            |

## 2 LEGISLATION AND GUIDELINES

It is understood that the construction contractor will put in place an environmental policy and action plan designed to ensure that all their facilities comply with the applicable national legislation, environmental and social safeguard policies and health safety guidelines upon its inception. Pursuant to this, baseline noise quality measurement shall be conducted on the proposed project site and the vicinity prior, during and decommissioning.

The current baseline data was assessed against the Legal Notice No. 64; EMC (Noise and Excessive vibration pollution) Control Regulations 2009.



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o **1 The Environmental Management and Co -ordination (Noise & Excessive Vibration) Control Regulation 2009**

These Regulations prescribe measures against noise and vibrations from specified sources and define permissible noise levels for various activities including mining and construction. The Regulations require a licence to be obtained from the National Environment Management Authority for noise-producing activities and provide for noise and excessive vibrations mapping by designated mapping bodies.

The Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009 sets out maximum permissible noise levels in the First Schedule of the Regulation for various zones. Part IV of the regulations states that where a sound source emits noises which fail to comply with provisions of the Regulations, such person shall apply for a license to the Authority. Table 6 below shows the different guideline values for different zones stipulated in the Regulations.

**Table 3:** Legal Notice No. 61: Noise and Excessive Vibrations Pollution Regulation

| Zone                                                                                      |                                                                      | Sound Level Limit dB(A) -Leq, 14h |       |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|-------|
|                                                                                           |                                                                      | Day                               | Night |
| <b>Time Frame (Day: 6:01am- 8:00 pm (Leq. 14h) &amp; Night: 8:01pm-6:00 am (Leq. 10h)</b> |                                                                      |                                   |       |
| <b>A</b>                                                                                  | Silent Zone                                                          | 40                                | 35    |
| <b>B</b>                                                                                  | Places of Worship                                                    | 40                                | 35    |
| <b>C</b>                                                                                  | Residential:<br>Indoor                                               | 45                                | 35    |
|                                                                                           | Outdoor                                                              | 50                                | 35    |
| <b>D</b>                                                                                  | Mixed Residential (with some commercial and places of entertainment) | 55                                | 35    |
| <b>E</b>                                                                                  | Commercial                                                           | 60                                | 35    |

For the purpose of this project, residential (outdoor) guideline limits shall be applied for the current data.



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### 3 NOISE MEASUREMENT METHODOLOGY

The Noise measurements were taken at the proposed areas as per the ISO 1996 Parts 1, 2, 3 standards. The ambulant measurement was executed during the day and night at the proposed monitoring points at a short intervals of every thirty minutes for a monitoring period of 24-hrs. Monitoring was conducted using Larson Davies Precision Type 1 accuracy Integrating Sound Level Meter -Serial Number 000205 - (Manufacturers: Larson and Davis Model 824 SLM).

### 4 ASSESSMENT RESULTS

#### 4.1 Noise measurement Results

Table below presents the average noise level measurement for the three sessions (morning, afternoon and night) taken at an interval of 30minutes.

**Table 4: Average Noise measurement Results**

| Monitoring duration             | MEASUREMENT RESULTS<br>dB (A) |      |      |      |      |      | Noise and Excessive Vibrations<br>Pollution Regulations 2009<br>dB (A) |
|---------------------------------|-------------------------------|------|------|------|------|------|------------------------------------------------------------------------|
|                                 | N01                           | N02  | N03  | N04  | N05  | N06  |                                                                        |
| Morning<br>(06:00 – 12:00 hrs)  | 78.8                          | 76.7 | 65.1 | 67.7 | 71.8 | 51.7 | 50                                                                     |
| Afternoon<br>(12:00 – 16:00hrs) | 74.6                          | 82.1 | 63.0 | 60.2 | 69.6 | 52.1 |                                                                        |
| Night<br>(20:00 – 06:00hrs)     | 66.4                          | 64.8 | 50.0 | 53.7 | 54.3 | 44.1 | 35                                                                     |

From table above, it can be noted that

- During the day, noise levels reported at all the monitoring point surpassed the Noise and Excessive Vibrations Pollution Regulations 2009 of 50dB. N02 recorded the highest noise levels during the diurnal schedule 82.1dB (A).
- During the night, noise levels at monitoring point N04 surpassed the Noise and Excessive Vibrations Pollution Regulations 2009 of 35dB. N01 recorded the highest noise levels during the nocturnal schedule 66.4dB (A).



|                                                                                             |                    |
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## 5 APPENDICES

### 5.1 Calibration Certificates

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#### Appendix 6.2: (b): Traffic Volume Survey



# ENVIRONMENTAL BASELINE SURVEY REPORT FOR MOMBASA - LIKONI BRIDGE CONSTRUCTION PROJECT

*Traffic Volume Count*

*Reference: 524419*

PREPARED FOR:

**Repcon Associates**

**APRIL 2018**



|                                                                                             |                    |
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**PROJECT QA/QC**

| Rev. | Date       | Prepared | Reviewed | Approved |
|------|------------|----------|----------|----------|
| 00   | 04/05/2018 | WO       | CO       | PA       |
| 01   |            |          |          |          |
| 02   |            |          |          |          |
| 03   |            |          |          |          |

| Company Stamp | Signatures |
|---------------|------------|
|               |            |



|                                                                                             |                    |
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### REPORT DETAILS

|                 |                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------|
| REFERENCE       | 524419                                                                                    |
| REPORT TITLE    | Traffic Volume Count Report                                                               |
| DATE SUBMITTED: | 7 May 2018                                                                                |
| CLIENT:         | <b>Repcon Associates</b>                                                                  |
| PREPARED BY:    | Wilfrida Ojwang – <a href="mailto:Wilfrida.Ojwang@sgs.com">Wilfrida.Ojwang@sgs.com</a>    |
| SIGNED:         | CO                                                                                        |
| REVIEWER:       | Chrisphine Oduor – <a href="mailto:Chrisphine.Oduor@sgs.com">Chrisphine.Oduor@sgs.com</a> |
| APPROVER:       | Philip Abuor – <a href="mailto:Philip.Abuor@sgs.com">Philip.Abuor@sgs.com</a>             |
| STATUS          | Final Report                                                                              |

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## EXECUTIVE SUMMARY

The government of Kenya and the Japanese government through JICA intends to construct a bridge on the Likoni channel linking Mombasa Island and Likoni area. The two parties nominated Repcon Associates to carry out environmental social impact assessment for the aforementioned project. Subsequently, Repcon Associates contracted SGS Kenya Limited to carry out environmental survey at the designated sites for the proposed Likoni Bridge.

The objective of the survey was to collect baseline data at the nearest receptor points as part of assessment for the project. The survey involved taking measurements along Lumumba Road, Archbishop Macarius Road, Jamvi la Wageni area, New Mtongwe road and Kiteje area. Traffic volume count was part of the scope and therefore this report presents the findings of the traffic volume count held between 25<sup>th</sup> and 27<sup>th</sup> April 2018.

## Results

Tables 1, 2 and 3 below shows the results of the traffic count

**Table 1 : Day 1 traffic count results**

| Survey Point                          | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|---------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout) | 292         | 144          | 205         | 13        | 24       | 316       | 702     | 3002     | 3409     | 470         | 218     | 59        |
| Lumumba Road (to Makupa roundabout)   | 436         | 262          | 367         | 88        | 116      | 803       | 941     | 1905     | 2110     | 410         | 270     | 52        |
| ArchBishop Macarius Road (from Mnazi) | 284         | 196          | 230         | 21        | 88       | 476       | 410     | 1052     | 1164     | 230         | 233     | 46        |
| ArchBishop Macarius Road (to Mnazi)   | 132         | 142          | 166         | 10        | 69       | 561       | 463     | 565      | 1042     | 476         | 277     | 52        |
| Jamvi la Wageni                       | 0           | 6            | 1           | 0         | 1        | 0         | 3       | 31       | 21       | 1305        | 535     | 304       |
| New Mtongwe Road (both sides)         | 27          | 200          | 470         | 19        | 104      | 1192      | 935     | 694      | 1747     | 2945        | 349     | 138       |



|                                                                                             |  |                    |
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|                          |   |    |    |   |   |    |    |    |    |     |     |    |
|--------------------------|---|----|----|---|---|----|----|----|----|-----|-----|----|
| Mtongwe Polytechnic area | 0 | 3  | 19 | 0 | 0 | 4  | 9  | 36 | 67 | 992 | 477 | 28 |
| Kiteje Area              | 0 | 24 | 65 | 0 | 0 | 17 | 23 | 54 | 22 | 627 | 99  | 14 |

**Table 2 : Day 2 traffic count results**

| Survey Point                                | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|---------------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout)       | 329         | 224          | 241         | 21        | 31       | 383       | 901     | 3918     | 4122     | 563         | 265     | 68        |
| Lumumba Road (to Makupa roundabout)         | 372         | 320          | 288         | 66        | 102      | 827       | 1113    | 2145     | 2207     | 412         | 201     | 72        |
| ArchBishop Macarius Road (from Mnazi mmoja) | 212         | 167          | 203         | 11        | 22       | 578       | 465     | 1517     | 1862     | 366         | 240     | 37        |
| ArchBishop Macarius Road (to Mnazi mmoja)   | 181         | 224          | 153         | 11        | 62       | 506       | 549     | 811      | 1070     | 275         | 207     | 27        |
| Jamvi la Wageni                             | 0           | 2            | 8           | 0         | 1        | 1         | 3       | 46       | 0        | 1208        | 620     | 371       |
| New Mtongwe Road (both sides)               | 12          | 105          | 168         | 20        | 26       | 998       | 375     | 434      | 2064     | 2845        | 462     | 146       |
| Mtongwe Polytechnic point                   | 0           | 1            | 14          | 0         | 0        | 6         | 10      | 44       | 65       | 1122        | 510     | 24        |
| Kiteje point near Ziwani                    | 0           | 0            | 53          | 0         | 0        | 0         | 46      | 34       | 8        | 706         | 25      | 8         |



|                                                                                             |  |                    |
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**Table 3 : Day 3 traffic count results**

| Survey Point                                | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|---------------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout)       | 365         | 217          | 207         | 33        | 38       | 355       | 999     | 4079     | 3858     | 506         | 287     | 55        |
| Lumumba Road (to Makupa roundabout)         | 395         | 254          | 286         | 76        | 131      | 750       | 805     | 1778     | 1906     | 343         | 214     | 66        |
| Archbishop Macarius Road (from Mnazi mmoja) | 140         | 62           | 149         | 18        | 17       | 897       | 287     | 1144     | 1394     | 286         | 178     | 16        |
| Archbishop Macarius Road (to Mnazi mmoja)   | 166         | 195          | 182         | 13        | 38       | 628       | 503     | 671      | 881      | 347         | 321     | 32        |
| Jamvi la Wageni                             | 0           | 6            | 1           | 0         | 1        | 1         | 12      | 129      | 1        | 1216        | 634     | 290       |
| New Mtongwe Road (both sides)               | 2           | 48           | 113         | 0         | 20       | 1052      | 442     | 404      | 2147     | 2763        | 472     | 110       |
| Mtongwe Polytechnic point                   | 0           | 2            | 14          | 0         | 0        | 12        | 10      | 53       | 78       | 1179        | 365     | 17        |
| Kiteje point near Ziwani                    | 0           | 0            | 41          | 0         | 0        | 8         | 15      | 52       | 20       | 839         | 33      | 13        |

### **Conclusions**

From the traffic survey carried out the following conclusions can be drawn:

Lumumba road has the highest traffic movement with the highest vehicle count of 11,066 in day 2 of the count.

Kiteje road has the lowest traffic movement with lowest vehicle count of 880 on day 2 of the traffic count.

The highest vehicle category recorded was rickshaws at 4,122 on Lumumba road.

|                                                                                                                                                                                           |          |              |
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## 1 INTRODUCTION

The government of Kenya and the Japanese government through JICA intends to construct a bridge on the Likoni channel linking Mombasa Island and Likoni area. The two parties nominated Repcon Associates to carry out feasibility studies and survey for the aforementioned project. Subsequently, Repcon Associates contracted SGS Kenya Limited to carry out environmental survey at the designated sites for the proposed Likoni Bridge.

The objective of the survey was to collect baseline data at the nearest receptor points as part of feasibility for the project. The survey involved taking measurements along Lumumba Road, Archbishop Macarius Road, Jamvi la Wageni area, Mtongwe Polytechnic area, New Mtongwe road and to Kiteje area. Traffic volume count was part of the scope and therefore this report presents the findings of the traffic volume count held between 25<sup>th</sup> and 27<sup>th</sup> April 2018.

## 2 CONTENTS OF THE TRAFFIC COUNT SURVEY

### 2.1 Location

Traffic volume count was carried out in six different points identified by the client. These are:

Lumumba Road

Archbishop Macarius Road Jamvi la

Wageni area

Mtongwe Polytechnic area New

Mtongwe road

Kiteje area

### o 2 Methodology

Manual count classified survey was applied in the traffic count survey. A manual classified count (MCC) involves counting all the vehicles passing a selected location on a road for a pre-determined period of time. For this specific survey, the count was carried out for sixteen hours in a day for three consecutive days. The count was conducted by SGS personnel standing at the roadside and recording passing vehicles in a form.

The contents of the traffic count survey are summarized in the table below:

**Table 4: Contents of the traffic count survey**

| Survey location                | Survey dates | Survey hour        | Survey target     | Survey method                              |
|--------------------------------|--------------|--------------------|-------------------|--------------------------------------------|
| Lumumba Road                   | 25-27/4/2018 | 0600hrs -2200 hrs. | All vehicle types | Manual Count<br>Classified Count<br>Survey |
| ArchBishop<br>Macarius Road    |              |                    |                   |                                            |
| Jamvi la Wageni                |              |                    |                   |                                            |
| New Mtongwe<br>Road            |              |                    |                   |                                            |
| Mtongwe<br>Polytechnic<br>area |              |                    |                   |                                            |
| Kiteje Area                    |              |                    |                   |                                            |

### 3 VEHICLE CATEGORY

The vehicles were categorised into 2 broad categories – motorised and non-motorised. Motorised vehicles include cars, trucks, buses and motorcycles. Non-motorized vehicles include bicycles and push carts. The table below shows the different categories

**Table 5 : Vehicle Categories**

| NO. | CATEGORY          | CHARACTERISTICS                                   | EXAMPLE                                                                              |
|-----|-------------------|---------------------------------------------------|--------------------------------------------------------------------------------------|
| 1   | Heavy Truck       | Three or more axles.                              |  |
| 2   | Medium Truck      | All 2-axle rigid trucks over three tonnes payload |  |
| 3   | Light/Small Truck | Small trucks up to 3 tonne payload.               |  |
| 4   | Large Bus         | More than 40 seats                                |  |
| 5   | Mini Bus          | Between 16-39 seats                               |  |

|    |             |                                                |                                                                                                                                                                        |  |
|----|-------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 6  | Microbus    | Up to 16 seats. E.g. matatus                   |                                                                                      |  |
| 7  | Utility     | Pick-ups, jeeps and four wheels drive          |   |  |
| 8  | Car/Taxi    | All types of cars used either personal or taxi |                                                                                      |  |
| 9  | Rickshaw    | Tuktuks                                        |                                                                                     |  |
| 10 | Motor Cycle | All two wheeled motorized vehicles             |                                                                                    |  |
| 11 | Bicycle     | All pedal cycles                               |                                                                                    |  |
| 12 | Push Cart   | All animal and manually drawn /pushed carts    |                                                                                    |  |

#### 4 RESULTS OF THE TRAFFIC COUNT

Traffic volume count survey was carried out for 3 days at all the 6 points. The result for day 1 counts is shown in the table below.

**Table 6 : Results for day 1 count (25/4/2018)**

| Survey Point                                   | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|------------------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout)          | 292         | 144          | 205         | 13        | 24       | 316       | 702     | 3002     | 3409     | 470         | 218     | 59        |
| Lumumba Road (to Makupa roundabout)            | 436         | 262          | 367         | 88        | 116      | 803       | 941     | 1905     | 2110     | 410         | 270     | 52        |
| ArchBishop Macarius Road (from Mnazi mmoja)    | 284         | 196          | 230         | 21        | 88       | 476       | 410     | 1052     | 1164     | 230         | 233     | 46        |
| ArchBishop Macarius Road (to Mnazi mmoja road) | 132         | 142          | 166         | 10        | 69       | 561       | 463     | 565      | 1042     | 476         | 277     | 52        |
| Jamvi la Wageni                                | 0           | 6            | 1           | 0         | 1        | 0         | 3       | 31       | 21       | 1305        | 535     | 304       |
| New Mtongwe Road (both sides)                  | 27          | 200          | 470         | 19        | 104      | 1192      | 935     | 694      | 1747     | 2945        | 349     | 138       |
| Mtongwe Polytechnic area                       | 0           | 3            | 19          | 0         | 0        | 4         | 9       | 36       | 67       | 992         | 477     | 28        |
| Kiteje Area                                    | 0           | 24           | 65          | 0         | 0        | 17        | 23      | 54       | 22       | 627         | 99      | 14        |



|                                                                                                                                         |                    |
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The result for day 2 counts is shown in the table below.

**Table 7 : Results for day 2 count (26/4/2018)**

| Survey Point                                     | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|--------------------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout)            | 329         | 224          | 241         | 21        | 31       | 383       | 901     | 3918     | 4122     | 563         | 265     | 68        |
| Lumumba Road (to Makupa roundabout)              | 372         | 320          | 288         | 66        | 102      | 827       | 1113    | 2145     | 2207     | 412         | 201     | 72        |
| ArchBishop Macarius Road (from Mnazi mmoja road) | 212         | 167          | 203         | 11        | 22       | 578       | 465     | 1517     | 1862     | 366         | 240     | 37        |
| ArchBishop Macarius Road (to Mnazi mmoja road)   | 181         | 224          | 153         | 11        | 62       | 506       | 549     | 811      | 1070     | 275         | 207     | 27        |
| Jamvi la Wageni                                  | 0           | 2            | 8           | 0         | 1        | 1         | 3       | 46       | 0        | 1208        | 620     | 371       |
| New Mtongwe Road (both sides)                    | 12          | 105          | 168         | 20        | 26       | 998       | 375     | 434      | 2064     | 2845        | 462     | 146       |
| Mtongwe Polytechnic point                        | 0           | 1            | 14          | 0         | 0        | 6         | 10      | 44       | 65       | 1122        | 510     | 24        |
| Kiteje point near Ziwani                         | 0           | 0            | 53          | 0         | 0        | 0         | 46      | 34       | 8        | 706         | 25      | 8         |



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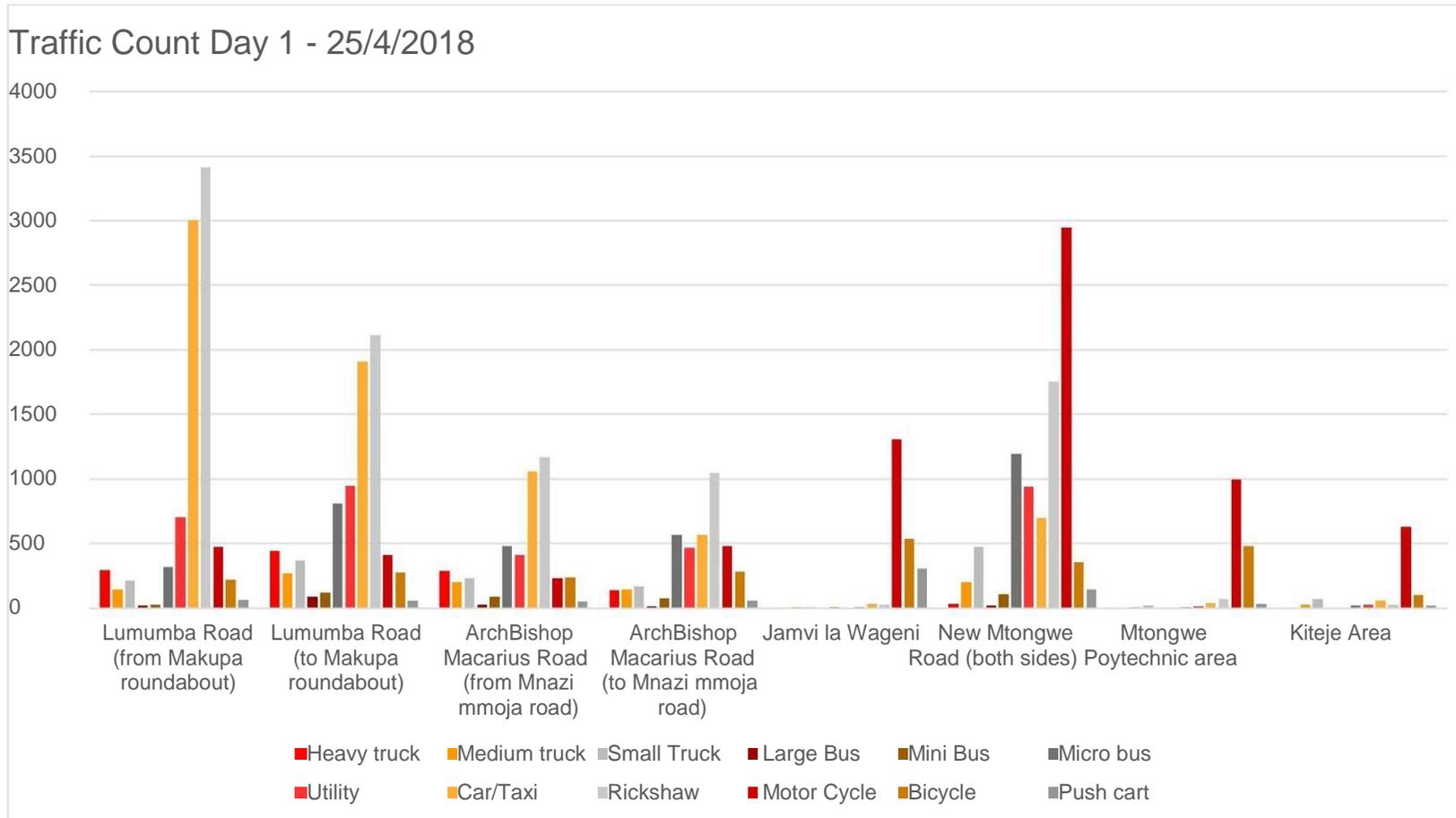
The result for day 3 counts is shown in the table below.

**Table 8 : Results for day 3 count (27/4/2018)**

| Survey Point                                   | Heavy truck | Medium truck | Small Truck | Large Bus | Mini Bus | Micro bus | Utility | Car/Taxi | Rickshaw | Motor Cycle | Bicycle | Push cart |
|------------------------------------------------|-------------|--------------|-------------|-----------|----------|-----------|---------|----------|----------|-------------|---------|-----------|
| Lumumba Road (from Makupa roundabout)          | 365         | 217          | 207         | 33        | 38       | 355       | 999     | 4079     | 3858     | 506         | 287     | 55        |
| Lumumba Road (to Makupa roundabout)            | 395         | 254          | 286         | 76        | 131      | 750       | 805     | 1778     | 1906     | 343         | 214     | 66        |
| Archbishop Macarius Road (from Mnazi mmoja)    | 140         | 62           | 149         | 18        | 17       | 897       | 287     | 1144     | 1394     | 286         | 178     | 16        |
| Archbishop Macarius Road (to Mnazi mmoja road) | 166         | 195          | 182         | 13        | 38       | 628       | 503     | 671      | 881      | 347         | 321     | 32        |
| Jamvi la Wageni                                | 0           | 6            | 1           | 0         | 1        | 1         | 12      | 129      | 1        | 1216        | 634     | 290       |
| New Mtongwe Road (both sides)                  | 2           | 48           | 113         | 0         | 20       | 1052      | 442     | 404      | 2147     | 2763        | 472     | 110       |
| Mtongwe Polytechnic point                      | 0           | 2            | 14          | 0         | 0        | 12        | 10      | 53       | 78       | 1179        | 365     | 17        |
| Kiteje point near Ziwani                       | 0           | 0            | 41          | 0         | 0        | 8         | 15      | 52       | 20       | 839         | 33      | 13        |



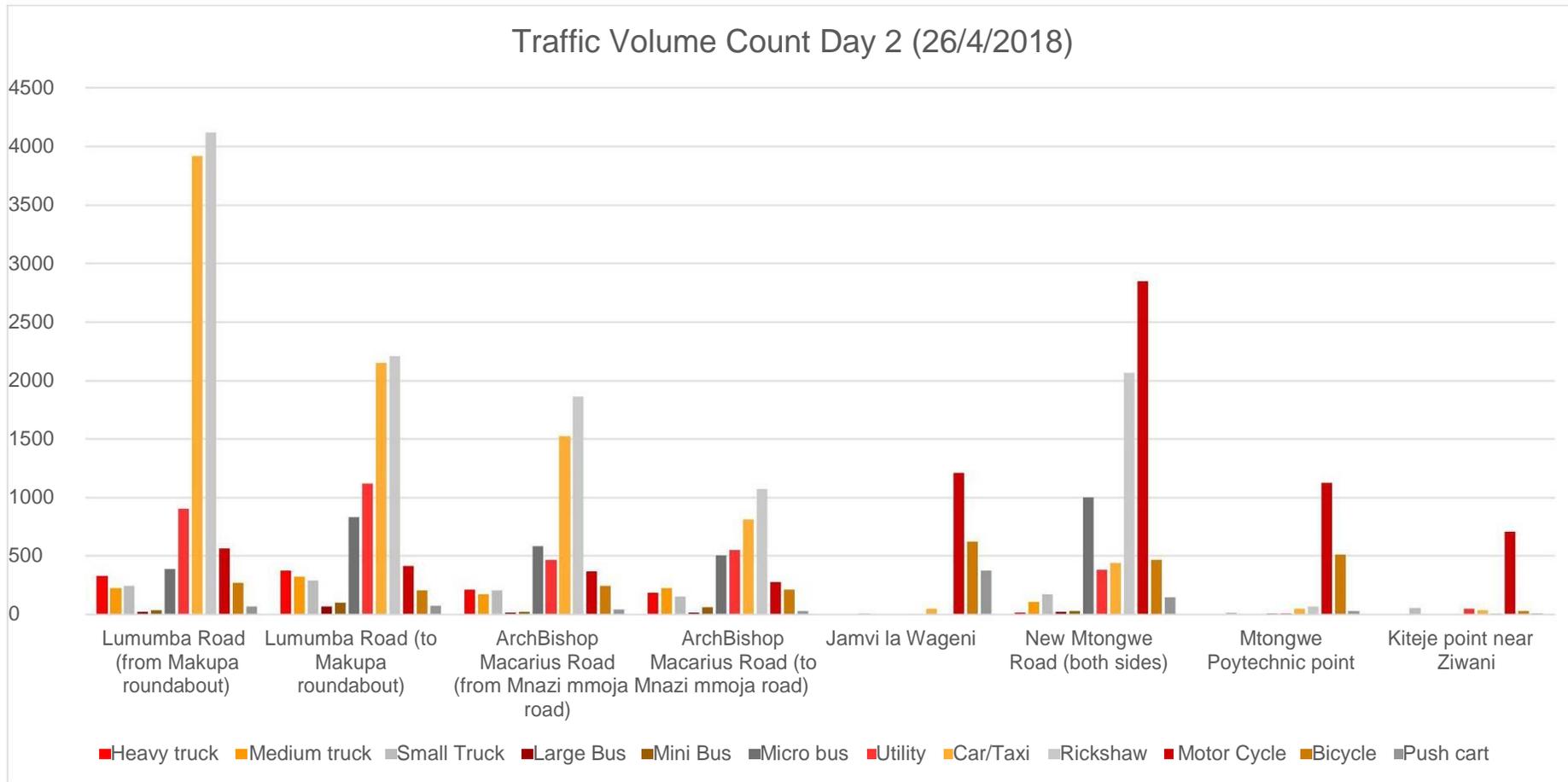
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**Figure 1 : Traffic count day 1**



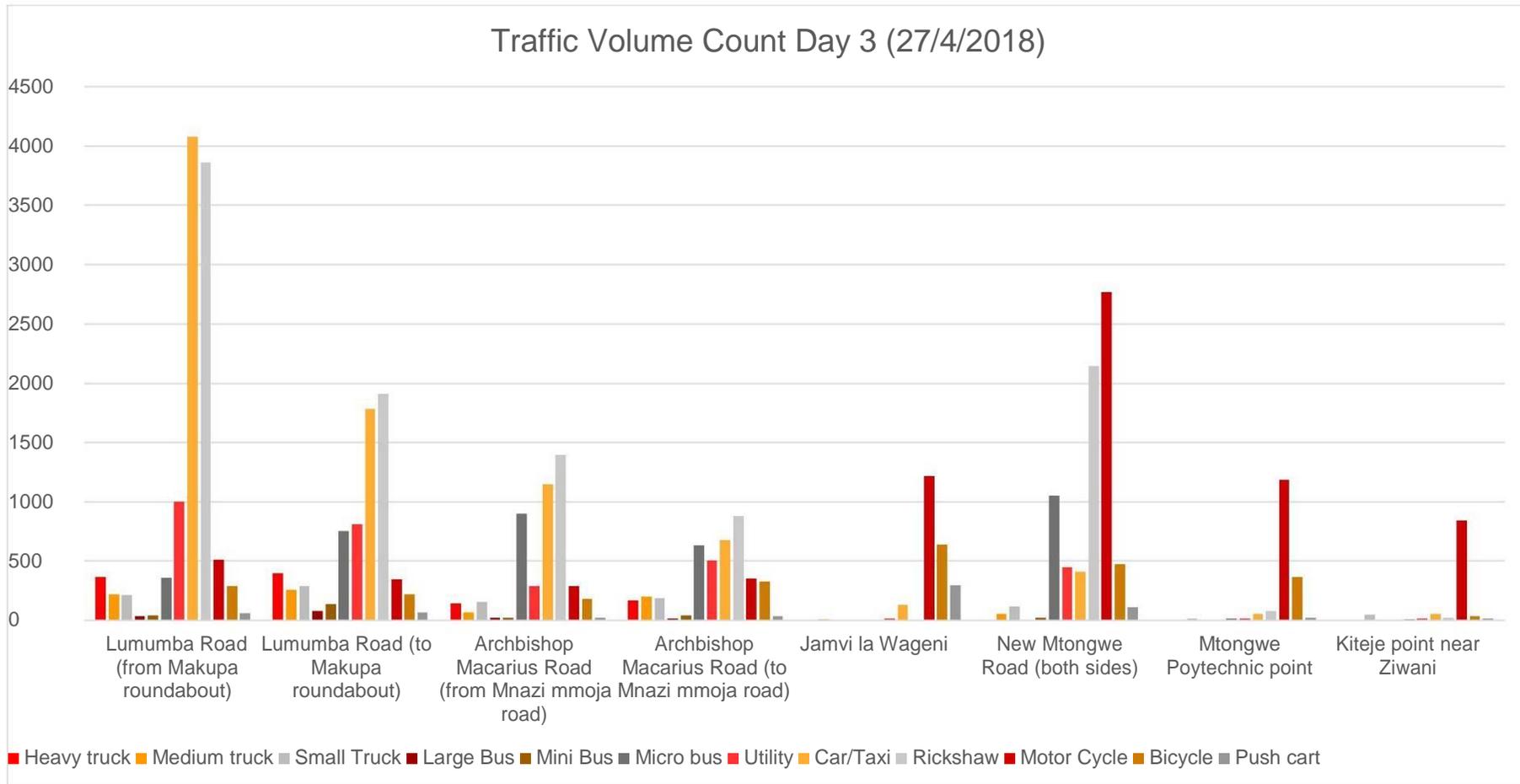
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**Figure 2 : Traffic Count Day 2**



|                                                                                             |                    |
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**Figure 3 : Traffic Count Day 3**

**Table 9 : Total vehicle count (motorised and non-motorised)**

| <b>SURVEY LOCATIONS</b>                          | <b>TOTAL VEHICLE COUNT</b> |                         |                         |
|--------------------------------------------------|----------------------------|-------------------------|-------------------------|
|                                                  | <b>DAY 1 -25/4/2018</b>    | <b>DAY 2 -26/4/2018</b> | <b>DAY 3 -27/4/2018</b> |
| Lumumba Road (from Makupa roundabout)            | 8,854                      | 11,066                  | 10,999                  |
| Lumumba Road (to Makupa roundabout)              | 7,760                      | 8,125                   | 7004                    |
| Archbishop Macarius Road (from Mnazi mmoja road) | 4,430                      | 5,680                   | 4,588                   |
| Archbishop Macarius Road (to Mnazi mmoja road)   | 3,955                      | 4,076                   | 3,977                   |
| Jamvi la Wageni                                  | 2,207                      | 2,260                   | 2,291                   |
| New Mtongwe Road (both sides)                    | 8,820                      | 7,655                   | 7,753                   |
| Mtongwe Polytechnic point                        | 1,635                      | 1,796                   | 1,730                   |
| Kiteje point near Ziwani                         | 945                        | 880                     | 1,021                   |

### **CON CL USIO NS**

From the traffic survey carried out the following conclusions can be drawn:

Lumumba road has the highest traffic movement with the highest vehicle count of 11,066 in day 2 of the count.

Kiteje road has the lowest traffic movement with lowest vehicle count of 880 on day 2 of the traffic count.

The highest vehicle category recorded was rickshaws at 4,122 on Lumumba road.



## **Appendix 6.3: Marine water analysis**



Date: 03/04/2018

**SGS Kenya Limited Laboratory Services**

SGS Kenya Ltd.  
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Ali Purjani Street  
P.O. Box 90264  
80100 Mombasa  
Kenya

REPCON ASSOCIATES  
P.O BOX 79805-00200  
NAIROBI

**Analysis Report MA18-01496.001**

PRODUCT DESCRIPTION: WATER  
SAMPLED BY: CLIENT  
SAMPLE RECEIVED: 27/03/2018  
ANALYSIS STARTED: 27/03/2018  
SGS ORDERNO: 524419  
MARKS: DELIVERED IN A PLASTIC BOTTLE  
MMS

| TESTS                  | METHOD          | RESULT   | UNITS     |
|------------------------|-----------------|----------|-----------|
| Total coliform count   | ISO 9308-2:1990 | >1800    | MPN/250ml |
| pH                     | APHA 4500 H+    | 7.99     |           |
| Colour                 | APHA 2120 B     | 10       | u. Hazen  |
| Dissolved Oxygen       | APHA EXT        | 9.30     | mg/l      |
| Turbidity              | APHA 2130 B     | 3.27     | NTU       |
| Oil and Greases        | SGS TW 8        | <0.1     | mg/l      |
| Conductivity at 25 °C  | APHA 2510 B     | 54400.00 | µS/cm     |
| Total Suspended Solids | APHA 2540 D     | <5.00    | mg/l      |
| Chemical Oxygen Demand | APHA 5220 B     | 358.54   | mg/l      |

Authorized Signatory

Walter Ogara - Multi Lab Manager

Technical Signatory

Florah Mshimba-Chemist

Technical Signatory

Richard Oniedo-Microbiologist

03042018 1500 0000269434

Page 1 of 2

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Date: 03/04/2018

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Kenya

REPCON ASSOCIATES  
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NAIROBI

**Analysis Report MA18-01496.002**

PRODUCT DESCRIPTION: WATER  
SAMPLED BY: CLIENT  
SAMPLE RECEIVED: 27/03/2018  
ANALYSIS STARTED: 27/03/2018  
SGS REFERENCE: 581118  
MARKS: DELIVERED IN A PLASTIC BOTTLE  
M1

**Appendix 6.5: Flora and Fauna survey report**

| TESTS                  | METHOD          | RESULT   | UNITS     |
|------------------------|-----------------|----------|-----------|
| Total coliform count   | ISO 9308-2:1990 | >1800    | MPN/250ml |
| pH                     | APHA 4500 H+    | 8.04     |           |
| Colour                 | APHA 2120 B     | 15       | u Hazen   |
| Dissolved Oxygen       | APHA EXT        | 8.70     | mg/l      |
| Turbidity              | APHA 2130 B     | 3.88     | NTU       |
| Oil and Grease         | SGS TW 8        | <0.1     | mg/l      |
| Conductivity at 25 °C  | APHA 2510 B     | 54600.00 | µS/cm     |
| Total Suspended Solids | APHA 2540 D     | 5.00     | mg/l      |
| Chemical Oxygen Demand | APHA 5220 B     | 409.78   | mg/l      |

**\*\*End of Analytical Results\*\***

Authorized Signatory:

Walter Ogara - Multi-Lab Manager

Technical Signatory

Florah Mshimba-Chemist

Technical Signatory

Richard Onyiah-Microbiologist

03042018 1500 0000059434

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## **Appendix 6.4: Marine sediment analysis**



**Appendix 6.5 (a): Ecological Survey**



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# ECOLOGICAL SURVEY OF MWEZA CREEK, MOMBASA

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John Ngatia Ndarathi



JANUARY 29, 2018  
REPCON ASSOCIATES

## Background

The proposed Likoni channel bridge is envisioned to streamline the transport connection between Mombasa Island and the Mombasa South Mainland. On the Island side, the bridge will start off at the King'orani prison (Jela Baridi), along Lumumba road, over Bishop Macarius Road, Liwatoni to the Likoni channel. On the mainland side, it will pass over Jamvi la Wageni area, progress to Mtongwe road and to Ziwani area where it will join the Mombasa Southern Bypass. Crossing from the Likoni channel to mainland, the bridge will transverse sections of Mweza / Mueza or Muheza creek, which is part of the larger Port-Reitz tidal Creek system (see detailed area description in section 2.1).

The proposed bridge will traverse through both the intertidal flats and the adjacent terrestrial zones of Mweza creek. The intertidal zone is defined as the area above water at low tide and under water at high tide *i.e.* area between tide marks. On the other hand, the adjacent terrestrial zones neighbor the intertidal zones but are not seasonally covered by sea water. Thus, a detailed assessment of ecological entities, involving identification and abundance estimation for the flora and fauna components within both environments of the creek is required. The specific objectives of this study were to:

1. Identify distinct habitats from the edge of open water to the upstream catchment part of the creek using different key environmental factors
2. Conduct Biodiversity identification along the study area for both the flora and Fauna,
3. For fauna survey, perform a:
  - Referencing for all individuals *i.e.* from order to species level
  - Species density analysis
  - Survey of population change along the environmental gradients
4. Describe and outline link between environmental factors and species distribution
5. Prepare a map of the creek and comment on the species' patterns of distribution
6. Identify any emerging concerns *i.e.* species vulnerability and list any endangered or threatened species within the study area.

# Methodology

## Study Area Description

The field study was conducted between 10<sup>th</sup> and 19<sup>th</sup> January 2018, along Mweza creek and its catchment area. As stated earlier, the creek is connected to the Indian Ocean through the Port-Reitz creek system, which was formed through drowning of former river valleys due to sea level rise and is characterised by varying depth, with the upper zones being shallow, often less than 10 m deep (Caswell, 1956). The Port–Reitz–Kilindini system supports a wide spectrum of associated industries, including oil refining, manufacturing, and shipping activities.

Although Port-Reitz system is widely studied, there are is very scanty information regarding the physical and topographical nature of its Mweza Creek section. Therefore, a primary survey (ground truthing) was conducted by walking along the creek to acquaint ourselves with the study area. This was followed by an aerial survey combining Google earth pro and Quantum GIS to visualize the land cover and mangroves distribution (Fig 1.).

Mweza creek starts at -4.08333, 39.65, adjacent to Ras Bofu, southwest of the Old-Sultan’s palace and stretches landward through Puma Primary School (henceforth Puma), Peleleza area, Jamvi la Wageni (Jamvi) to -4.083400, 39.6459, a point adjacent to Lieutenant Colonel Kimaru Estate (henceforth, Kimaru estate), a military barracks estate. From this point, the creek’s catchment area extends as a seasonal stream, spanning through the Mtongwe residential area to Kona Mbaya Stage (Fig.1).

During the initial primary survey, it was observed that the creek’s sediments changes from sandy-rocky at Bofu area to muddy flats in the Kimaru estate area (Fig 1.). Moreover, the intertidal zone has a highly varying width (from <1 to 50m) with the rocky sections being narrow and the mudflats wide. The terrestrial strip starting at Ras Bofu is characterised by human settlements, domestic waste dumping zones and small-scale farms. The opposite side is less populated up to the Kimaru estate point, followed by small farms and finally densely populated in the mtongwe area to Kona Mbaya Stage (Fig 1.). See annex 1 for satellite image and photos of the area.

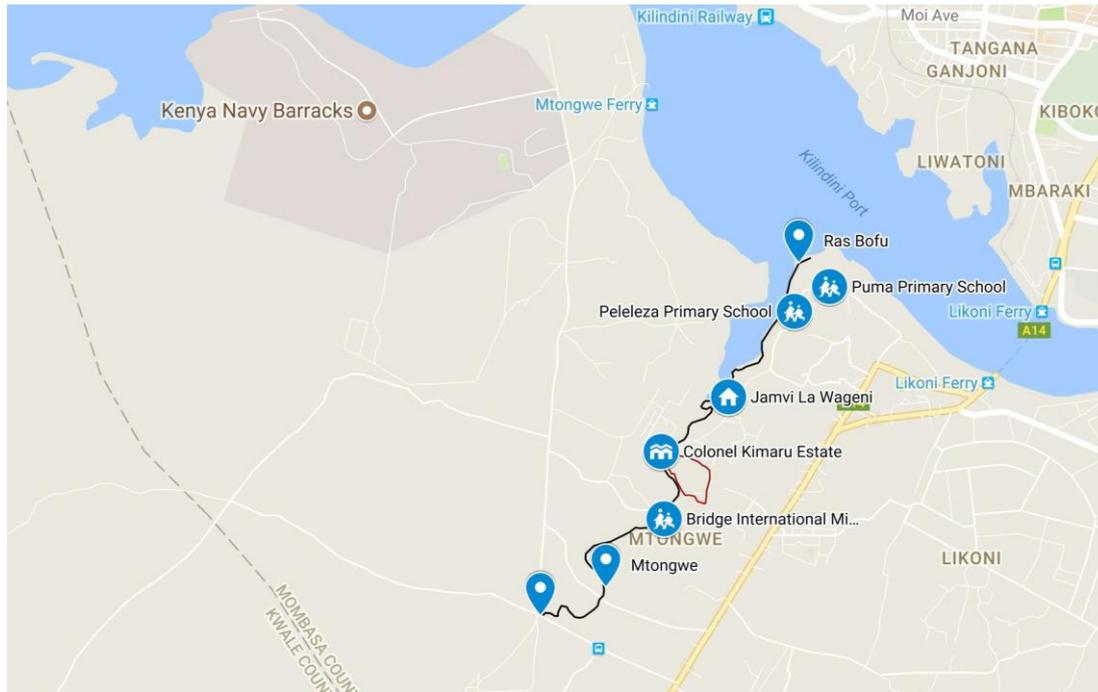


Figure 1: Map of Mweza creek and its catchment area. The sampling was done along the black line with several sampling points between the labelled ones (adapted from Google Maps 2018).

### Climatology, tides and seasonality

Climatic patterns are the single most important factor affecting seasonal changes of ocean currents movements and atmospheric weather patterns throughout East Africa. A good understanding of these factors lends insight into the affected physical, chemical and biological processes. In particular, the Inter-Tropical Convergence Zone (ITCZ) is the single most important climatic phenomenon affecting seasonality, and its annual migration creates the two seasons experienced near the equator known in East Africa as the northeast (NE) and southeast (SE) monsoons.

The northeast monsoon (NEM), or kaskazi, from November to March, is characterized by gentler winds from the northeast and sunny, dry conditions. By contrast the southeast monsoon (SEM), or kusi, from April to October, is dominated by strong winds off the ocean from the southeast, with rough seawater conditions and frequent rain (McClanahan, 1998). Seasonality has a significant impact on artisanal fisheries along the coast, with records of higher fish landings during the calm NEM season compared to the rough SEM (Munga, 2014).

Additionally, the Kenyan coast has a strong semi-diurnal tide (Tobisson et al., 1998), with two cycles in a 25-hour period and a strong cycling between neap and spring tides twice during a lunar phase. The timing of the high tides and low tides over the lunar cycle is stable such that the peak of the morning high tide on the first day of the new or moon occurs at about 2 am +30 min throughout the year (Jiddawi et al., 2002).

Tides in Mombasa area are semi diurnal and astronomical tides account or over 80%of water level variations (Odida, 1997). Water levels vary sinusoidally (shaped like a sine wave) with two unequal peaks daily. Although tidal variations within other creek systems Port Reitz, Miritini, Kilindini and Tudor are well documented (Rees et al., 1996), there was not literature on Mweza creek tidal system. Nevertheless, we observed a semi diurnal tidal system, like that of Port Reitz.

### Intertidal Fauna and flora Survey

The intertidal zone extends from the point where water reaches during the highest tide to the point reached by water during lowest tide. It has several types of environments based on the nature of the habitat and the biota; fine sandy beaches, sandy – mud shores, muddy shores and rocky shores.

Desktop studies indicated that land covers predominant along the Kenyan coastal areas include mangroves, beach sands, mudflats, Seagrass and seaweed, corals and water areas. Mangrove trees grow in sheltered and tropical estuarine conditions and are found in creeks and other estuaries where the mud substrate is unstable, with low oxygen levels and has fluctuating salinity levels due to tidal variations. Mangrove forests occur either as pure species bands or mixed species bands. In Kenya, there are eight species of which include: *Rhizophora mucronata*, *Bruguiera gymnorrhiza*, *Ceriops tagal*, *Avicenia marina*, *Sonneratia alba*, *Lumnitzera racemosa*, *Xylocarpus grnatum*, *Heritiera littoralis* and *Pemphis acidula*.

Desktop studies did not reveal any records of studies on mangrove communities or other ecological parameters within Mweza creek. Therefore, a primary ground truthing survey involving walking along the creek was done. This was followed by an aerial survey using

Google earth pro and Quantum GIS to visualize the land cover and mangroves distribution for field study planning purposes.

During the main field study, both flora (mangroves and algae pools) and surface macro-benthic invertebrates were identified, and their abundance estimated. Mangrove stands were assessed based on single 10m x 10m quadrats owing to the narrow nature of the intertidal flat in most places. Individual species within each sampling point were taxonomically identified and their density calculated. Algal pools in each quadrant were counted and the dominant algae species identified.

Further, a quantitative survey and species identification for macrobenthic fauna was conducted using three replica 1m x1m sample quadrats, nested within the 10m x 10m flora quadrats, distributed from the sea shore towards the land. The fauna survey mostly focused on crustaceans (crabs) and molluscs. Counts of molluscs were based on individuals observed and shells recorded within the quadrats.

Finally, three alpha diversity indices; species richness (S) evenness (J) and Shannon Weiner (H) were calculated to ascertain variation of fauna abundance and evenness along the creek. S is the number of species present in an area, whereas J describes the distribution of the population size of the respective species. 'H' on the other hand Combines both S and J. 'H' increases with increase in species abundance (S) and H' is highest when proportions (pi) of different species tend to equality. H is calculated as:

$$H' = \sum_{i=1}^S p_i \ln p_i$$

## Marine Fisheries

Fishermen were engaged in recording of fisheries species diversity from the catch of the day and their experience in fisheries available in the water and mangrove areas. The fishermen were met at six different points, based on location of the pen traps (see section 3.2). Semi structure questionnaires were used to scrutinized for species of fish landed during the NEM and SEM seasons. The fishermen provided the names of fish in local language and were identified in English names and taxonomically to family level using fishbase database system (<http://www.fishbase.org>).

## Terrestrial Survey

Terrestrial areas that were surveyed comprised of the areas adjacent to the creek and areas beyond the marine point comprising the creeks catchment. The survey was exclusively floral-based and involved identifying the various plant forms and their respective abundance. Owing to the patchy distribution of terrestrial vegetation observed during the primary ground truthing survey, the releve method, where one uses their judgment (subjective) to locate a representative stand of the community then places one or more sample quadrats to capture the variation of the community, was used to sample vegetation. Three 10m x 10m quadrats were used at each sampling point and for each plant species identified, an average abundance was calculated.

## Description of emerging concerns

Identified species were counterchecked for their conservation status using the IUCN Red list. The IUCN Red List of Threatened Species, founded in 1964, is the world's most comprehensive inventory of the global conservation status of biological species. The IUCN Red List is set upon precise criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world (Table 1.).

Species are classified by the IUCN Red List into nine groups specified through criteria such as rate of decline, population size, area of geographic distribution, and degree of population and distribution fragmentation (Butchart *et al.*2016).

Table 1: IUCN Red List Categories

|                            |                                                                                                                         |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Extinct (EX)               | No known individuals remaining                                                                                          |
| Extinct in the wild (EW)   | Known only to survive in captivity, or as a naturalized population outside its historic range                           |
| Critically endangered (CR) | Extremely high risk of extinction in the wild                                                                           |
| Endangered (EN)            | High risk of extinction in the wild                                                                                     |
| Vulnerable (VU)            | High risk of endangerment in the wild                                                                                   |
| Near threatened (NT)       | Likely to become endangered in the near future                                                                          |
| Least concern (LC)         | Lowest risk. Does not qualify for a more at-risk category; widespread and abundant taxa are included in this category.) |

|                     |                                                  |
|---------------------|--------------------------------------------------|
| Data deficient (DD) | Not enough data to assess its risk of extinction |
| Not evaluated (NE)  | Has not yet been evaluated against the criteria  |

## Results and Discussion

### Intertidal Flora Community

Two main forms of flora, mangrove stands, and Algae pools, were recorded along the Creek. They are further elaborated below.

#### Mangrove Communities

Only three species of mangroves were identified along Mweza Creek; *Avicenia marina*, *Ceriops tagal* and *Rhizophora mucronata*. Few individuals of *Avicenia marina* and *Ceriops tagal* were observed between Bofu and Kimaru Estate, whereas *Rhizophora mucronata* individuals were only recorded in sections between Peleleza and Jamvi section. This unique and expected mangrove zonation (dominance) can be explained by variation in tidal inundation patterns which usually result to formation of pure or mixed mangrove forest bands (see Fig 2.). For instance, a pure stand of *Avicennia marina* was recorded upstream, adjacent to Kimaru Estate (Fig 4.). The ecological success of *Avicennia marina* species is attributed its unique ability to withstand very high levels of salinity variation resulting from infrequent spring tide inundation in this zone.

In addition, general mangrove density was observed to increase from the open mouth of the creek at Ras Bofu to the upstream sections around Kimaru Estate (Fig.3). This can be attributed to the increase in sediment depth in upper sections of the creek, which are more sheltered from ocean waves compared to lower exposed shores. At Ras Bofu, the sediment is mostly sandy-muddy, in Puma its very rocky, whereas from Peleleza to Kimaru Estate, the sediment is characterised of soft mud, that is easily penetrated by mangrove roots and provides a favourable ground for the mangrove seedlings to plant themselves.

## Mangrove zonation : tree dominance

- The landward fringe
  - Zone of *Ceriops* thickets
  - Zone of *Bruguiera* forests
  - Zone of *Rhizophora* forests
  - The seaward *Avicennia* zone
  - The *Sonneratia* zone
- ← The landward *Avicennia* zone
- Mixed zone
- Mixed zone



Figure 2: Typical/ expected zonation of mangrove forests in East Africa (Farid, 2008).

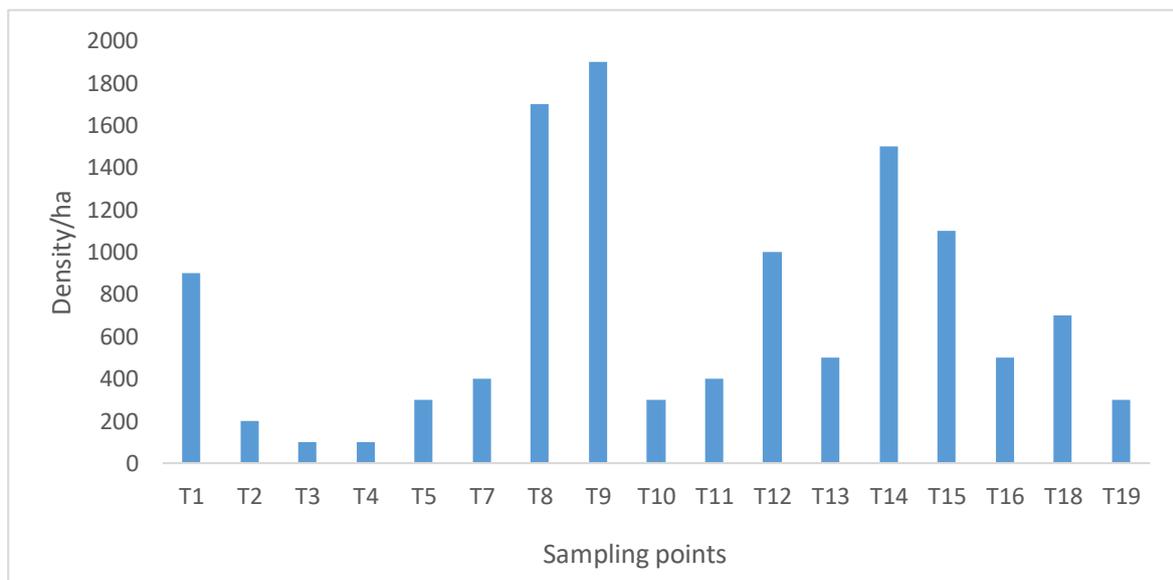


Figure 3: Change in general mangrove density in Mweza creek. The sampling points are recorded from the Mouth of the creek: T1 is at Ras Bofu; T2 to T3 between Ras Bofu to Puma Primary; T4 to T8 between Puma Primary and Peleleza Primary School; T9 to T13 between Peleleza to Jamvi la Wageni; T13 to T19 between Jamvi la Wageni to Kimaru Estate.



Figure 4: Mangrove species observed in Mweza Creek; (a) *Rhizophora mucronata*, (b) *Avicenia Marina* and (c) *Ceriops tagal* and (d) A continuous canopy of the pure stand of *Avicenia marina* adjacent to Kimaru Estate.

## Algae

Among the sites sampled only three species of algae were identified in the rock substrate *Canistocarpus crispata*, *Ulva reticulata* and *C. cervicornis* between Bofu and Puma zones. A high ground cover (70%) of *Ulva reticulata* was observed at the beach adjacent to Puma, indicating high levels of eutrophication.



Figure 6: (a) *Ulva reticulata* algae pools in sections adjacent to Puma Primary school area. (b) A crab (*Ocypode ryderi*) feeding in the algae

### Benthic Fauna Communities

Various macrofauna were identified along the shores and categorized into two broad groups: crustaceans (crabs) and molluscs (gastropods and bivalves).

#### Crabs

Several types of crabs were identified and described. They include:

##### a) Hermit crabs (families paguridae and coenobitidae)

They are common inhabitants of shorelines and occupy gastropod shells, halves of clam shells, hollowed wood pieces polychate worm tubes or sponges for protection. Majority of hermit species are scavengers or detritus feeders, although few filter feed particles from water currents. Three species, *Diogenes avarus*, *Dardanus deformis* and *Coenobite rugosus* were recorded along the shore. Their abundance was specifically high (N= 10) at Bofu and Puma area, adjacent to the mouth of the creek which has a sandy/rocky sediment and were absent (N=0) in the upper section of the creek between Jamvi and Kimaru estate (Fig. 9).

##### b) Fiddler Crabs (*Uca sp.*):

Fiddler crabs are probably one of the first animals one sees in a mangrove area. Male fiddler crabs are armoured with a single huge pincer (claw) which is used as a courtship display tool rather than for protection whereas females have two small pincers of equal size. Fiddler crabs are semiterrestrial and prefer to stay on protected sand and mud beaches of bays and estuaries. Their burrows are in the intertidal zone, and during low tide the crabs come out for feeding and courting.

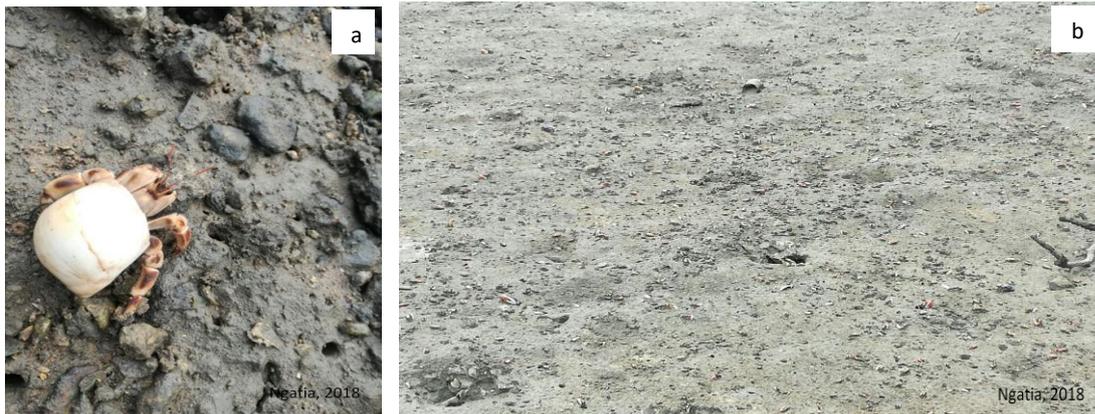


Figure 7: A hermit crab (*Coenobita rogosus*) recorded at the rocky beach near Peleleza and Mixed *Uca* species observed at the mud flat adjacent to Jamvi area.

Seven species of fiddler crabs were identified during the count. Diversity and general abundance of ucas was high (N=15 to 30) in the mudflats and points with multiple mangrove species *i.e.* between Peleleza and Jamvi areas (Fig. 9).

### c) Terrestrial crabs (Grapsoidae)

This family includes a large group of eulittoral to fully terrestrial crabs. Majority are omnivores and scavengers. The geocarnids, a family in this group, are large mostly nocturnal and always return to the sea to spawn. Species identified along the study site include *Cardisoma carnifex*, *Planes cyaneus*, *Pseudograpsus elongatus*, *Neosarmatium meinerta*, *Chiromantes eulimene*, *Sarmatium crassum*, *Nanosesarma minutum* and *Sesarmops imprescus*.



Figure 8: A terrestrial crab, *Chiromantes eulimena* (a), and *Philyra platycheir* (b), observed along Mweze creek.

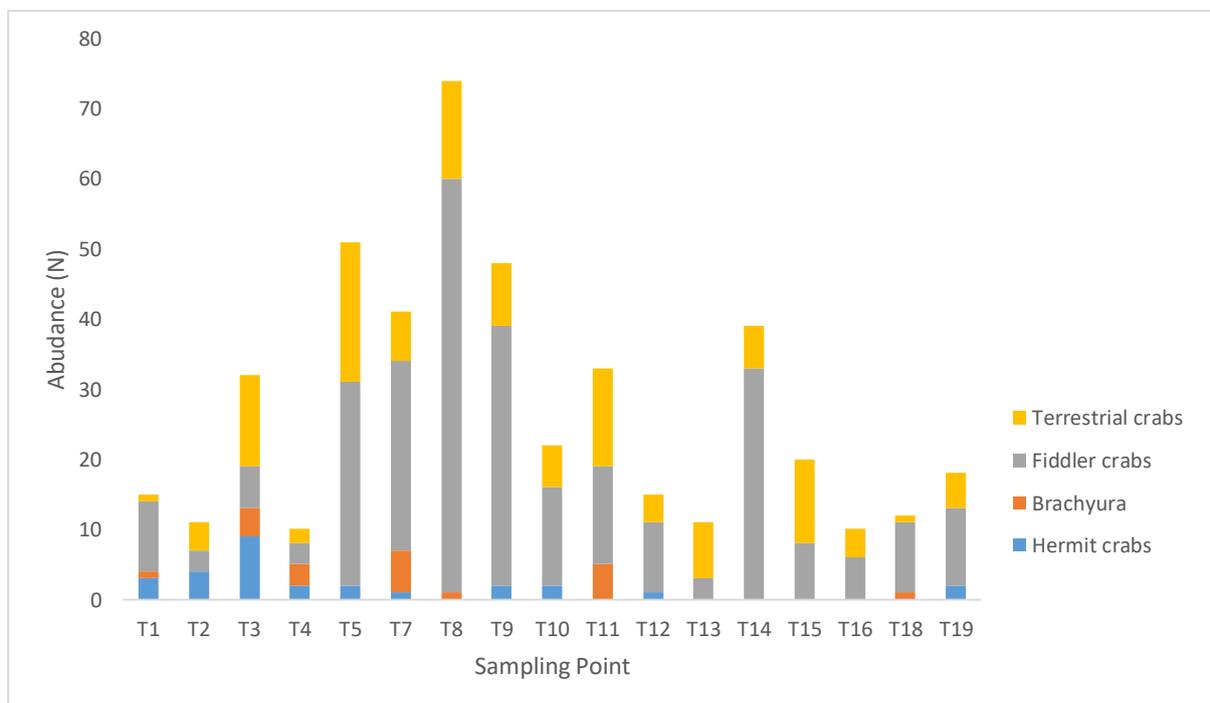


Figure 9: Abundance of different crab groups along Mweze creek. The sampling points are recorded from the Mouth of the creek: T1 is at Ras Bofu; T2 to T3 between Ras Bofu to Puma Primary; T4 to T8 between Puma Primary and Peleleza Primary School; T9 to T13 between Peleleza to Jamvi la Wageni; T13 to T19 between Jamvi la Wageni to Kimaru Estate.

### Association between Mangrove Density and Crabs abundance

Correlation analysis for the abundance of four crab families and mangrove density indicated that fiddler crabs were likely to increase in numbers with increase in mangrove

density whereas hermit crabs and Brachyura and terrestrial crabs decrease in similar conditions (table 2).

Table 2: The Strength and direction of the linear relationship between mangrove density / ha and abundance of various crab groups.

| Fauna Group       | Pearson product moment correlation (R) value |
|-------------------|----------------------------------------------|
| Hermit crabs      | -0.49369                                     |
| Brachyura         | -0.33619                                     |
| Fiddler crabs     | 0.69409                                      |
| Terrestrial crabs | -0.00965                                     |

Vegetation cover and other abiotic factors such as sediment size and cohesiveness may influence the feeding and burrowing behaviour of various crab species. For instance, brachyuran crabs, which were observed only points with at least two mangrove species, have been showed to vary with vegetation structure and food availability (Mokhtari et al., 2015).

Moreover, crab communities can respond in different ways to mangrove development *i.e.* depending on plant species composition and habitat heterogeneity (Li et al. 2015). Indeed, habitat heterogeneity due to the presence of open and close canopy area, roots and channels within mangrove stands may induce spatial or temporal variations in crab assemblages through the modification of sediment properties. For instance, many *Uca* species are associated with shaded areas are more abundant in the young mangroves with closed canopies (Amouroux & Tavares 2005). On the other hand, majority of terrestrial crabs and hermit crabs are exclusive to sunlight-exposed and highly-saline sediments of the pioneer mangrove, likely due to successful larval survival and juvenile in such conditions.

## Molluscs

Molluscs are one of the dominant invertebrate groups in the mangrove community and have an important ecological role in the structure and function of mangrove systems. For instance, they form an important link in the transfer of organic matter from mangroves to the third trophic level *i.e.* secondary consumer such as fish and bird (Printrakoon et al 2008). In addition, the abundance and diversity of molluscs have been

historically used as an indicator of ecosystem health and local biodiversity in mangrove (Amin et al 2009). Economically, molluscs are an important source of food and are useful in making of ornaments, manufacturing cement and pharmaceutical products (Jaiswar & Kulkarni 2005).

Bivalves and gastropods are the main molluscs of intertidal mangrove forests and often show marked zonation patterns both horizontally and vertically, due to variation in factors such as hydroperiod, availability of organic matter and sediment characteristics (Lee 2008). Gastropods have high distribution in the mangrove forests probably due to their mobile characteristic, while bivalves are often confined to a narrow seaward zone, due to feeding, larval settlement restrictions and sediment texture such as low pH and high organic matter (Kabir et al. 2014).

In total, seven gastropods and three bivalve species were recorded during the survey. Specific gastropods included *Littoraria scabra*, *Littoraria glabrata*, *Planaxis sulcatus*, *Cerithidea decoliate*, *Nerita undata* and *Phenacolinia galathea*. It was however peculiar that unlike in other mangrove ecosystems studies in Kenya, we did not record any *Terebralia palustris* (gastropods) individuals, which are usually the most common mollusc in these ecosystems. Bivalve species identified included *Meropista nicobarica*, *Crassostrea cucullate* and *Modiolus philippinarum*.



Figure 10: *Littoraria scabra* on an *Avicenia marina* stem in Jamvi section of Mweza Creek.

Gastropods abundance was particularly high (15-30 individuals /m<sup>2</sup>) in sampling points corresponding with those with high mangrove densities and more than one variety *i.e.* in Peleleza, Jamvi and Kimaru estate areas (Fig. 11). The high abundance of gastropods in between Peleleza and Jamvi areas can be linked to presence of *Rhizophara mucronata* species which also grow in soils with high total nitrogen content compared to *Ceriops* and *Avicennia* species (Irma & Sofyatuddin 2012). Past Kimaru estate, the soils have high salinity conditions, due to the infrequent spring tide inundation, hence limiting the ability of gastropods to acquire nutrients.

On the other hand, abundance of bivalves was relatively high in Bofu, Puma and the seaward sections of Peleleza and Jamvi areas and relatively low in the spring tide-inundated Kimaru estate sections. This is because they are confined to microhabitats below mean high water and are usually abundant in areas adjacent to open water (Menzel 1991). Moreover, bivalves are unable to tolerate long periods of exposure to air and fluctuating salinities hence have a low abundance in upper, Kimaru Estate, sections of the creek (Nagelkerken et al 2008).

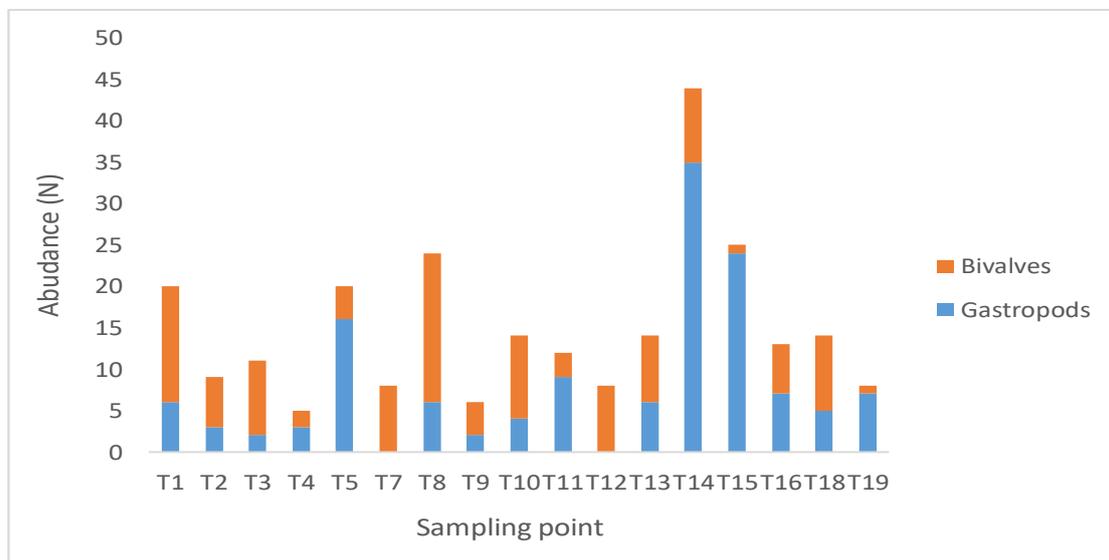


Figure 11: Abundance of two main mollusc classes along Mweza creek. The sampling points are recorded from the Mouth of the creek: T1 is at Ras Bofu; T2 to T3 between Ras Bofu to Puma Primary; T4 to T8 between Puma Primary and Peleleza Primary School; T9 to T13 between Peleleza to Jamvi la Wageni; T13 to T19 between Jamvi la Wageni to Kimaru Estate.

## Fauna Alpha Biodiversity Along Mweza Creek

Relatively high values (1.7- 2.3) of Shannon Weiner (H) indices were recorded in zones between Puma, Peleleza and Jamvi compared to Bofu and Kimaru Estate (0.5- 1.6) (Fig. 12). In Puma, the high diversity index could be attributed to the habitat complexity of the sites as there were both algae pools and a few mangroves compared to other sites which either had only one type or none of these flora covers. Both Peleleza and Jamvi areas also had relatively high biodiversity indices which could be attributed to the habitat stability in terms of mild salinity variations due to daily tidal inundation. This contrasts with Kimaru estate area which may experience high levels of salinity variation due to the infrequent spring tide inundation.

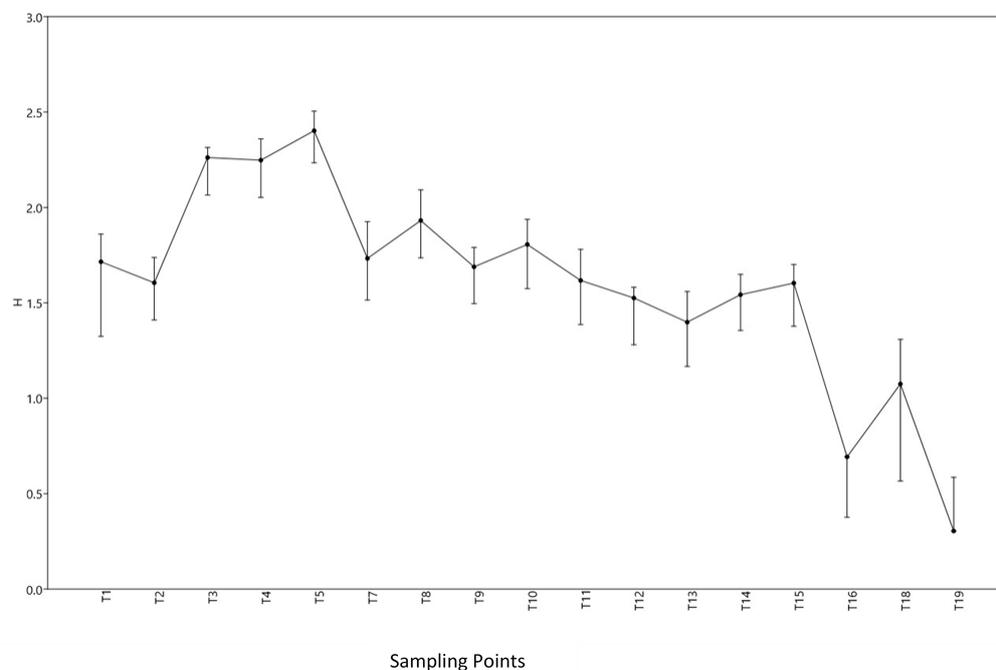


Figure 12: Variation in Biodiversity richness based on Shannon Weiner index (H) along Mweza creek. The sampling points are recorded from the Mouth of the creek: T1 is at Ras Bofu; T2 to T3 between Ras Bofu to Puma Primary; T4 to T8 between Puma Primary and Peleleza Primary School; T9 to T13 between Peleleza to Jamvi la Wageni; T13 to T19 between Jamvi la Wageni to Kimaru Estate.

## Fisheries

Fishing activities around Mweza creek are artisanal, with most fishers using pen (fence) traps. The traps are normally set at a perpendicular or oblique angle to trap fish in ebbing tides especially during spring tides (Samoilys, 2011). They target sardines and other fish swimming close to the beach. In total, six pen traps were recorded along the creek and 30 species of fish were recorded by local names, based on the landed catch and lists derived from interviews with fishermen. The fish was then identified to species level using fishbase database system (<http://www.fishbase.org>). See table 3 below.

Table 3: Fish species landed at Mweza creek.

| Family        | English name | Local name         | Scientific name                 |
|---------------|--------------|--------------------|---------------------------------|
| Sphyranidae   | Barracuda    | Tengezi            | <i>Sphyraena jello</i>          |
| Chanidae      | Milk Fish    | Mwatiko            | <i>Chanos chanos</i>            |
| Scombridae    | King Fish    | Nguru              | <i>Acanthocybium solandri</i>   |
| Chronimustol  | Queen Fish   | Pandu              | <i>Scomberoides lysan</i>       |
| Istiophoridae | Sail Fish    | Sulisuli           | <i>Istiophorus platypterus</i>  |
| Arangidae     | Bonito/ Tuna | Jodari             | <i>Katsuwonus pelamis</i>       |
| Colyphaenidae | Dorado       | Falusi             | <i>Coryphaena hippurus</i>      |
|               | Octopus      | Pweza              | <i>Octopus vulgaris</i>         |
| Squimosae     | Squids       | Ngisi              | <i>Loligo vulgaris</i>          |
| Lenthridae    | Rabbit fish  | Changu             | <i>Siganus sutor</i>            |
| Lutjanidae    | Snappers     | Tembo              | <i>Lutjanus monostigma</i>      |
| Scaridae      | Parrot fish  | Pono               | <i>Leptoscarus vaigiensis</i>   |
| Acanthuridae  | Surgeon      | Kangaja/ Karazanga | <i>Acanthurus nigrofuscus</i>   |
| Acanthuridae  | Unicorn      | Puju               | <i>Naso brevirostris</i>        |
| Haemuridae    | Grunter      | Pamamba            | <i>Plectorhinchus gaterinus</i> |
| Serranidae    | Pouter       | Chaa               | <i>Cephalopholis argus</i>      |
| Haemulidae    | Black skin   | Fute/Makoe         | <i>Gaterin sordidus</i>         |
| Mulidae       | Goat fish    | Mkundaji           | <i>Parupeneus spilurus</i>      |
| Lutjanidae    | Streaker     | Pali               | <i>Aprion virescens</i>         |
| Serranidae    | Rock Cod     | Tewa/ Kivungwi     | <i>Pseudophycis barbata</i>     |
| Aridae        | Cat Fish     | Fumi               | <i>Bagre marinus</i>            |
| Palinuridae   | Lobsters     | Kamba-mawe         | <i>Penulirus spp</i>            |
| Penaeidae     | Prawns       | Kamba-wadogo       | <i>Paenus spp</i>               |



Figure 13: A pen trap at Puma and samples of fish (Rock lobster, Rabbit fish, Pouter, Grunter, and sardines) landed at Bofu.

The high number of fish species in such a small setting reflects the species richness along the entire East African Coast. The region's high fish species diversity is an issue that attracts immense scientific endeavour and also pose enormous challenges to protect biological diversity and sustainable development. These two are inextricably linked. Additionally, this problem is compounded by the low capacity to report landings in artisanal and subsistence fisheries is frequently lacking in most parts of the Kenya coast, partly because of infrastructure problems. In Mweza creek for instance, there is no designated landing site, often identified by a shed (Banda), nor an fisheries department office, to record daily catch. Therefore, chances are that lots of information on the fisheries is not captured.

### Terrestrial Vegetation

In total, 52 plant species, comprising of trees, shrubs, grasses and forbs were identified during the survey. The number of plant species increased from Bofu area (points A18 to A25) to Kimaru Estate, the section coinciding with starting point of the dry section of the creek (Fig. 14). This can be attributed to the landward decrease in soil conductivity. A study investigating transition thresholds between estuarine to terrestrial vegetation in South Africa outlined that terrestrial vegetation cover decreases seaward due to the increase in soil electrical conductivity, groundwater salinity and sediment moisture content (Veldokornet and Potts, 2015).

The sharp decline in number of plants species from Kimaru Estate to Kona Mbaya, was attributed to change in land-use practices along the creek. For instance, there was increased farming/ land cultivation as well as development of residential areas especially in Mtongwe area. Common crops grown included maize, bananas, green glams, beans, palms etc.

In addition, four sacred forest shrines (Kayas) were listed along the creek: Makame in Bofu (A3), Pangawazi in Jamvi (A16), Mkwajuni A 29 and Ganjini (31) in Mtongwe, area. Number of plant species was relatively high (22, 32, 15 and 16 respectively) compared to the surrounding sampling points. Beginning in the mid-1980s, botanists and ecologists have become increasingly aware of the value of the kaya as repositories of rare plant species, and of the threats to them. For instance, at the Ganjini Kaya, it was noted that the landmark tree had been recently cut for charcoal burning (Fig. 15).

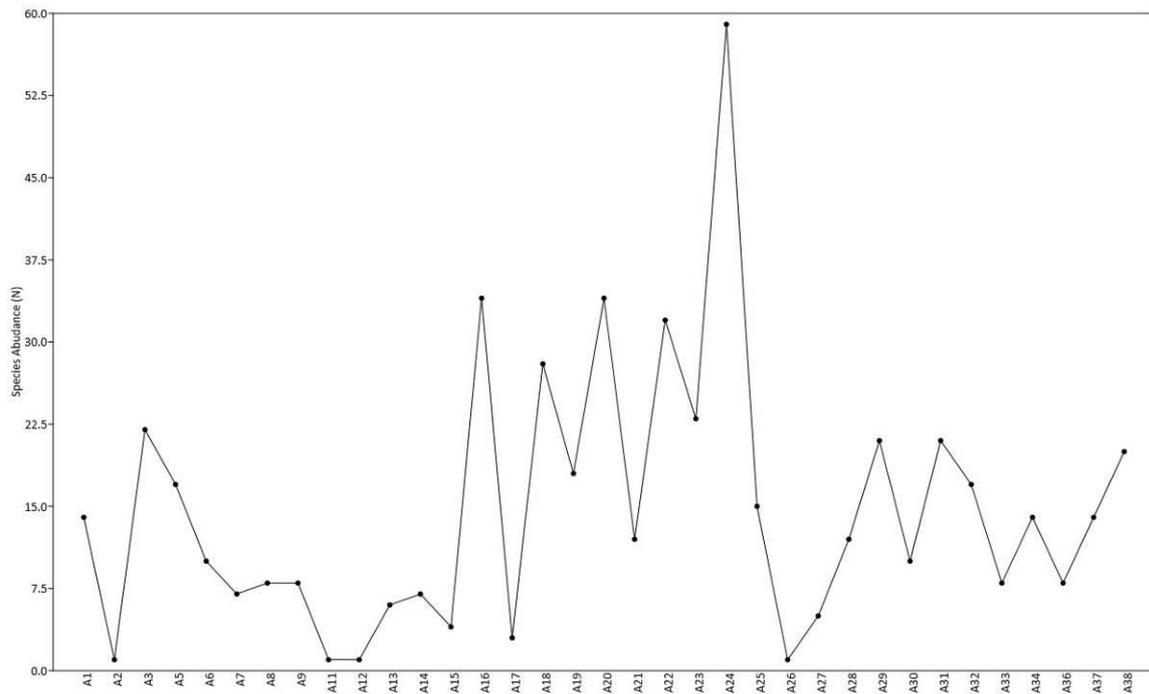


Figure 14: Variation in number of terrestrial plant Species along Mweza creek. The sampling points are recorded from the Mouth of the creek, A1 (at Ras Bofu) upstream to A38 (Kona Mbaya).

## Important Trees

Several trees of great ecological and socio-economic importance were identified during the survey. Majority of the trees have more than one use e.g. Source of fuel, medicine and food. They include:

### a) Baobab (*Adansonia digitata*)

The Baobab is very important for humans and animals in the arid regions of Africa. Many animals feed on its leaves, flowers and fruits. Fibre from the bark is used to make rope, baskets, cloth, musical instrument strings, and waterproof hats. While stripping the bark from the lower trunk of most trees usually leads to their death, baobabs not only survive this common practice, but they regenerate new bark. Fresh baobab leaves provide an edible vegetable similar to spinach which is also used medicinally to treat kidney and bladder disease, asthma, insect bites, and several other maladies. The tasty and nutritious fruits and seeds of several species are sought after, while pollen from the is mixed with water to make glue.



Figure 15: *Ficus bussei* tree cut at the Ganjoni shrine. Parts of the tree were used for charcoal production.

b) Neem Tree (*Azadirachta indica*)

In Kenya, especially along the Coast, the Neem tree is very common: in Kiswahili its name is "Muarubaini", which means the tree of the forty cures. The tree, which grows up to 30 meters and can reach an age between 100 and 200 years, provides shade and timber. The seeds, leaves and bark can be used to produce medical, cosmetic and insecticidal products. Extracts from seeds and leaves can be turned into medicines against many ailments as well as insecticides for agricultural use.

In addition, the oil produced out of the seeds, is a much sought-after ingredient for cosmetic products. Because it is an evergreen and fast-growing tree, Neem is a favourite for reforestation. The wood is useful as building timber because termites will not attack it. When planted on slopes, the tree can help to combat erosion and landslides. The fallen leaves help to neutralise acidic soils.

c) *Rhodognaphalon schumannianum*

This is a deciduous tree with a medium crown; it can grow up to 40 metres tall. The straight, cylindrical bole can be free of branches for up to 21 metres; it is up to 150 cm in diameter, with buttresses up to 3 metres high. The tree is harvested from the wild for local use, mainly as a source of fibre, medicine and edible seeds. The tree is sometimes cultivated for food etc and is also planted to provide shade and as an avenue tree. The wood is used locally and traded.



Figure 16: *Adisonia Digitata* (Mbuyu) at Bofu area and *Hyphaena thebaica* (Mvumi) towering above other trees at Jamvi section of Mweza creek.

### Conservation Status of Biodiversity in Mweza

On overall, 15 fish species, 3 mangroves, 15 terrestrial flora of the identified biodiversity are listed under the Least Concern (LC) category, based on the IUCN Red list criteria. All the identified crabs, molluscs and algae are listed under the Not Evaluated (NE) category alongside six fish species and 39 terrestrial plant species. Finally, only three terrestrial floral species; *Boureria petiolaris*, *Saccharum Andropogonea*, *Mangifera indica* are listed under the Data Deficient (DD) category. See table 4, 5 and 6 for mangroves, Algae fauna, terrestrial flora, fish, IUCN Red List status.

Table 4: List of Mangrove, Algae and Fish species identified along Mweza Creek and their respective IUCN Red List Status. The lobsters and Prawns were identified to genus level; hence their status was not listed. N.B, NE is Not Evaluated, DD is Data Deficient, and LC is Least Concern. Refer for table 1 for details.

#### Mangroves

| Species                     | IUCN red list Status |
|-----------------------------|----------------------|
| <i>Ceriops tagal</i>        | LC                   |
| <i>Avicenia marina</i>      | LC                   |
| <i>Rhizophora mucronata</i> | LC                   |

#### Algae

| Species                       | IUCN red list Status |
|-------------------------------|----------------------|
| <i>Canistocarpus crispata</i> | NE                   |
| <i>Ulva reticulata</i>        | NE                   |
| <i>C. cerviconnis</i>         | NE                   |

#### Fish

| Family        | English name | Scientific name                 | IUCN Red List status |
|---------------|--------------|---------------------------------|----------------------|
| Sphyranidae   | Barracuda    | <i>Sphyraena jello</i>          | NE                   |
| Chanidae      | Milk Fish    | <i>Chanos chanos</i>            | LC                   |
| Scombridae    | King Fish    | <i>Acanthocybium solandri</i>   | LC                   |
| Chronimustol  | Queen Fish   | <i>Scomberoides lysan</i>       | LC                   |
| Istiophoridae | Sail Fish    | <i>Istiophorus platypterus</i>  | LC                   |
| Arangidae     | Bonito/ Tuna | <i>Katsuwonus pelamis</i>       | LC                   |
| Colyphaenidae | Dorado       | <i>Coryphaena hippurus</i>      | LC                   |
|               | Octopus      | <i>Octopus vulgaris</i>         | NE                   |
| Squimosae     | Squids       | <i>Loligo vulgaris</i>          | NE                   |
| Lenthridae    | Rabbit fish  | <i>Siganus sutor</i>            | NE                   |
| Lutjanidae    | Snappers     | <i>Lutjanus monostigma</i>      | LC                   |
| Scaridae      | Parrot fish  | <i>Leptoscarus vaigiensis</i>   | LC                   |
| Acanthuridae  | Surgeon      | <i>Acanthurus nigrofuscus</i>   | LC                   |
| Acanthuridae  | Unicorn      | <i>Naso brevirostris</i>        | LC                   |
| Haemuridae    | Grunter      | <i>Plectorhinchus gaterinus</i> | NE                   |
| Serranidae    | Pouter       | <i>Cephalopholis argus</i>      | LC                   |
| Haemulidae    | Black skin   | <i>Gaterin sordidus</i>         | LC                   |
| Mulidae       | Goat fish    | <i>Parupeneus spilurus</i>      | LC                   |
| Lutjanidae    | Streaker     | <i>Aprion virescens</i>         | LC                   |
| Serranidae    | Rock Cod     | <i>Pseudophycis barbata</i>     | NE                   |
| Aridae        | Cat Fish     | <i>Bagre marinus</i>            | LC                   |
| Palinuridae   | Lobsters     | <i>Penulirus spp</i>            | -                    |
| Penaeidae     | Prawns       | <i>Paenus spp</i>               | -                    |

Table 5: List of benthic species identified along Mweza creek and their respective IUCN Red List Status

| Species                         | Form      | Class        | Order           | Family           | Genus          | Species       | Taxonomist                   | IUCN status |
|---------------------------------|-----------|--------------|-----------------|------------------|----------------|---------------|------------------------------|-------------|
| <i>Uca Urvillei</i>             | Crab      | Malacostraca | Decapoda        | Ucinae           | Uca            | Urvillei      | H. Milne Edwards             | NE          |
| <i>Sesarmops imprescus</i>      | Crab      | Malacostraca | Decapoda        | Sesarmidae       | Sesarmops      | imprescus     | H. Milne Edwards             | NE          |
| <i>Uca annulipes</i>            | Crab      | Malacostraca | Decapoda        | Ucinae           | Uca            | annulipes     | H. Milne Edwards             | NE          |
| <i>Uca choropthalmus</i>        | Crab      | Malacostraca | Decapoda        | Ucinae           | Uca            | choropthalmus | H. Milne Edwards             | NE          |
| <i>Uca Inversa</i>              | Crab      | Malacostraca | Decapoda        | Ucinae           | Uca            | Inversa       | Hoffman                      | NE          |
| <i>Nanosesarma minutum</i>      | Crab      | Malacostraca | Decapoda        | Sesarmidae       | Nanosesarma    | minutum       | (De Man, 1887)               | NE          |
| <i>Ocypode ryderi</i>           | Crab      | Malacostraca | Decapoda        | Ocypodidae       | Ocypode        | ryderi        | Kingsley, 1880               | NE          |
| <i>Macrophthalmus boscii</i>    | Crab      | Malacostraca | Decapoda        | Ocypodidae       | Macrophthalmus | boscii        | Audouin, 1826                | NE          |
| <i>Pseudograpsus elongatus</i>  | Crab      | Malacostraca | Decapoda        | Varunidae        | Pseudograpsus  | elongatus     | A. Milne-Edwards, 1873       | NE          |
| <i>Planaxis sulcatus</i>        | Gastropod | Gastropoda   | Caenogastropoda | Planaxidae       | Planaxis       | sulcatus      | (Born, 1778)                 | NE          |
| <i>Nodilittorina natalensis</i> | Gastropod | Gastropoda   | Littorinimorpha | Littorinidae     | Nodilittorina  | natalensis    | (Philippi, 1847)             | NE          |
| <i>Littoraria scabra</i>        | Gastropod | Gastropoda   | Littorinimorpha | Littorinidae     | Littoraria     | scabra        | (Linnaeus, 1758)             | NE          |
| <i>Uca vocans</i>               | Crab      | Malacostraca | Decapoda        | Ucinae           | Uca            | Vocans        | <i>hesperiae</i> Crane, 1975 | NE          |
| <i>Modiolus philippinarum</i>   | Bivalve   | Bivalvia     | Mytiloidea      | Mytilidae        | Modiolus       | philippinarum | Hanley, 1843                 | NE          |
| <i>Nerita undata</i>            | Gastropod | Gastropoda   | Cycloneritida   | Neritidae        | Nerita         | undata        | Linnaeus, 1758               | NE          |
| <i>Uca tetragonon</i>           | Crab      | Gastropoda   | Decapoda        | Ucinae           | Uca            | tetragonon    | Herbst                       | NE          |
| <i>Phenacolipur galathea</i>    |           | Gastropoda   |                 | Phenacolepadidae | Phenacolipur   | galathea      | -                            | NE          |
| <i>Pinotheres sp</i>            | Crab      | Malacostraca | Decapoda        | Pinotheroidea    | Pinotheres     | sp.           | -                            | NE          |

|                                |            |                   |                  |                   |                |             |                          |    |
|--------------------------------|------------|-------------------|------------------|-------------------|----------------|-------------|--------------------------|----|
| <i>Diogenes avarus</i>         | Crab       | Malacostraca      | Decapoda         | Diogenidae        | Diogenes       | avarus      | Heller, 1865             | NE |
| <i>Phascolosoma sp</i>         | Annelid    | Phascolosomatidea | Phascolosomatida | Phascolosomatidae | Phascolosoma   | sp.         | Johnson, 1971            | NE |
| <i>Planes cyaneus</i>          | Crab       | Malacostraca      | Decapoda         | Grapsidae         | Planes         | cyaneus     | Dana, 1851               | NE |
| <i>Cardisoma carnifex</i>      | Crab       | Malacostraca      | Decapoda         | Gecarcinidae      | Cardisoma      | carnifex    | Herbst                   | NE |
| <i>Dardanus deformis</i>       | Crab       |                   |                  | Paguroidea        | Dardanus       | deformis    | H. Milne Edwards         | NE |
| <i>Pseudohelice quadrata</i>   | Crab       | Malacostraca      | Decapoda         | Varunidae         | Pseudohelice   | quadrata    | Heller, 1865             | NE |
| <i>Sarmatium crassum</i>       | Crab       | Malacostraca      | Decapoda         | Sesarmidae        | Sarmatium      | crassum     | -                        | NE |
| <i>Uca tuberculata</i>         | Crab       |                   |                  | Ucinae            | Uca            | tuberculata | -                        | NE |
| <i>Neosarmatium Smithii</i>    | Crab       | Malacostraca      | Decapoda         | Sesarmidae        | Neosarmatium   | Smithii     | H. Milne Edwards         | NE |
| <i>Cerithidea decoliata</i>    | Gastropod  | Gastropoda        | Caenogastropoda  | Potamididae       | Cerithidea     | decoliata   | (Linnaeus, 1767)         | LC |
| <i>Chiromantes eulimene</i>    | Crab       | Malacostraca      | Decapoda         | Sesarmidae        | Chiromantes    | eulimene    | (de Man in Weber, 1897)  | NE |
| <i>Epixanthus frontalis</i>    | Crab       | Malacostraca      | Decapoda         | Oziidae           | Epixanthus     | frontalis   | (H. Milne Edwards, 1834) | NE |
| <i>Polyopthalmus pictus</i>    | Annelid    | Polychaeta        | Scolecida        | Opheliidae        | Polyopthalmus  | pictus      | (Dujardin, 1839)         | NE |
| <i>Sthenelais boa</i>          | Annelid    | Polychaeta        | Phyllodocida     | Sigalionidae      | Sthenelais     | boa         | (Johnston, 1833)         | NE |
| <i>Periophthalmus sobrinus</i> | Mudskipper | Ostichthyes       |                  | Gobiidae          | Periophthalmus | sobrinus    | -                        | NE |
| <i>Neosarmatium meinerta</i>   | Crab       | Malacostraca      | Decapoda         | Sesarmidae        | Neosarmatium   | meinerta    | DeMan                    | NE |
| <i>Philyra platycheir</i>      | Crab       | Malacostraca      | Decapoda         | Leucosiidae       | Philyra        | platycheir  | De Haan, 1841            | NE |
| <i>Calcinus laevimanus</i>     | Crab       | Malacostraca      | Decapoda         | Diogenidae        | Calcinus       | laevimanus  | (Randall, 1840)          | NE |
| <i>Chthamalus dentatus</i>     | Crab       | Hexanauplia       | Sessilia         | Chthamalidae      | Chthamalus     | dentatus    | Krauss, 1848             | NE |
| <i>Crassostrea</i>             | Bivalve    | Bivalvia          | Ostreida         | Ostreidae         | Crassostrea    | cucullata   | (Born, 1778)             | NE |

|                             |         |              |                 |              |            |            |                  |    |
|-----------------------------|---------|--------------|-----------------|--------------|------------|------------|------------------|----|
| <i>cucullata</i>            |         |              |                 |              |            |            |                  |    |
| <i>littoraria glabrata</i>  |         | Gastropoda   | Littorinimorpha | Littorinidae | littoraria | glabrata   | (Philippi, 1846) | NE |
| <i>Meropesta nicobarica</i> | Cockles | Bivalvia     | -               | mactridae    | Meropesta  | nicobarica | Gmerin           | NE |
| <i>Coenobita rugosus</i>    | Crab    | Malacostraca | Anomura         | Coenobitae   | Coenobita  | rugosus    | H. Milne Edwards | NE |
| <i>Etisus laevimanus</i>    | Crab    | Malacostraca | Decapoda        | Xanthoidea   | Etisus     | laevimanus | Randall          | NE |



Table 6: List of terrestrial fauna along Mweza creek and their current IUCN Red List Status.

| <b>Common Name</b> | <b>Scientific name</b>             | <b>IUCN Red List Status</b> |
|--------------------|------------------------------------|-----------------------------|
| Bouganvillee       | <i>Bougainvillea berberidifoli</i> | NE                          |
| Eucalyptus         | <i>Eucalyptus saligna</i>          | NE                          |
| Grasses            | <i>Pennisetum clandestinum</i>     | NE                          |
| Konge              | <i>Agave tequilana</i>             | NE                          |
| Lantana Camara     | <i>Lantana Camara</i>              | NE                          |
| Lukina             | <i>Cytisus proliferus</i>          | LC                          |
| Mahindi            | <i>Zea mays</i>                    | NE                          |
| Mbaazi             | <i>Cajanas cajan</i>               | NE                          |
| Mbokwe             | <i>Boureria petiolaris</i>         | NE                          |
| Mbonobono          | <i>Ricinus communis</i>            | NE                          |
| Mbopwe             | <i>Boureria petiolaris</i>         | DD                          |
| Mbuyu              | <i>Adansonia digitata</i>          | NE                          |
| Mchongoma          | <i>Flacourtia indica</i>           | NE                          |
| Mdago              | <i>Cyperus alternifolius</i>       | LC                          |
| Mdodoki            | <i>Hibiscus tiliaceus</i>          | NE                          |
| Mfagio             | <i>Triumfetta sonderi</i>          | NE                          |

|          |                                 |    |
|----------|---------------------------------|----|
| Mfenesi  | <i>Artocarpus heterophyllus</i> | NE |
| Mgoza    | <i>Asimina triloba</i>          | NE |
| Mgundi   | <i>Ficus zanzibarica</i>        | NE |
| Mifagio  | <i>Triumfetta spp</i>           | NE |
| Migomba  | <i>Musa acuminata</i>           | NE |
| mijasasa | <i>Zythoxylum calibium</i>      | NE |
| Mikone   | <i>Grewia plaggiophlla</i>      | NE |
| mipapai  | <i>Asimina triloba</i>          | NE |
| Miwa     | <i>Saccharum Andropogonea</i>   | DD |
| Miyaa    | <i>Rafia ruffia</i>             | NE |
| Mjafari  | <i>Zythoxyllum calibium</i>     | NE |
| Mkayamba | <i>Delonix regia</i>            | LC |
| Mkoko    | <i>Rhizophora mucronata</i>     | LC |
| Mkoma    | <i>Hyhaene coriacea</i>         | LC |
| Mkone    | <i>Grewia plaggiophlla</i>      | NE |
| Mkunazi  | <i>Ziziphus mauritiana</i>      | NE |
| Mkunde   | <i>Vigna unguiculata</i>        | NE |

|              |                              |    |
|--------------|------------------------------|----|
| Mkuyu        | <i>Ficus bussei</i>          | NE |
| Mkwaju       | <i>Tamarindus indica</i>     | LC |
| Mlambuzi     | <i>Apodytes dimidiata</i>    | NE |
| Mnazi        | <i>cocos nucifera</i>        | NE |
| Mng'ong'o    | <i>Sclerocarya birrea</i>    | NE |
| Mnuka uvundo | <i>Clerodendrum inermis</i>  | LC |
| Mpera        | <i>Psidium guavaja</i>       | NE |
| Msanduku     | <i>Canthium vensum</i>       | NE |
| Mshomoro     | <i>Lantana camara</i>        | LC |
| Msufi        | <i>Bombax rhodognaphalon</i> | LC |
| Msundusi     | <i>Heritiera littoralis</i>  | LC |
| Mtendeti     | <i>Phoenix dactylifera</i>   | LC |
| Mterere      | <i>Hoslundia opposita</i>    | NE |
| Mtomoko      | <i>Annona cherimola</i>      | NE |
| Muongo       | <i>Acacia benthamii</i>      | LC |
| Muunzi       | <i>Moringa oleifera</i>      | NE |
| Mvumo        | <i>Ficus tremula</i>         | LC |

|               |                                  |    |
|---------------|----------------------------------|----|
| Mvwaka        | <i>Denbolia bobonica</i>         | LC |
| Mwarubaini    | <i>Azadirachta indica</i>        | NE |
| Mwembe        | <i>Mangifera indica</i>          | DD |
| Mzambarau     | <i>Syzygium cuminii</i>          | LC |
| Palm          | <i>Cocos nucifera</i>            | NE |
| Passion fruit | <i>Passiflora quadrangularis</i> | NE |
| Sodom apple   | <i>Solonom incanum</i>           | NE |

## CONCLUSION

From the survey, it evident that Mweza creek is a complex system comprising of both terrestrial and intertidal ecosystems. The proposed bridge may have a significant impact on both ecosystems. For instance, its expected the bridge will interfere with intertidal sediment profile, hence influencing the zonation of crabs and molluscs. Since the diversity and abundance of molluscs and crabs are potent biological indicators of changing habitat in mangrove ecosystem (Macintosh et al 2002) and can therefore be used to monitor ecological changes along the bridge, once it is operational.

Moreover, there is need for detailed studies on fishery processes and practices along the creek. This is because creeks are important breeding grounds for fish and are at the same time easily accessed by fishermen who may use destructive gears and unsustainable fishing methods. Although majority of the fishermen using pen traps will be evicted to pave way for the bridge, it is important to know in how fish

communities will change and how this may influence the intertidal fauna community in the bottom of the food chain.

Finally, clearing of terrestrial vegetation during the construction phase may impact the livelihoods of people depending on them for food and other derivatives not to mention the spiritual heritage and recreation benefits. For instance, community members mentioned their attachment to the old *Adisonia Digitata* (Mbuyu) at Bofu area and *Hyphaena thebaica* (Mvumi) at Bofu and Jamvi areas respectively (see fig.16), both which stand in the way of the proposed bridge. It is therefore important to align the development goals with the needs of the indigenous communities.

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# ANNEXES

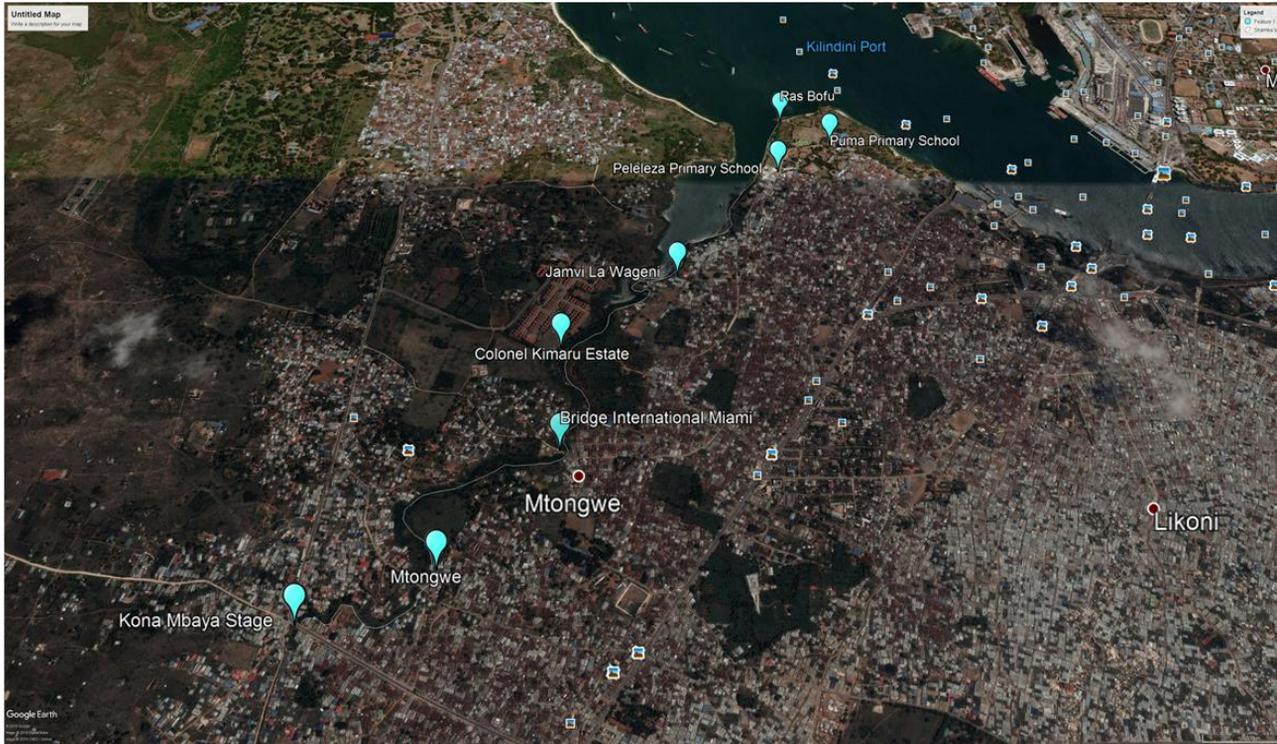


Fig Annex 1: Aerial View of Mweza Creek showing the creek and its catchment area.



Fig Annex 2: An active dumping site near Mtongwe area, along Mweza Creek. Similar dumpsites were observed near Puma and Jamvi areas.

Table Annex 1: Geographical coordinates (UPS system) of sampling points along the intertidal section of Mweza Creek. T1 is at Ras Bofu; T2 to T3 between Ras Bofu to Puma Primary; T4 to T8 between Puma Primary and Peleleza Primary School; T9 to T13 between Peleleza to Jamvi la Wageni; T13 to T19 between Jamvi la Wageni to Kimaru Estate.

|     |           |          |
|-----|-----------|----------|
| T1  | -05722072 | 9549036  |
| T2  | -0571507  | 95477990 |
| T3  | -05672229 | 9549321  |
| T4  | -0572102  | 9549068  |
| T5  | -0572106  | 9549093  |
| T7  | -0571965  | 9548824  |
| T8  | -0571854  | 9548695  |
| T9  | -0571770  | 9548611  |
| T10 | -0571651  | 9548590  |
| T11 | -0571681  | 9548513  |
| T12 | -0571582  | 9548406  |
| T13 | -0571552  | 9548344  |
| T14 | -0571453  | 9548299  |
| T15 | -0571402  | 9548164  |
| T16 | -0571463  | 9548100  |
| T18 | -0571400  | 9548174  |
| T19 | -0571404  | 9548163  |

Table Annex 2: Geographical coordinates (UPS system) of sampling points along the terrestrial section of Mweza Creek. The sampling points are recorded from the Mouth of the creek, A1 (at Ras Bofu) upstream to A38 (Kona Mbaya).

| Sampling Point | X        | Y       |
|----------------|----------|---------|
| A1             | -0572427 | 9549517 |
| A2             | -0572407 | 9549491 |
| A3             | -0572303 | 9549467 |
| A4             | -0572303 | 9549467 |

|     |           |         |
|-----|-----------|---------|
| A5  | -0572290  | 9549338 |
| A6  | -0572231  | 9549264 |
| A7  | -0572098  | 9549038 |
| A8  | -0572074  | 9549014 |
| A9  | -0572071  | 9548960 |
| A10 | -0572070  | 9548885 |
| A11 | -0571985  | 9548816 |
| A12 | -0571968  | 9458815 |
| A13 | -0571902  | 9548792 |
| A14 | -0571867  | 9548710 |
| A15 | -0571802  | 9548613 |
| A16 | -0571671  | 9548558 |
| A17 | -0571746  | 9548518 |
| A18 | -0571671  | 9548478 |
| A19 | -0571608  | 9548411 |
| A20 | -0571576  | 9548334 |
| A21 | -0571456  | 9548263 |
| A22 | -0571428  | 9548153 |
| A23 | -0571532  | 9548024 |
| A24 | -0571500  | 9547988 |
| A25 | -0571462  | 9547944 |
| A26 | -0571409  | 9547894 |
| A27 | -0571448  | 9547832 |
| A29 | -0571234  | 9547812 |
| A30 | -0571120  | 9547750 |
| A31 | -0570989  | 9547676 |
| A32 | -05770938 | 9547633 |
| A33 | -0570880  | 9547544 |
| A34 | -0570880  | 9547544 |
| A34 | -0570010  | 954730  |
| A35 | -0570985  | 9547330 |
| A36 | -0570874  | 9547206 |
| A37 | -0570730  | 9547246 |
| A38 | -0570608  | 9547298 |

**Appendix 6.5 (b): Inventory of floral biodiversity**

**TREES, SHRUBS, CLIMBERS AND GRASSES ACCORDING TO THE TRANSECT**

**BOFU**

22/01/2018

| Family Name        | Scientific Name                | Tree/shrub /Grass/ Climber | Indigenous/Exotic | Uses/Importance                                                              |
|--------------------|--------------------------------|----------------------------|-------------------|------------------------------------------------------------------------------|
| 1. PALMAE          | <i>Hyphaene coriacea</i>       | Tree                       | Indigenous        | Fruits edible                                                                |
| 2. PALMAE          | <i>Raphia ruffia</i>           | Shrub                      | Indigenous        | Bast or raffia                                                               |
| 3. PANDANACEAE     | <i>Pandanus kirki</i>          | Tree                       | Indigenous        |                                                                              |
| 4. ANNONACEAE      | <i>Uvaria acuminata</i>        | shrub                      | Indigenous        | Fruits edible, roots and leaves used for treating stomach ache               |
| 5. ANNONACEAE      | <i>Xylopiya holtzii</i>        | Tree                       | Indigenous        | Treating snake bite                                                          |
| 6. APCYNACEAE      | <i>Rauwolfia mombasiana</i>    | Shrub                      | indigenous        |                                                                              |
| 7. EUPHORBIACEAE   | <i>Euphorbia gossypina</i>     | Tree                       | Indigenous        |                                                                              |
| 8. XYLOCARPUS      | <i>Xylocarpus benadirensis</i> | Tree                       | Indigenous        |                                                                              |
| 9. EUPHORBIACEAE   | <i>Suregada zanzibarensis</i>  | Tree                       | Indigenous        | The small green-yellow look like lime, they good for bird attraction         |
| 10. STERCULIACEAE  | <i>Starculia africana</i>      | Tree                       | Indigenous        | Bark yield good tying material. Tree is used as a sacred plant by Mijikenda. |
| 11. FLACOURTIACEAE | <i>Flacauttia indica</i>       | Tree                       | Indigenous        | Fruits edible, Jam is also obtained from fruits                              |
| 12. FLACOURTIACEAE | <i>Rawsonia lucida</i>         | Tree                       | Indigenous        |                                                                              |
| 13. HYPERICACEAE   | <i>Vismia orientalis</i>       | Tree                       | Indigenous        | Skin diseases                                                                |
| 14. GUTTIFERAE     | <i>Garcinia livingstone</i>    | Tree                       | Indigenous        | Fruits edible                                                                |
| 15. GRANDIDIERA    | <i>Grandidiera boivinii</i>    | Tree                       | Indigenous        |                                                                              |
| 16. HOSLUNDIA      | <i>Hoslundia opposita</i>      | Shrub                      | Indigenous        | Blood clotting when freshly cut                                              |
| 17. OLACACEAE      | <i>Ximenia ametican</i>        | tree                       | Exotic            | Fruits eaten raw with almond flavor                                          |
| 18. PAPILIONACEAE  | <i>Dalbergia melanoxydon</i>   | Tree                       | Indigenous        | Walking stick, Highly priced wood.                                           |
| 19. RHAMNACEAE     | <i>Ziziphus mauritiana</i>     | Tree                       | indigenous        | Fruits edible wood for beds dhows                                            |
| 20. RUBIACEAE      | <i>Canthium zanzibaricum</i>   | Shrub                      | Indigenous        | Fruits edible roots used as a love potion                                    |
| 21. TILIACEAE      | <i>Grewia plagiophyllus</i>    | Tree                       | indigenous        | Wood used to make hoe handles                                                |
| 22. TILIACEAE      | <i>Grewia holstii</i>          | Tree                       | indigenous        | Fruits edible                                                                |
| 23. VERBENACEAE    | <i>Lantana camara</i>          | Shrub                      | Exotic            | Mosquito repellent, avian pest                                               |

|                    |                               |       |            |                                                                                        |
|--------------------|-------------------------------|-------|------------|----------------------------------------------------------------------------------------|
| 24. MIMOSACEAE     | <i>Dichrostachys cinera</i>   | Shrub | indigenous |                                                                                        |
| 25. MIMOSACEAE     | <i>Acacia nilotica</i>        | Tree  | indigenous |                                                                                        |
| 26. LECYTHIDACEAE  | <i>Barringtonia racemosa</i>  | Tree  | Indigenous | Used for fencing,the bark yields tannin,also fish poison.                              |
| 27. BORAGINACEAE   | <i>Cordia subcordata</i>      | Tree  | Exotic     |                                                                                        |
| 28. BORAGINACEAE   | <i>Ehretia amoena</i>         | Tree  | indigenous |                                                                                        |
| 29. LOGANIACEAE    | <i>Strychnos spinosa</i>      | Tree  | Indigenous |                                                                                        |
| 30. ANACARDIACEAE  | <i>Mangifera indica</i>       | Tree  | Exotic     | Fruits edible and timber is obtained from the stem.                                    |
| 31. ANACARDIACEAE  | <i>Anacardium occidentale</i> | Tree  | Exotic     | Can be eaten raw,cheese and butter can also be obtained from the nuts.                 |
| 32. MIMOSACEAE     | <i>Acacia nilotica</i>        | Tree  | indigenous |                                                                                        |
| 33. MORACEAE       | <i>Ficus bussei</i>           | Tree  | Indigenous |                                                                                        |
| 34. ANACARDIACEAE  | <i>Ozoroa obovata</i>         | Tree  | Indigenous |                                                                                        |
| 35. MELIACEAE      | <i>Azadirachta indica</i>     | Tree  | Exotic     |                                                                                        |
| 36. AESALPINIACEAE | <i>Dialium orientale</i>      | Tree  | Exotic     | Juice can be obtained from the fruits.                                                 |
| 37. COMBRETACEAE   | <i>Terminalia catapa</i>      | Tree  | Exotic     | Fruits edible, good timber for furniture                                               |
| 38. HYPHAENE       | <i>Hyphaene coriacea</i>      |       | Indigenous | Leaves used for thatching, fruits edible.Hard timber can be obtained, also local brew. |
| 39. GUTTIFERAE     | <i>Garcinia livingstone</i>   | Tree  | Indigenous | Fruits edible, and plant used to mark boundaries                                       |
| 40. COMBRETACEAE   | <i>Terminalia spinosa</i>     | Tree  | Exotic     | Durable wood for dhows and canoe making                                                |
| 41. ANACARDIACEAE  | <i>Lannea schwerifurii</i>    | Tree  | Indigenous | Bark and roots contains a dark red and brown dye                                       |
| 42. EBENACEAE      | <i>Diospyros squarrosa</i>    | Tree  | Indigenous | Building traditional houses                                                            |
| 43. STERCULIACEAE  | <i>Colar minor</i>            | Tree  | Indigenous |                                                                                        |
| 44. STERCULIACEAE  | <i>Sterculiar africana</i>    | Tree  | Indigenous | Ropes, as a sacred tree, managing dysentery.                                           |
| 45. RHAMNACEAE     | <i>Ziziphus mucronata</i>     | Tree  | Indigenous | The pulp gives a refreshing beverage when put in water                                 |
| 46. TILIACEAE      | <i>Carpodiptera africana</i>  | Tree  | Indigenous |                                                                                        |
| 47. MIMOSACEAE     | <i>Dichrostachys cinera</i>   | Shrub | indigenous |                                                                                        |
| 48. MORACEAE       | <i>Ficus populifolia</i>      | Tree  | Indigenous |                                                                                        |
| 49. PAPILIONACEAE  | <i>Craibia brevicaudata</i>   |       |            |                                                                                        |
| 50. LECYTHIDACEAE  | <i>Barringtonia racemosa</i>  | Tree  | Indigenous | Used for fencing,the bark yields tannin,also fish poison.                              |
| 51. MIMOSACEAE     | <i>Acacia adenocalyx</i>      | Tree  | Indigenous |                                                                                        |
| 52. HYPERICACEAE   | <i>Visimia orientalis</i>     | Tree  | Indigenous | Managing dandruff                                                                      |

## 23/01/2018 Javi la wageni

|    |                |                                 |       |            |                                                                                          |
|----|----------------|---------------------------------|-------|------------|------------------------------------------------------------------------------------------|
| 1  | LOGANIACEAE    | <i>Ziziphus mucronata</i>       | Tree  | Indigenous | Fruits edible, roots and leaves for managing mumps.                                      |
| 2  | OLACACEAE      | <i>Ximenia Americana</i>        | Tree  | Indigenous | Fruits edible                                                                            |
| 3  | RHAMNACEAE     | <i>Lasiodiscus ferrugineus</i>  | Tree  | Indigenous |                                                                                          |
| 4  | RHIZOPHORACEAE | <i>Bruguiera gymnorhiza</i>     | Tree  | Indigenous |                                                                                          |
| 5  | SALVADORACEAE  | <i>Salvadora persica</i>        | Shrub | Indigenous | Tooth brush                                                                              |
| 6  | RUBIACEAE      | <i>Psychotria punctata</i>      | Tree  | Indigenous |                                                                                          |
| 7  | RUBIACEAE      | <i>Pavetta mangallana</i>       | Shrub | Indigenous |                                                                                          |
| 8  | NYCTAGINACEAE  | <i>Bougainvillea glabra</i>     | Tree  | Exotic     |                                                                                          |
| 9  | ACRIDOCARPUS   | <i>Acridocarpus zanzibarica</i> | Tree  | Exotic     |                                                                                          |
| 10 | OMBRETACEAE    | <i>Terminalia spinosa</i>       | Tree  | Exotic     | Durable wood for dhows and canoe making                                                  |
| 11 | EUPHORBIACEAE  |                                 |       |            |                                                                                          |
| 12 | GOODENIACEAE   | <i>Scaviola taccada</i>         | Shrub | Indigenous |                                                                                          |
| 13 | LYTHRACEAE     | <i>Lawsonia inermis</i>         | Tree  | Indigenous | Dye is obtained from crushing the leaves and adding lime. Mostly used by Swahili ladies. |
| 14 | OCHNACEAE      | <i>Ochna thomasiana</i>         | Shrub | Indigenous |                                                                                          |
| 15 | RUBIACEAE      | <i>Pavetta crebrifolia</i>      | Shrub | Indigenous |                                                                                          |
| 16 |                |                                 |       |            |                                                                                          |
| 17 | SAPOTACEAE     | <i>Manilkara obstifolia</i>     | Tree  | Indigenous | Fruits edible and wood for canoe construction.                                           |
| 18 | MYRTACEAE      | <i>Psidium guajava</i>          | Tree  | Exotic     |                                                                                          |
| 19 | ARECACEAE      | <i>Cocos nucifera</i>           | Tree  | Exotic     | One of the most important plants at the coast                                            |
| 20 | TILIACEAE      | <i>Grewia holstii</i>           | Tree  | Indigenous | Maasai use it to make their clubs                                                        |
| 21 | RHIZOPHORACEAE | <i>Rhizophora mucronata</i>     | Tree  | indigenous | Hard and water and termite proof wood for construction walkways. Contain red dye.        |
| 22 | SAPINDACEAE    | <i>Haplocoelum inoploeum</i>    | Tree  | Indigenous | Managing stomach disorders Mijikenda.                                                    |
| 23 | SAPOTACEAE     | <i>Mimusops cuneifolia</i>      | Tree  |            | Fruits are edible and good timber can be obtained from                                   |

|    |                |                                    |         |            |                                                                                     |
|----|----------------|------------------------------------|---------|------------|-------------------------------------------------------------------------------------|
|    |                |                                    |         |            |                                                                                     |
| 24 |                |                                    |         |            |                                                                                     |
| 25 | SAPINDACEAE    | <i>Lecaniodiscus fraxinifolius</i> | Tree    | Indigenous | Fruits edible                                                                       |
| 26 | BRUCEAE        | <i>Harrisonia abyssinica</i>       | Shrub   | Indigenous | Managing snake bite when added to <i>Quisqualis littoralis</i> Mijikenda.           |
| 27 | ACANTHACEAE    | <i>Avicennia marina</i>            | Tree    | Indigenous | Leaves and flowers used as mosquito repellent, fruits for managing kidney problems. |
| 28 | BOMBACACEAE    | <i>Merremia ampelphylla</i>        |         |            |                                                                                     |
| 29 | BIGNONIACEAE   | <i>Cordia africa</i>               | Shrub   | Indigenous | Managing snake bite when added to <i>Harrisonia abyssinica</i>                      |
| 30 | STERCULIACEAE  | <i>Colar minor</i>                 | Tree    | Indigenous |                                                                                     |
| 31 | IRIDACEAE      | <i>Gloriosa superba</i>            | Climber | Indigenous |                                                                                     |
| 32 | ANACARDIACEAE  | <i>Lannea schweinfurthii</i>       | Tree    | Indigenous |                                                                                     |
| 33 | COMBRETACEAE   | <i>Quisqualis littorea</i>         | Shrub   | Indigenous | Managing snake bite                                                                 |
| 34 | PEDALIACEAE    | <i>Pedilium murex</i>              | Grass   | Exotic     |                                                                                     |
| 35 | RUBIACEAE      | <i>Coptosperma graveolens</i>      | Shrub   | Indigenous |                                                                                     |
| 36 | LILIACEAE      | <i>Ornithogalum tenuifolium</i>    | Grass   | Indigenous |                                                                                     |
| 37 | STERCULIACEAE  | <i>Dombeya burgessii</i>           | Shrub   | Indigenous | Bark used as ropes for building huts                                                |
| 38 | CONVOLVULACEAE | <i>Merremia ampelphylla</i>        | Climber | Indigenous |                                                                                     |
| 39 | MALVACEAE      | <i>Sida rhombifolia</i>            | Grass   | Indigenous |                                                                                     |
| 40 | TILIACEAE      | <i>Triumfetta spp</i>              | Grass   | Indigenous | Seeds decoction is used to treat skin diseases.                                     |
| 41 | CONVOLVULACEAE | <i>Ipomea kituiensis</i>           | Climber | Indigenous |                                                                                     |
| 42 | PAPILIONACEAE  | <i>Munduleasericea</i>             | Shrub   | Indigenous | The bark is used as a fish poison                                                   |
| 43 | MORACEAE       | <i>Ficus bussei</i>                | Tree    | Indigenous | One of the sacred tree                                                              |
| 44 | TILIACEAE      | <i>Carpodiptera africana</i>       | Tree    | Indigenous | Bark used as a rope for erecting a traditional hut                                  |

## 24/01/2018 Kijiweni

|   |               |                                 |       |            |               |
|---|---------------|---------------------------------|-------|------------|---------------|
| 1 | GRAMINEAE     | <i>Chloris roxburghiana</i>     | grass | Indigenous |               |
| 2 | PEDALIACEAE   | <i>Pedilium murex</i>           |       | Exotic     |               |
| 3 | LILIACEAE     | <i>Ornithogalum tenuifolium</i> | Grass | Indigenous |               |
| 4 | STERCULIACEAE | <i>Dombeya taylorii</i>         | Shrub | Indigenous | Bark used for |

|    |                 |                                     |         |            |                                                     |
|----|-----------------|-------------------------------------|---------|------------|-----------------------------------------------------|
|    |                 |                                     |         |            | building huts.                                      |
| 5  | CONVOLVULACEAE  | <i>Merremia ampelphylla</i>         | Shrub   | Indigenous |                                                     |
| 6  | MALVACEAE       | <i>Sida rhombifolia</i>             | Shrub   | Exotic     |                                                     |
| 7  | TILIACEAE       | <i>Triumfetta spp</i>               | Shrub   | Indigenous | The stem fibre is woven into basket.                |
| 8  | MALVACEAE       | <i>Hibiscus tiliaceus</i>           | Shrub   | Indigenous |                                                     |
| 9  | CONVOLVULACEAE  | <i>Ipomea jalgeri</i>               | Climber | Indigenous |                                                     |
| 10 | COMMELINACEAE   | <i>Commelina benghalensis</i>       | Grass   | Indigenous |                                                     |
| 11 | EUPHORBIACEAE   | <i>Ricinus communis</i>             | Shrub   | Exotic     |                                                     |
| 12 | CYPERACEAE      | <i>Cyperus alternifolius</i>        | Grass   | Indigenous |                                                     |
| 13 | NYMPHEAE        | <i>Nymphaea nouchali</i>            | Grass   | Indigenous | Leaves used to weave fish and trap.                 |
| 14 | GRAMINEAE       | <i>Chloris roxburghiana</i>         | Grass   | Indigenous | Has been developed for pasture.                     |
| 15 | VERBECENACEAE   | <i>Premna chrysoclada</i>           | Shrub   | indigenous | Making bows and arrows                              |
| 16 | VERBECENACEAE   | <i>Vitex ferruginea</i>             | Tree    | Indigenous | Fitting boxes,crates,                               |
| 17 | PAPILIONACEAE   | <i>Erythrina salcleuxii</i>         | Tree    |            |                                                     |
| 18 | MORACEAE        | <i>Ficus lingua</i>                 | Tree    | indigenous |                                                     |
| 19 |                 | <i>Pseudobersama mossambicensis</i> | Tree    | Indigenous |                                                     |
| 20 | CRASSOCEPHALUM  | <i>Crassocephalla mannii</i>        | Shrub   | Indigenous | Used to support fruiting bananas                    |
| 21 | CAESALPINIACEAE | <i>Tamarindus indica</i>            | Tree    | Exotic     | Jam,Juice,damson cheese can be made from the fruit. |
| 22 | APOCYNACEAE     | <i>Zygodia melanocephala</i>        | Tree    | Exotic     |                                                     |
| 23 | RUBIACEAE       | <i>Canthium venosum</i>             | Tree    | Indigenous |                                                     |
| 24 | CAPPARIDACEAE   | <i>Capparis rosea</i>               |         |            | Roots reputed to be poisonous to kill jiggers.      |
|    | ANNCEAE         | <i>Uvaria acumunata</i>             | Shrub   | Indigenous |                                                     |

## 25/01/2018 Ziwani

|   |               |                                |       |            |                                                               |
|---|---------------|--------------------------------|-------|------------|---------------------------------------------------------------|
| 1 | MALVACEAE     | <i>Hibiscus tiliaceus</i>      | Tree  | Indigenous | Strong fibre can be obtained from the bark.                   |
| 2 | APOCYNACEAE   | <i>Adenium obesum</i>          | Shrub |            | Treating stomach disorders. Also for managing rabies in dogs. |
| 3 | VERBENACEAE   | <i>Clerodendrum inermis</i>    | Shrub | Indigenous | Leaves and roots managing high fever.                         |
| 4 | OCHNACEAE     | <i>Ochna thomasiana</i>        | shrub | Indigenous |                                                               |
| 5 | EUPHORBIACEAE | <i>Phyllanthus reticulatus</i> | Shrub | Indigenous | Tooth brush, treating skin irritation                         |

|    |                      |                                |       |            |                                              |
|----|----------------------|--------------------------------|-------|------------|----------------------------------------------|
| 6  | 6RUBIACEAE           | <i>Heinsia crinita</i>         | Shrub | Indigenous | Fruits edible stem used as a sweeping broom. |
| 7  | CAMPANULACEAE        | <i>Cyphia glandulifera</i>     | Grass | indigenous |                                              |
| 8  | BIGNONICACEAE        | <i>Kigelia africana</i>        | Tree  | Indigenous |                                              |
| 9  | ASCLEPIADACEAE       | <i>Calotropis procera</i>      | Shrub | Exotic     |                                              |
| 10 | MIOSACEAE            | <i>Albizia anthelminitica</i>  | Shrub | Exotic     |                                              |
| 11 | BURSERACEAE          | <i>Commiphora lindensis</i>    | Tree  | Indigenous |                                              |
| 12 | LOGANIACEAE.         | <i>Ziziphus mucronata</i>      | Tree  | Indigenous | Fruit edible                                 |
| 13 | OLACACEAE            | <i>Ximenia Americana</i>       | Tree  | Indigenous | Fruits edible                                |
| 14 | RHAMNACEAE           | <i>Lasiodiscus ferrugineus</i> | Tree  | Indigenous | Fruits edible                                |
|    | RHIZOPHORACEAE<br>15 | <i>Bruguiera gymnorrhiza</i>   | Tree  | Indigenous | Used for treating kidney failure             |
|    | SAPINDACEAE          | <i>Deinbollia borbonica</i>    | Shrub | Indigenous |                                              |
| 16 | SOLANACEAE           | <i>Solanum incanum</i>         | Shrub | Indigenous | Managing dandruff and skin disease           |
| 17 | RUBIACEAE            | <i>Pavetta subacana</i>        | Shrub | Indigenous |                                              |
| 18 | ASCEPPLIADACEAE      | <i>Calotropis procera</i>      | Shrub | Indigenous |                                              |
| 19 | MIMOSOIDEAE          | <i>Acacia drepanolobium</i>    | Tree  | Indigenous |                                              |
| 20 |                      |                                |       |            |                                              |
| 21 | EUPHORBIACEAE        | <i>Manihot esculenta</i>       | Tree  | Indigenous |                                              |
| 22 | RIDACEAE I           | <i>Gloriose superbs</i>        | grass |            |                                              |

## 26/01/2018

|    |              |                              |         |            |  |
|----|--------------|------------------------------|---------|------------|--|
| 1. | MALVACEAE    | <i>Hibiscus tiliaceus</i>    | Climber | Indigenous |  |
| 2  | . 2MORACEAE  | <i>Ficus sycomorus</i>       | Climber | Indigenous |  |
| 3  | MIMOSACEAE   | <i>Acacia etbaica</i>        | Tree    | Indigenous |  |
| 4  | RHIZOPHOREAE | <i>Cassipourea euryoides</i> | Tree    | Indigenous |  |
| 5  | BORAGINACEAE | <i>Ehretia bakeri</i>        | tree    | Indigenous |  |
| 6  | SAPINDACEAE  | <i>Allophylus rubifolius</i> | shrub   | Indigenous |  |
| 7  | LABIATAE     | <i>Ocimum suave</i>          | Grass   | Indigenous |  |

## 29/01/2018 Cannon Tower

|   |               |                               |         |            |  |
|---|---------------|-------------------------------|---------|------------|--|
| 1 | TILIACEAE     | <i>Grewia glandulosa</i>      | Tree    | Indigenous |  |
| 2 | LECYTHIDACEAE | <i>Memecylon sansibaricum</i> | Shrub   | Indigenous |  |
| 3 | ANNONACEAE    | <i>Annona senegalensis</i>    | Shrub   | Indigenous |  |
| 4 | PAPILIONACEA  | <i>Abrus precatorius</i>      | Climber | Indigenous |  |
| 5 | PAPILIONACEAE | <i>Mondula sericea</i>        | Shrub   | Exotic     |  |

|    |                 |                                 |       |        |
|----|-----------------|---------------------------------|-------|--------|
| 6  | FABACEAE        | <i>Tamarindus indica</i>        | Tree  | Exotic |
| 7  | ANACARDIACEAE   | <i>Mangifera indica</i>         | Tree  | Exotic |
| 8  | MELIACEAE       | <i>Azadirachta indica</i>       | Tree  | Exotic |
| 9  | MUSACEAE        | <i>Musa acuminata</i>           | Tree  | Exotic |
| 10 | FABACEAE        | <i>Cajanas cajan</i>            | Shrub | Exotic |
| 11 | VERBENACEAE     | <i>Lantana camera</i>           | Shrub | Exotic |
| 12 | ARECACEAE       | <i>Cocos nucifera</i>           | Tree  | Exotic |
| 13 | EUPHORBIACEAE   | <i>Ricinus communis</i>         | Shrub | Exotic |
| 14 | MORACEAE        | <i>Artocarpus heterophyllus</i> | Tree  | Exotic |
| 15 | FABACEAE        | <i>Cytisus proliferus</i>       | Tree  | Exotic |
| 16 |                 |                                 |       |        |
| 17 | FABACEAE        | <i>Delonix regia</i>            | Tree  | Exotic |
| 18 | FABACEAE        | <i>Tamarandus indica</i>        | Tree  | Exotic |
| 19 | SOLANACEAE      | <i>Solonum incannum</i>         | Shrub | Exotic |
| 20 | MYRTACEAE       | <i>Syzygium cumnii</i>          | Tree  | Exotic |
| 21 | ARECACEAE       | <i>Hyphaene coriacea</i>        | Tree  | Exotic |
| 22 | CAESELPINIACEAE | <i>Saraca asoca</i>             | Tree  | Exotic |
|    |                 |                                 |       |        |

## TREE SPECIES LIST

| Species Name                     | Indigenous | Exotic | Tally | Status |
|----------------------------------|------------|--------|-------|--------|
| 1 <i>Xylocarpus benadirensis</i> | Indigenous |        | 2     |        |
| 2 <i>Suregada zanzibarensis</i>  | Indigenous |        | 24    |        |
| 3 <i>Starculia africana</i>      | Indigenous |        | 18    |        |
| 4 <i>Flacauttia indica</i>       | Indigenous |        | 18    |        |
| 5 <i>Rawsonia lucida</i>         | Indigenous |        | 1     |        |
| 6 <i>Vismia orientalis</i>       | Indigenous |        | 1     |        |
| 7 <i>Garcinia livingstone</i>    | Indigenous |        | 1     |        |

|    |                                     |            |        |    |       |
|----|-------------------------------------|------------|--------|----|-------|
| 8  | <i>Grandidiera boivinii</i>         | Indigenous |        | 1  |       |
| 9  | <i>Dalbergia melanoxylon</i>        | Indigenous |        | 1  | NT    |
| 10 | <i>Grewia plagiophyllus</i>         | indigenous |        | 22 |       |
| 11 | <i>Grewia holstii</i>               | indigenous |        | 3  |       |
| 12 | <i>Acacia nilotica</i>              | indigenous |        | 1  |       |
| 13 | <i>Barringtonia racemosa</i>        | Indigenous |        | 2  |       |
| 14 | <i>Cordia subcordata</i>            |            | Exotic | 2  | LR/LC |
| 15 | <i>Ehretia amoena</i>               | indigenous |        | 2  |       |
| 16 | <i>Strychnos spinosa</i>            | Indigenous |        | 11 |       |
| 17 | <i>Anacardium occidentale</i>       |            | Exotic | 76 |       |
| 18 | <i>Acacia nilotica</i>              | indigenous |        | 1  |       |
| 19 | <i>Ozoroa obovata</i>               | Indigenous |        | 15 |       |
| 20 | <i>Dialium orientale</i>            | Indigenous | Exotic | 3  | LR/NT |
| 21 | <i>Terminalia catapa</i>            |            | Exotic | 18 |       |
| 22 | <i>Hyphaene coriacea</i>            | Indigenous |        | 3  |       |
| 23 | <i>Garcinia livingstone</i>         | Indigenous |        | 1  |       |
| 24 | <i>Terminalia spinosa</i>           |            | Exotic | 10 |       |
| 25 | <i>Lannea schwerifurtii</i>         | Indigenous |        | 22 |       |
| 26 | <i>Diospyros squarrosa</i>          | Indigenous |        | 11 |       |
| 27 | <i>Colar minor</i>                  | Indigenous |        | 1  |       |
| 28 | <i>Sterculiar africana</i>          | Indigenous |        | 15 |       |
| 29 | <i>Ziziphus mucronata</i>           | Indigenous |        | 3  |       |
| 30 | <i>Carpodiptera africana</i>        | Indigenous |        | 1  |       |
| 31 | <i>Ficus populifolia</i>            | Indigenous |        | 2  |       |
| 32 | <i>Craibia brevicaudata</i>         |            |        | 1  |       |
| 33 | <i>Barringtonia racemosa</i>        | Indigenous |        | 1  |       |
| 34 | <i>Acacia adenocalyx</i>            | Indigenous |        | 1  |       |
| 35 | <i>Lasiodiscus ferrugineus</i>      | Indigenous |        | 5  |       |
| 36 | <i>Psychotria punctata</i>          | Indigenous |        | 2  |       |
| 37 | <i>Bougainvillea glabra</i>         |            | Exotic | 16 |       |
| 38 | <i>Acridocarpus zanzibarica</i>     |            | Exotic | 5  |       |
| 39 | <i>Erythrina salcleuxii</i>         | Indigenous |        | 1  |       |
| 40 | <i>Tamarindus indica</i>            |            | Exotic | 19 |       |
| 41 | <i>Zygodia melanocephala</i>        |            | Exotic | 1  |       |
| 42 | <i>Canthium venosum</i>             | Indigenous |        | 1  |       |
| 43 | <i>Cordia africa</i>                | Indigenous |        | 3  |       |
| 44 | <i>Colar minor</i>                  | Indigenous |        | 1  |       |
| 45 | <i>Mundulea sericea</i>             | Indigenous |        | 4  |       |
| 46 | <i>Ficus bussei</i>                 | Indigenous |        | 17 |       |
| 47 | <i>Carpodiptera africana</i>        | Indigenous |        | 6  |       |
| 48 | <i>Vitex ferruginea</i>             | Indigenous |        | 3  |       |
| 49 | <i>Ficus lingua</i>                 | indigenous |        | 16 | LC    |
| 50 | <i>Pseudobersama mossambicensis</i> | Indigenous |        | 3  | NT    |
| 51 | <i>Zygodia melanocephala</i>        |            | Exotic | 1  |       |
| 52 | <i>Canthium venosum</i>             | Indigenous |        | 1  |       |
| 53 | <i>Commiphora lindensis</i>         | Indigenous |        | 1  |       |
| 54 | <i>Ziziphus mucronata</i>           | Indigenous |        | 6  |       |
| 55 | <i>Ximenia Americana</i>            | Indigenous |        | 20 |       |
| 56 | <i>Lasiodiscus ferrugineus</i>      | Indigenous |        | 15 |       |
| 57 | <i>Bruguiera gymnorrhiza</i>        | Indigenous |        | 7  |       |
| 58 | <i>Acacia drepanolobium</i>         | Indigenous |        | 1  |       |

|    |                                 |            |        |     |            |
|----|---------------------------------|------------|--------|-----|------------|
| 59 | <i>Manihot esculenta</i>        | Indigenous |        | 3   |            |
| 60 | <i>Ficus sycomorus</i>          | Indigenous |        | 6   |            |
| 61 | <i>Acacia etbaica</i>           | Indigenous |        | 2   |            |
| 62 | <i>Ehretia bakeri</i>           | Indigenous |        | 1   |            |
| 63 | <i>Mangifera indica</i>         |            | Exotic | 128 |            |
| 64 | <i>Azadirachta indica</i>       |            | Exotic | 35  |            |
| 65 | <i>Musa acuminata</i>           |            | Exotic | 54  | LC         |
| 66 | <i>Artocarpus heterophyllus</i> |            | Exotic | 1   |            |
| 67 | <i>Cytisus proliferus</i>       |            | Exotic | 1   |            |
| 68 | <i>Syzygium cumnii</i>          |            | Exotic | 43  |            |
| 69 | <i>Hyphaene coriacea</i>        |            | Exotic | 2   |            |
| 70 | <i>Saraca asoca</i>             |            | Exotic | 27  | Vulnerable |

### Status:

1. Most of the floral species not assessed for IUCN Red List data. Threats to biodiversity largely remain unknown
2. Three tree species are listed as Near Threatened while one is listed as Vulnerable under IUCN Data lists

### Shrub species list

|    |                                |            |        |     |  |
|----|--------------------------------|------------|--------|-----|--|
| 1  | <i>Raphia ruffia</i>           | Indigenous |        | 10  |  |
| 2  | <i>Rauwolfia mombasiana</i>    |            | Exotic | 1   |  |
| 3  | <i>Canthium zanzibaricum</i>   | Indigenous |        | 4   |  |
| 4  | <i>Lantana camara</i>          |            | Exotic | 15  |  |
| 5  | <i>Dichrostachys cinera</i>    | Indigenous |        | 7   |  |
| 6  | <i>Salvadora persica</i>       | Indigenous |        | 13  |  |
| 7  | <i>Scaviola taccada</i>        |            | Exotic | 3   |  |
| 8  | <i>Ricinus communis</i>        |            | Exotic | 112 |  |
| 9  | <i>Cajanas cajan</i>           |            | Exotic | 30  |  |
| 10 | <i>Mondula sericea</i>         |            | Exotic | 5   |  |
| 11 | <i>Annona senegalensis</i>     | Indigenous |        | 1   |  |
| 12 | <i>Memecylon sansibaricum</i>  | Indigenous |        | 1   |  |
| 13 | <i>Allophylus rubifolius</i>   | Indigenous |        | 1   |  |
| 14 | <i>Cassipourea euryoides</i>   | Indigenous |        | 1   |  |
| 15 | <i>Pavetta subacana</i>        | Indigenous |        | 2   |  |
| 16 | <i>Solanum incanum</i>         |            | Exotic | 147 |  |
| 17 | <i>Pavetta mangallana</i>      | Indigenous |        | 1   |  |
| 18 | <i>Albizia anthelminitica</i>  |            | Exotic | 1   |  |
| 19 | <i>Deinbollia borbonica</i>    | Indigenous |        | 25  |  |
| 20 | <i>Hoslundia opposita</i>      | Indigenous |        | 42  |  |
| 21 | <i>Calotropis procera</i>      |            | Exotic | 18  |  |
| 22 | <i>Heinsia crinita</i>         | Indigenous |        | 24  |  |
| 23 | <i>Phyllanthus reticulatus</i> | Indigenous |        | 132 |  |
| 24 | <i>Merremia ampelphylla</i>    | Indigenous |        | 5   |  |
| 25 | <i>Ochna thomasiana</i>        | Indigenous |        | 2   |  |
| 26 | <i>Dombeya burgessii</i>       |            |        | 1   |  |
| 27 | <i>Quisqualis littorea</i>     | Indigenous |        | 1   |  |

|    |                              |            |        |     |  |
|----|------------------------------|------------|--------|-----|--|
| 28 | <i>Harrisonia abyssinica</i> | Indigenous |        | 120 |  |
| 29 | <i>Pavetta crebrifolia</i>   | Indigenous |        | 4   |  |
| 30 | <i>Crassocephalla mannii</i> | Indigenous |        | 1   |  |
| 31 | <i>Premna chrysoclada</i>    | Indigenous |        | 8   |  |
| 32 | <i>Hibiscus tiliaceus</i>    | Indigenous |        | 4   |  |
| 33 | <i>Triumfetta spp</i>        | Indigenous |        | 13  |  |
| 34 | <i>Sida rhombifolia</i>      |            |        | 6   |  |
| 35 | <i>Clerodendrum inermiss</i> | Indigenous |        | 11  |  |
| 36 | <i>Adenium obesum</i>        |            |        | 3   |  |
| 37 | <i>Uvaria acuminata</i>      | Indigenous |        | 22  |  |
| 38 | <i>Cordia africa</i>         |            | Exotic | 1   |  |
| 39 |                              | 25         |        |     |  |

## Climbers

### Species list

|    |                                 |            |  |    |    |
|----|---------------------------------|------------|--|----|----|
| 1. | <i>Ipomea kituiensis</i>        | Indigenous |  | 1  |    |
| 2. | <i>Abrus precatorius</i>        | Indigenous |  | 3  |    |
| 3. | <i>Gloriosa superba</i>         | Indigenous |  | 12 | LC |
| 4. | <i>Quisqualis littorea</i>      | Indigenous |  | 14 |    |
| 5. | <i>Coptosperma graveolens</i>   | Indigenous |  | 6  |    |
| 6. | <i>Ornithogalum tenuifolium</i> | Indigenous |  | 4  |    |
| 7. | <i>Dombeya burgessie</i>        | Indigenous |  | 1  |    |

### Grass species list

|    |                                 |            |        |    |    |
|----|---------------------------------|------------|--------|----|----|
| 1. | <i>Ornithogalum tenuifolium</i> | Indigenous |        | 7  |    |
| 2. | <i>Cyphia glandulifera</i>      | Indigenous |        | 5  |    |
| 3. | <i>Pedilium murex</i>           |            | Exotic | 16 |    |
| 4. | <i>Ocimum suave</i>             | Indigenous |        | 5  |    |
| 5. | <i>Chloris roxburghiana</i>     | Indigenous |        | 12 |    |
| 6. | <i>Nymphaea nouchali</i>        | Indigenous |        | 31 |    |
| 7. | <i>Cyperus alternifolius</i>    | Indigenous |        | 2  | LC |
| 8. | <i>Commelina benghalensis</i>   | Indigenous |        | 15 | LC |
| 9. | <i>Ornithogalum tenuifolium</i> | Indigenous |        | 3  |    |



*Gmelina arborea*



*Encephalartos hilderbrandtii*.



*Lannea schwerifurtii*



*Uvaria acuminata*



*Adenium obesum*



*Adansonia digitata* (Sacred tree)



*Phyllanthus reticulates*



*Quasqualiua littoralis*



*Suregada zanzibarensis*



*Vismia orientalis*



*Hoslundia opposita*



*Glorious superba*



*Deinbollia borbonica*



*Lecaniodiscus fraxinifolius*



*Solanum incanum*



*Strychnos madagascariensis*



*Sterculia africana* (Sacred Tree)

## **Appendix 6.6: Birds count within the traverse**

## Bird Siting along the MGB traverse

|     | Identification            |                                  | Conservation Status |     |      |
|-----|---------------------------|----------------------------------|---------------------|-----|------|
|     | Common Name               | Scientific Name                  | IUCN Red List       | CMS | AEWA |
| 1.  | Red eyed dove             | <i>Streptopelia semitorquata</i> | LC                  |     |      |
| 2.  | Little swift              | <i>Apus affinis</i>              | LC                  |     |      |
| 3.  | African palm swift        | <i>Cypsiurus parvus</i>          |                     |     |      |
| 4.  | Speckled mouse bird       | <i>Colius striatus</i>           |                     |     |      |
| 5.  | Common drongo             |                                  |                     |     |      |
| 6.  | Common bulbul             | <i>Pycnonotus barbatus</i>       |                     |     |      |
| 7.  | House sparrow             | <i>Passer domesticus</i>         |                     |     |      |
| 8.  | House crow                | <i>Corvus splendens</i>          |                     |     |      |
| 9.  | Eurasian golden oriole    | <i>Oriolus oriolus</i>           |                     |     |      |
| 10. | Spotted flycatcher        | <i>Muscicapa striata</i>         |                     |     |      |
| 11. | Collared sunbird          | <i>Hedydipna collaris</i>        |                     |     |      |
| 12. | Amethysit sunbird         | <i>Chalcomitra amethystina</i>   |                     |     |      |
| 13. | Parrot billed sparrow     | <i>Passer gongonensis</i>        |                     |     |      |
| 14. | Zanzibar red bishop       | <i>Euplectes nigroventris</i>    | LC                  |     |      |
| 15. | Golden palm weaver        | <i>Ploceus bojeri</i>            |                     |     |      |
| 16. | White browed robin chat   |                                  |                     |     |      |
| 17. | Red checked cordon bleu   | <i>Uraeginthus bengalus</i>      |                     |     |      |
| 18. | Red billed fire finch     |                                  |                     |     |      |
| 19. | Spotted palm thrush       | <i>Cichladusa guttata</i>        |                     |     |      |
| 20. | Pied crow                 | <i>Corvus albus</i>              |                     |     |      |
| 21. | Black and white manikin   |                                  |                     |     |      |
| 22. | Bronze manikin            |                                  |                     |     |      |
| 23. | Eurasian honey buzzard    | <i>Buteo buteo</i>               |                     | CMS |      |
| 24. | Wahlbergs eagle           | <i>Hieraaetus wahlbergi</i>      |                     |     |      |
| 25. | African fish eagle        | <i>Haliaeetus vocifer</i>        |                     |     |      |
| 26. | Fischers love bird        |                                  |                     |     |      |
| 27. | Emerald spotted wood dove | <i>Turtur chalcospilos</i>       |                     |     |      |
| 28. | Mangrove kingfisher       | <i>Halcyon senegaloides</i>      |                     |     |      |
| 29. | Little bee eater          | <i>Merops pusillus</i>           |                     |     |      |
| 30. | Carmine bee eater         | <i>Merops nubicoides</i>         |                     |     |      |
| 31. | Lilac braested roller     | <i>Coracias caudatus</i>         |                     |     |      |
| 32. | Brown breasted            | <i>Pogonornis melanopterus</i>   |                     |     |      |

|     |                        |                                  |  |     |      |
|-----|------------------------|----------------------------------|--|-----|------|
|     | barbet                 |                                  |  |     |      |
| 33. | Red fronted tinkerbird | <i>Pogoniulus pusillus</i>       |  |     |      |
| 34. | African pied wagtail   | <i>Motacilla aguimp</i>          |  |     |      |
| 35. | Wire tailed swallow    | <i>Hirundo smithii</i>           |  |     |      |
| 36. | Zanzibar greenbul      | <i>Phyllastrephus strepitans</i> |  |     |      |
| 37. | Northern brownbul      | <i>Phyllastrephus strepitans</i> |  |     |      |
| 38. | Black belled starling  |                                  |  |     |      |
| 39. | Grey headed kingfisher | <i>Halcyon leucocephala</i>      |  |     |      |
| 40. | African green pigeon   | <i>Treron calvus</i>             |  |     |      |
| 41. | Roseat tern            | <i>Sterna dougallii</i>          |  | CMS | AEWA |
| 42. | Greater crested tern   | <i>Thalasseus bergii</i>         |  | CMS | AEWA |
| 43. | Sooty gull             | <i>Larus hemprichii</i>          |  | CMS | AEWA |
| 44. | Hadada ibis            | <i>Bostrychia hagedash</i>       |  |     |      |
| 45. | Black headed heron     | <i>Ardea melanocephala</i>       |  |     | AEWA |
| 46. | Grey heron             | <i>Ardea cinerea</i>             |  |     | AEWA |
| 47. | Cattle egret           | <i>Bubulcus ibis</i>             |  |     | AEWA |
| 48. | Black kite             | <i>Milvus migrans</i>            |  | CMS |      |
| 49. | Senegal lapwing        | <i>Vanellus lugubris</i>         |  | CMS | AEWA |
| 50. | Scred ibis             | <i>Threskiornis aethiopicus</i>  |  | CMS | AEWA |
| 51. | Tropical boubou        | <i>Laniarius aethiopicus</i>     |  |     |      |
| 52. | Spotted palm thrush    | <i>Cichladusa guttata</i>        |  |     |      |
| 53. | Barn swallow           | <i>Hirundo rustica</i>           |  |     |      |
| 54. | Dimorphic egret        |                                  |  |     |      |
| 55. | Blacknecked weaver     |                                  |  |     |      |
| 56. | Yellow wagtail         | <i>Motacilla tschutschensis</i>  |  |     |      |
| 57. | Grassland pipit        |                                  |  |     |      |
| 58. | Lizard buzzard         |                                  |  |     |      |
| 59. | Woolly necked stork    | <i>Ciconia episcopus</i>         |  | Vu  |      |
| 60. | Malachite Kingfisher   | <i>Corythornis cristatus</i>     |  |     |      |
| 61. | African darter         | <i>Anhinga melanogaster</i>      |  | NT  |      |

| Site              | Spp Count | IUCN | CMS Spp | AEWA Spp |
|-------------------|-----------|------|---------|----------|
| Mombasa Island    | 8         |      |         |          |
| Mombasa shoreline | 25        |      | 3       | 3        |
| Javi la Wageni    | 42        |      | 2       | 3        |
| Bofu              | 40        |      | 4       | 4        |
| Mtongwe           | 36        |      | 1       | 1        |
| Ziwani            | 49        | 2    | 3       | 4        |

**Appendix 6.7 (a): Cultural Impact Assessment Report by the NMK**



27th April, 2016

Ref:

Mr. Taiji Tanoguchi,  
Environmental Specialist,  
JICA Survey Team,  
Katahira & Engineers International,  
P.O BOX 98651 – 80100,  
MOMBASA:

Dear Mr. Taiji,

**RE: CULTURAL HERITAGE IMPACT ASSESSMENT REPORT FOR MOMBASA GATE BRIDGE (LIKONI PROJECT):**

We make reference to your letter dated 5<sup>th</sup> April 2016 and subsequent consultative meeting between your team and National Museums of Kenya held on 4<sup>th</sup> April, 2016 in the office of the Assistant Director, Antiquities, Sites and Monuments – Coast Region. A team of Heritage Researchers from the National Museums of Kenya in Mombasa made a survey tour of the possible landing zones for the Mombasa Gate Bridge in an attempt to appropriately advise your team on available heritage resources that may be negatively affected by the project and offer mitigation solutions.

Please find attached a report and budget for a Cultural Heritage Impact Assessment.

Yours sincerely,

Caesar Bitia  
**HEAD: COASTAL ARCHAEOLOGY**

For: Athman Hussein Athman  
Assistant Director, Antiquities, Sites and Monuments – Coastal Region.

## CULTURAL HERITAGE IMPACT ASSESSMENT REPORT FOR MOMBASA BRIDGE (LIKONI PROJECT):

The National Museums of Kenya (NMK) is a government non profit making body charged with the responsibility managing National natural and cultural Heritage. Its mandate is envisaged in the Museums and Heritage Act (Cap 216) of NMK of 2006 which ensures protection of Kenya's rich and diverse heritage and gives mandate to NMK to conduct Archaeological Impact Assessments (AIA) on areas of cultural heritage interest prior to development occurrences. It is also aimed at establishing new legal framework for Heritage Management that will domesticate some of the international conventions and protocols on heritage for which Kenya has ratified.

The National Museums and Heritage Act (NMHA) section 5 subsections (1) (n) further lays emphasis in regard to conducting AIA. **“The National Museums may subject to the provisions of the Environment Management and Coordination Act, conduct Environmental Impact Assessments’ on sites earmarked for development, and whose implementation threatens the survival of heritage resources.’** The Act therefore empowers NMK to take into account and record for protection all heritage resources and protected areas declared or deemed to have been declared under the National Museums and Heritage Act section 25. From a global perspective, Kenya is a signatory to the UNESCO world heritage convention of 1972 concerning the protection of World cultural and Natural Heritage as contained in Articles 4, 5, 6 and 7 of the convention.

### Geographical and Historical setting of Mombasa Gate Bridge (Likoni Project) Area.

The East African Coast is defined by the 300 miles strip stretching from Mogadishu on the north to Mozambique to the south. For over 2000 years the Indian Ocean seaboard has acted as a conduit to maritime trade between the coast and Trans oceanic countries such as Arabia, Persia and the Gulf. The Mombasa Region has historically over the years enjoyed multiple occupations and civilizations which have left significant signatures in form of architecturally well maintained buildings and other cultural landscapes which we appreciate and conserve.

In the context of the envisaged project, the survey team from the National Museums of Kenya examined through pedestrian walking methods through all project routes A1, A2, B2, B 3 and coordinates of areas with potential for cultural heritage resources noted (See table below).

| <u>STATION</u>            | <u>NORTHINGS</u> | <u>EASTINGS</u> | <u>DETAILS</u>  |
|---------------------------|------------------|-----------------|-----------------|
| A2(i)                     | NOT PICKED       |                 | MATATU TERMINAL |
| A2(ii)                    | 0573 330         | 9549 045        | APDK'S LAND     |
| B2(i) & B3(i)             | 0575 474         | 9572 076        | BANDARI COLLEGE |
| B2(ii)                    | 0572 933         | 9566 556        | MTONGWE         |
| B3(ii)                    | 0571 440         | 9550 186        | MTONGWE         |
| NB:- (i) REPRESENT ISLAND |                  | SIDE            |                 |
| (ii) REPRESENT MAINLAND   |                  | SOUTH           |                 |

#### **Route A1.**

The designated route falls within the Mama Ngina Heritage Site, a Gazetted cultural landscape which offers archaeological information related to the origin of Mombasa. The site is currently used as a social space where visitors come to appreciate the heritage. There exist British defensive structures and channels that were probably used during the British colonization period of Mombasa. During consultative meetings between the JICA team and NMK, A1 was found not suitable as a bridge landing point.

#### **Route A2.**

A2 lands next to the Likoni bus terminus on the northern side, a space that has a cemetery and huge baobab trees. From a traditional point of view, the baobab trees have been considered as of cultural value and their connection to the early settlement (Mama Ngina Park) has offered protection to the site. This is the area where Mombasa Town started with habitation by the Wachangamwe and Wajomvu. On the Eastern side, A2 crosses the Likoni channel and lands on APDK'S land commonly known as Bombolulu workshop center. It is noted that Mombasa has been a gate way to maritime trade for the last two decades. Fishing landing points and ritual areas (Kayas) have been documented within the Likoni Channel whose protection is important.

#### **Route B2 (i) and B 3 (i).**

This route lands at Bandari College a ground which is a developed area. There are no cultural heritage relics within the area around Bandari college to warrant for rescue archaeological work.

#### **Route B 2 (ii)**

This route connects up to Mtongwe navy camp where there exists documented archaeological site within the Navy camp and its neighborhood. The site at Mtongwe navy spreads along the Likoni channel to the handcraft workshop. The Bridge project is expected to connect to the Dongo Kundu by pass, a key economic zone for Mombasa. Our records shore that the Dongo Kundu has archaeological sites some dating to the Early Iron Age (EIA) Period of the 1<sup>st</sup> Millennium A.D.

#### **CONCLUSION AND RECOMMENDATIONS:**

The survey work done by NMK has indicated existence of cultural heritage resources that require mitigation to avert their destruction during the construction of the Mombasa Gate way Bridge. This brings to the need that a Cultural Heritage

study be conducted in all areas where the survival of this precious heritage resource is threatened. Areas such as the Mama Ngina Park, Mtongwe near the Navy Camp, the handicraft workshop land will have to be subjected to a both archaeological and social enquiry studies to capture and document the past human histories.

It is recommended that before the project implementation period, National Museums of Kenya be engaged to conduct a Cultural Heritage Impact Assessment whose budget is hereby attached as per your request through the letter dated 5<sup>th</sup> April, 2016 addressed to the Assistant Director, Museums, Sites and Monuments – Coastal Region.

**Budget for cultural heritage Impact Assessment for Mombasa Gate Bridge (Likoni) Project.**

| <b>Item</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Cost in (Kshs)</b>                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Archaeological excavations</b> <ul style="list-style-type: none"> <li>• Maritime / Underwater Archaeology assessment <ul style="list-style-type: none"> <li>❖ 2 Marine Archaeologists</li> <li>❖ 2 Museum marine Conservators / Technicians</li> <li>❖ Boat and diving gear</li> </ul> </li> <li>• Terrestrial / Land archaeology Assessment <ul style="list-style-type: none"> <li>❖ 4 Museum Archaeologists</li> <li>❖ 2 Museum Conservators / Technicians</li> </ul> </li> <li>• Labour <ul style="list-style-type: none"> <li>❖ 12 casual labour</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• 240,000/=</li> <li>• 120,000/=</li> <li>• 200,000/=</li> <li>• 360,000/=</li> <li>• 100,000/=</li> <li>• 160,000/=</li> </ul> |
| <b>2. Curative management of collections from the site.</b> <ul style="list-style-type: none"> <li>❖ On –site documentation</li> <li>❖ On – site Storage and packaging</li> <li>❖ Analysis, dating etc</li> <li>❖ Museum storage</li> </ul>                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• 430,000/=</li> </ul>                                                                                                          |
| <b>3. Materials</b> <ul style="list-style-type: none"> <li>❖ Stationery</li> <li>❖ Packaging materials</li> <li>❖ Map production (A2 printing etc</li> <li>❖ First Aid kits</li> <li>❖ Transport (Fuels, vehicle hire and Tickets)</li> <li>❖ Storage shelves</li> <li>❖ Excavation equipments</li> <li>❖ Report production</li> </ul>                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• 250,000/=</li> </ul>                                                                                                          |
| <b>4. Site Survey and Archaeological mapping</b> <ul style="list-style-type: none"> <li>• Labour <ul style="list-style-type: none"> <li>❖ 2 Surveyors</li> <li>❖ 2 Casual labour</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• 100,000/=</li> </ul>                                                                                                          |
| <b>5. Cleansing ceremonies and rituals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• 50,000/=</li> </ul>                                                                                                           |
| <b>TOTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>• 2,010,000/=</li> </ul>                                                                                                        |
| <b>16% VAT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• 321,600/=</li> </ul>                                                                                                          |
| <b>GRAND TOTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>• 2,331,600/=</li> </ul>                                                                                                        |

GAZETTE NOTICE NO. 3651

**THE ANTIQUITIES AND MONUMENTS ACT**

**(Cap. 215)**

**DECLARATION OF MONUMENT**

IN EXERCISE of the powers conferred by section 4 (1) (a) and (4) (1) (b) of the Antiquities and Monuments Act, the Minister for Home Affairs and National Heritage declares the areas of land specified in the Schedule, which he considers to be historical and archaeological interest, to be a monument within the meaning of the Act.

Any objection to the declaration of any of those areas as monument shall be lodged with the Minister within one (1) month from the date of publication of this notice.

**SCHEDULE**

**MAMA NGINA DRIVE HISTORICAL SITE**

All that area of land measuring approximately 7.85 hectares known as Mzimule or Mama Ngina Drive historical and archaeological site on section XXVI of plot No. 268, including the sea front in Mombasa Town, Mombasa District, Coast Province, the boundaries of which are more particularly delineated red on the Boundary Plan No. 537/8, which is signed, sealed with the seal of the Survey of Kenya, and deposited at the Survey Records Office, Survey of Kenya, Nairobi, and a copy of which may be inspected at the office of the District Commissioner, Mombasa, Coast Province.

Dated the 31st July, 1991.

**DAVIDSON KUGURU,**  
*Minister for Home Affairs and National Heritage.*



**GAZETTE NOTICE NO. 3909**

**THE ANTIQUITIES AND MONUMENTS ACT  
(Cap. 215)**

**MAMA NGINA DRIVE HISTORICAL SITE**

**CANCELLATION OF DECLARATION**

IN EXERCISE of the powers conferred by sections 4 (1) (a) and 4 (1) (b) of the Antiquities and Monuments Act, I cancel Gazette Notice No. 3651 of 1991, which appeared in the *Kenya Gazette* of 23rd August, 1991.

Accordingly, the schedule contained therein all that area of land measuring 7.85 hectares known as Mzimule or Mama Ngina Drive Historical and Archaeological Site on Section XXVI of plot No. 268 including the sea front in Mombasa Town, Mombasa District, Coast Province, the boundary of which is signed and sealed with the seal of Kenya in Nairobi is degazetted.

Dated the 3rd September, 1991.

**D. N. KUGURU,**  
*Minister for Home Affairs and National Heritage.*

GAZETTE NOTICE NO. 9494

**THE ANTIQUITIES AND MONUMENTS ACT**

*(Cap. 215)*

**DECLARATION OF MONUMENTS**

IN EXERCISE of the powers conferred by section 4 (1) (a) and (b) of the Antiquities and Monuments Act, the Minister of State for National Heritage declares the sites specified in the schedule, which he considers to be of historical and archaeological interest, to be monuments within the meaning of the Act.

Any objection to the declaration shall be lodged with the Minister within one month from the date of publication of this notice.

**SCHEDULE**

**MAMA NGINA DRIVE HISTORICAL SITE**

All that area of land measuring approximately 8 hectares, known as Mama Ngina Drive historical and archaeological site, comprising of plot Nos. 178, 230, 248, 263, 270, 367, 368, 376, 377, 378, 408, 426, 427, 534, 535, 536, 977, 1011, 1012, 1013, 1085 and 1018 ~~and the entire sea front stretching from the existing matatu and bus park to and including Fort Saint Joseph in Mombasa Town, Mombasa District in the Coast Province~~ the boundaries of which are more particularly delineated red on the Boundary Plan No. RIM SK 62 MSA-BEK XXVI, which is signed, sealed with the seal of the Survey of Kenya, and deposited at the Survey Records Office, Survey of Kenya, and a copy of which may be inspected at the Office of the District Commissioner, Mombasa, Coast Province.

Dated the 18th November, 2004.

**N. M. BALALA.**

*Minister of State for National Heritage.*

**Appendix 8.1: Prefeasibility Stage Consultations**  
**Appendix 8.1 (a): The Process**



**Kenya National Highways Authority**

*Quality Highways, Better Connections*

# **Feasibility Study in the Mombasa Gate Bridge Construction Project, Mombasa County**



**Environmental and Social Impact Assessment Report for the Mombasa Gate Bridge Construction Project : Appendix 8.1-Record of Stakeholder Consultation**

**May 2018**



**General Manager (Special Projects),  
Kenya National Highways Authority,  
P.O. Box 49712-00100,  
Nairobi.**



**Japan International Cooperation  
Agency**



**Repcon Associates,  
The Repcon Center,  
P.O. Box 79605-00200,  
Nairobi.**

## **1.0: Summary of Stakeholder Consultations**

This Section outlines the summary and outcome of Stakeholder engagement under auspices of the ESIA and RAP Studies for the Mombasa Gate Bridge project.

### **1.1: The process**

Consultations with the stakeholders are a key issue in the ESIA/RAP process. Consultations have been done to come up with key issues that need in depths analysis during the Environmental and social impact analysis process.

The process was done through conducting two stakeholder meetings and also public participation meetings (barazas) along the traverse.

The main objective of conducting the process was:-

- I. To disclose the Mombasa gate bridge construction project, its dimension and scope to the public.
- II. To highlight potential impacts, both positive and negative anticipated in the project.
- III. To obtain the stakeholders concerns in the project.

The process was also a way to establish a means of communication between the general public and the consulting team.

### **1.2: legal foundation for stakeholder consultation in Kenya**

#### **Provisions of the National Constitution**

Section 35 of the National Constitution 2010 provides for access to information as follows: *35. (1) Every citizen has the right of access to (a) information held by the State; and (b) information held by another person and required for the exercise or protection of any right or fundamental freedom.* Further, Section 69 (1) (d) requires the State to encourage public participation in the management, protection and conservation of the environment, thereby giving legal foundation for stakeholder consultation in environmental assessment process. Stakeholder consultation as conducted for this ESIA was partly in fulfilment to above stated legal obligations.

Information collected from the meetings highlights both socio-economic and environmental impacts anticipated during implementation and operational phase of the project. Also from the meetings, the public suggested some mitigate measures that the contractor should put consideration during construction and operational phase of the project in order to promote sustainable development.

#### **Requirements of EMCA 1999 (Cap 387)**

Legal Notice 101 of June 2003 requires that all environmental assessment process in Kenya to incorporate public consultation. This is a requirement informed by the awareness that stakeholders are largely in the constituency likely to be impacted by

proposed developments and it is imperative that they be informed of the project following which they can make informed comments and reactions to the proposed development. It is also important to ensure that all stakeholder concerns as well as aspirations are identified and incorporated in project development, implementation and operation. Against such background, a number of consultations have been undertaken with cross sections of stakeholders to the Mombasa Gate bridge project with objectives as follows:-

- i. To inform primary, secondary and other stakeholders of the proposed development;
- ii. To clarify stakeholder interests and concerns in the Master Plan area;
- iii. To better define scope and magnitude of potential impacts of implementing the Master Plan based on stakeholders' feedback.

### 1.3: Record of meetings held so far

A total of five meetings were held with a total number of four hundred and ten (410) stakeholders and members of the community being reached. Of these meetings, two were stake holder meetings and the other three were public consultative meetings.

The table below shows a summary of meetings held and the number of people who attended such meetings with a comparative attendance on a gender basis.

| <b>Date</b>               | <b>Venue</b>                             | <b>Male</b>  | <b>Female</b> | <b>Total</b> |
|---------------------------|------------------------------------------|--------------|---------------|--------------|
| 07 <sup>th</sup> Dec 2017 | Royal castle Hotel                       | 59           | 27            | 86           |
| 08 <sup>th</sup> Dec 2017 | A.C.K guest house                        | 40           | 8             | 48           |
| 09 <sup>th</sup> Dec 2017 | Peleleza primary school                  | 76           | 18            | 94           |
| 13 <sup>th</sup> Dec 2017 | Kibaki estate                            | 53           | 19            | 72           |
| 19 <sup>th</sup> Dec 2017 | Mtongwe polytechnic                      | 45           | 24            | 69           |
| 05 <sup>th</sup> Jan 2017 | Meeting with Fishermen at Bofu Maskani   | 39           | 0             | 39           |
| 14 <sup>th</sup> Feb 2018 | Meeting with Kaya Elders at Bofu Maskani | 5            | 0             | 5            |
| <b>Total</b>              |                                          | <b>311</b>   | <b>96</b>     | <b>410</b>   |
| <b>Percentage</b>         |                                          | <b>77.8%</b> | <b>22.2%</b>  | <b>100%</b>  |

## 2.0: Two: Summary of Concerns From The Meetings.

General opinions, expectations and concerns from the stakeholders, neighbours to the project and the community are highlighted below.

### 2.1: Main concerns from the meetings

1. **Time frame:** When the project is likely to start and when it is likely to be completed.
2. **Compensation.**
  - a) The procedure of payments; whether it will be before or after the project has started.
  - b) Whether the land compensation will be land for land or cash.
  - c) How people living in untenured land and in government reserves will be compensated.
3. **Ferry services:** Whether the ferry services will continue and if yes, who will be served by the ferry services?
4. **Security**
  - a) Measures to take to ensure security in the bridge.
  - b) Are the members of the society allowed to use the bridge?

The table below is a list of concerns raised from individual stakeholder meetings and the answers given for each concern raised.

#### Major concerns from the stakeholders meetings

| Meeting                     | Key issues                                                                                                                                                                                                       | Answers                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Royal Castle hotel, Mombasa | <ul style="list-style-type: none"> <li>• Can the government abandon the project if it proves to be very costly?</li> </ul>                                                                                       | <ul style="list-style-type: none"> <li>• The funds put aside for the project is 81 billion and the government has not raised any alarm that the funds are not enough.</li> </ul>                                                                                                                                              |
|                             | <ul style="list-style-type: none"> <li>• What is the future of the ferry services, will it be abolished or who will be using it? Where will the ferry services get it maintenance costs from?</li> </ul>         | <ul style="list-style-type: none"> <li>• The ferry will still be operational and will be used by people, motorbikes and also tuktuks.</li> <li>• The bridge will also have a toll station in which amounts collected will be used to service and maintain the ferry services.</li> </ul>                                      |
|                             | <ul style="list-style-type: none"> <li>• What is the construction time frame?</li> </ul>                                                                                                                         | <ul style="list-style-type: none"> <li>• The currently on going asset inventory will continue until end of January, The detailed design stage will take two years and with such there should be no panic.</li> </ul>                                                                                                          |
| A.C.K Guest House. Likoni   | <ul style="list-style-type: none"> <li>• With the bridge starting from Ziwani and Jela Baridi, how will one be able to access the road from in between or will they have to go to the starting point?</li> </ul> | <ul style="list-style-type: none"> <li>• The bridge has several approaching bridges or lanes. Jela Baridi, Mombasa sports club, and corner mpya In Mtongwe. Also 2 KM from Puma secondary. But there is a proposal to connect through a conveyor belt at bridge academy to create an equidistance point of access.</li> </ul> |

|  |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                  |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• In 30 years to come, the population will be massive and the ferry might not be in a position to handle that, can there be an electric train over the bridge or what will happen once the carrying capacity of the bridge is over stretched?</li> </ul> | <ul style="list-style-type: none"> <li>• Unfortunately the weight of the train cannot be supported by the bridge and also a train cannot climb beyond a 2 % elevation gradient.</li> <li>• Human traffic at the ferry will reduce with the construction of the bridge as most commuters will prefer to go to town through the bridge.</li> </ul> |
|  | <ul style="list-style-type: none"> <li>• Culverts and weighbridges are ideal crime zones, what measures will be put in place to ensure security at this point.</li> </ul>                                                                                                                       | <ul style="list-style-type: none"> <li>• Security in such areas is a major concern for the government and even to all of us; as such areas under the bridge will be under surveillance and with constant monitoring on the entrance and exits. Kenya Navy has already requested for prior engagement.</li> </ul>                                 |
|  | <ul style="list-style-type: none"> <li>• The huge support pillars might affect the activities of the fishermen and thus denying them access to their livelihood.</li> </ul>                                                                                                                     | <ul style="list-style-type: none"> <li>• Impact on such is eminent but their interest will be addressed in another forum involving the BMU members only. A proposal has been made to get them a boat for deep sea fishing however impact on ecology and biodiversity is ongoing.</li> </ul>                                                      |
|  | <ul style="list-style-type: none"> <li>• Ferry services are maintained by the toll charged on cars, with the diversion of traffic to the bridge, how will it be sustained? Fears are there that they might start charging pedestrians.</li> </ul>                                               | <ul style="list-style-type: none"> <li>• The ferry services are subsidized by the government as the amounts collected cannot be enough for the daily running of such and it is a government policy that no one should be charged when crossing the channel as a pedestrian.</li> </ul>                                                           |
|  | <ul style="list-style-type: none"> <li>• If the wind at the highest point of the bridge can blow off a tuk-tuk, how about human traffic using the bridge?</li> </ul>                                                                                                                            | <ul style="list-style-type: none"> <li>• The pedestrian lane will have glass to protect against the wind strength and any suicide missions among the public. The wheelchair ramp will also be closed with glasses.</li> </ul>                                                                                                                    |

Main concerns from the public consultations meetings.

| 09 <sup>th</sup> December 2017 | Major concerns                                                                                                                           | Answers                                                                                                                                                                                                     |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>peleleza primary school</b> | <ul style="list-style-type: none"> <li>• What is the time line of the project?</li> </ul>                                                | <ul style="list-style-type: none"> <li>• Research period to take 2 years and the construction will take 4 years.</li> </ul>                                                                                 |
|                                | <ul style="list-style-type: none"> <li>• when the affected will be compensated?</li> </ul>                                               | <ul style="list-style-type: none"> <li>• Compensation will take place before the implementation if the project begins after which a notice of three months to relocate will be issued.</li> </ul>           |
|                                | <ul style="list-style-type: none"> <li>• What is the way forward for community owned land?</li> </ul>                                    | <ul style="list-style-type: none"> <li>• There would be need for the community to proof ownership wit statutory documents.</li> </ul>                                                                       |
|                                | <ul style="list-style-type: none"> <li>• What considerations will be put in place for people living with disabilities?</li> </ul>        | <ul style="list-style-type: none"> <li>• The pedestrian lane will be constructed in a spiral way allowing for wheel chair use.</li> </ul>                                                                   |
| <b>Kibaki estate</b>           | <ul style="list-style-type: none"> <li>• Will there be a custodian on the amounts of compensation paid to the PAPs?</li> </ul>           | <ul style="list-style-type: none"> <li>• The government will pay the affected persons directly</li> </ul>                                                                                                   |
|                                | <ul style="list-style-type: none"> <li>• What measures have been put in place to ensure that the project benefits the locals?</li> </ul> | <ul style="list-style-type: none"> <li>• The requirement is that 40% of participation should go to the local community. Committees should be formed to front suitable persons for considerations</li> </ul> |
|                                | <ul style="list-style-type: none"> <li>• How will the mosques and schools that will be affected be compensated?</li> </ul>               | <ul style="list-style-type: none"> <li>• Such amenities are avoided in most but where it is not</li> </ul>                                                                                                  |
| <b>Mtongwe polytechnic</b>     | <ul style="list-style-type: none"> <li>• Can development continue on affected plots</li> </ul>                                           | <ul style="list-style-type: none"> <li>• Development can only be stopped by the National Lands commission after compensation</li> </ul>                                                                     |
|                                | <ul style="list-style-type: none"> <li>• How will the PAPs be prepared psychologically before compensation and displacement?</li> </ul>  | <ul style="list-style-type: none"> <li>• NLC prepares people and also guides them during the resettlement process/period</li> </ul>                                                                         |
|                                | <ul style="list-style-type: none"> <li>• How will pollution be dealt with during the implementation period</li> </ul>                    | <ul style="list-style-type: none"> <li>• Studies are being undertaken to come up with a mitigation measures on</li> </ul>                                                                                   |

|  |  |                                                          |
|--|--|----------------------------------------------------------|
|  |  | the various forms of pollution likely to be experienced. |
|--|--|----------------------------------------------------------|

**3. Annexes: Minutes of stakeholder meetings and Public consultation meetings**

## **3.1: Royal Castle Hotel**

### **Minutes of Stakeholders Consultation Meeting in the Feasibility Study for Mombasa Gate Bridge Construction Project**



**Venue: Castle Royal Hotel**

**Date: 07<sup>th</sup> December 2017**

# **Minutes of Stakeholders Consultation Meeting Held on 7<sup>th</sup> December, 2017 at Royal Castle Hotel for the Environmental and Social Impact Assessment (ESIA) in the Feasibility Study for Mombasa Gate Bridge Construction Project**

Attendants list attached.

## **Items of Agenda**

1. Introductions and opening speeches;
2. Presentations;
3. Questions and answers;
4. Any other business

## **MIN 1/12/2017: Introduction and opening remarks**

The meeting was started at 9.45 am by a word of prayer from one of the participants. After the prayers Eng. Howard Momanyi -Deputy Director- Kenya National Highways Authority (KeNHA) who chaired the meeting welcomed present members to the meeting. He further asked members to introduce themselves and the organizations they represent.

## **Opening remarks from Eng. Howard Momanyi, Deputy Director, KeNHA**

The Mombasa Gate Bridge Construction project is undertaken by KeNHA. The bridge is connecting Mombasa Island with mainland South through Likoni channel. We have made much progress and consultative meeting to make sure that everyone is on-board. However, today's meeting marks the first Environmental and Social Impact Assessment (ESIA) meeting to bring on-board the affected stakeholders. Most of you have heard about this project may be through media and other communication channels. For me the first time I heard of it was 6 years ago. Little did I know that it will come under my lookout. The Mombasa Gate Bridge Construction Project is a landmark project that will re-write the history of Mombasa and Kenya. It will remarkably change the face and the sky of Mombasa. In such, this is not the last meeting; we would still be having more time with the stakeholders because this project is affecting us all.

## **Opening Remarks from County Government**

Thanked stakeholders for showing-up in large number and welcomed the people to the meeting. The Mombasa Gate Bridge Construction Project is a very important project for the County. Acknowledging the problems facing the Mombasa transport system - Eng. Albert Keno said that on average, close to 300,000 people and 3000 vehicle are crossing the Likoni ferry channel on daily basis, the associated threats posed by this current means of crossing the likoni channel is widely known. The proposed Gate Bridge will provide the needed springboard/impetus for the development of the mainland South including the ongoing development of Mombasa Special Economic Zone. Local leaders are encouraged to take front lead as the ambassadors of this noble project.

## **Remarks from Minister for Lands and Physical Planning – County Government of Mombasa**

He thanked all the stakeholders for coming to the meeting. The construction of the Gate Bridge is overdue/belated but it's never too late, the County Government fully welcomes the project. Mombasa County will provide 100 per cent support of the project. The realization of the Bridge will promote wide spread development and reduce persistent inequalities experienced in the South. We are thankful to the National Government for the initiative and calls for rapid implementation.

### **MIN 2/12/2017: Presentations**

The Lead Environmental Expert Mr. Michael Wairagu thanked KeNHA, Deputy Director for giving him the opportunity to discuss Mombasa Gate Bridge Construction project. Several road construction and infrastructure developments designs and implementations are on-going in Mombasa; he mentioned the Mombasa Northern bypass and Southern bypass, Mombasa Special Economic Zone and The Mombasa Gate Bridge project as just few examples of current designs and implementations in progress. The MGBC Project is a project supported by JICA and Government

of Kenya. This project has been undergoing development since 2016. The designs are ready thus allowing for a feasibility study to be conducted. The feasibility study should end by mid next year.

In line with the requirements of good project practice, the project must be subjected to a full cycle Environmental and Social Impact assessment due to the nature of its scope. As a starting point, the team decided to call for disclosure meeting and to engage stakeholders in both the Island and mainland south.

### **Objectives of the meeting**

- i) To disclose the Mombasa Gate Bridge Construction Project. The MGBC is a project with known dimensions and scope. It is no longer a concept;
- ii) To Highlight potential impacts in line with the Kenyan laws;
- iii) To discuss the negative and positive impacts of this known project; displacement is one of the negative impacts anticipated in this project;
- iv) To continuously engagement with stakeholders at mandate holders and local level. Close to 6 such meetings had been held since the begging of the designing phase including meetings with Kenya Navy, National Museums of Kenya, and Kenya Ports Authority among others. In such, we will be building consensus on previous meetings; and
- v) To obtain stakeholders concerns during this feasibility study before proceeding to detailed study

This exercise is undertaken by Repcon Associates Ltd. Contacts of Repcon Associate was project for the public)

### **Purpose of the meeting**

The main purpose of this meeting is to try to **attempt to solve a problem** that has been there for so long. The problem in question is lack of a functional road joining Mombasa Island with Mainland South. Contributing causes of this problem includes:

- i) Over time, Mombasa town has grown/expanded remarkable;
- ii) Mombasa town has been the address/destination of choice since antiquity attracting tourists, investors etc;
- iii) Mombasa has established itself as the Gate-way to both East Africa and other regions in Africa;
- iv) The carrying capacity of Mombasa Island has been over stripped;
- v) Spilling over of the growth to the south has been constrained by lack of a functional bridge denying the mainland south development regimes; and
- vi) Prime developments triggered by tourism in the north have continued to flourish while such developments in the south have remained stubbornly low or dormant.

The current means of crossing to the south is through Ferry services which are overstretched. However, attempts to solve lack of functional road between the island and the south are not of recent times. Past initiatives started in 1947 with a ferry carrying only one vehicle. In such this meeting qualifies to be part of the ongoing process of this problem solving. The current ferry means is not a solution to these problems. Currently four ferries are used to transport vehicles and people. Even adding more ferries in already congested channel of marine ships and sea vessels is not a solution. Present Data from Kenya Ferry Services indicates that close to 300,000 people and 3000 vehicles cross the channel every day. Ferry services are not a viable means of transport.

Other developments in the Mainland south that require immediate functional road includes:

- i) The development of Mombasa Southern Bypass road – tenders for this project has been floated for bidding;
- ii) The Development of Mombasa Special Economic Zone funded by JICA; and
- iii) The development of additional port in Kilindini with provisions for manufacturing area, free port etc as part of Kenya Vision 2030. The new port will attract over 60,000 newcomers including investors and tourists.

In the wake of all these, the Kenyan government asked JICA to assist in conducting a study with objective of identifying the **most suitable location** for the bridge construction and to assess the project feasibility among others. In line with its objectives, the team/Katahira Engineers identified 9 alignments in its early stages of work. However, on further analysis for optimization, only three routes were identified as potential options. The 3 option were again subjected to further analysis by looking at the reality vis avi abstract/concept at construction phase, environmental consideration, historical perspectives, levels of potential impact, impact of traffic volume in the CBD, cost implications and compatibility with the Mombasa Master Plan blue print.

### **Outcome of the analysis of the three options**

**Option A:** If the functional Bridge is to pass through the current ferry channel with the spiral layout extending to Mama Ngina area, then, the route though the shortest, the route has the potential to:

- × Disrupt the ongoing ferry services and other sea vessel operations for 4 years of Gate Bridge Construction phase;
- × Destroy Mama Ngina area's reach archaeological values;
- × Erode the historical foundation of Mombasa - The existence of Mombasa town can be historically trace to Mama Ngina area;
- × Drain traffic to Mombasa CBD creating even more congestion in the city; and
- × Cause high displacement impact in Likoni area that can significantly steepen cost implementation gradient.

**Option B:** Was rejected by the Kenya Navy citing security of the Naval Barracks as a threat if the bridge is to be located in that alignment and further dismissed by the Kenya Ports Authority quoting the bridge as a threat to future docking of Sea vessels at the port.

**Option D:** Emerged to be the most optimum option by offering a comparative advantage over the other two options (A and B). Upon assessment and evaluation, it come to light that option D has:

1. Fewer potential displacement impacts;
2. Higher likelihood to augment the development of both Mombasa Special Economic Zone, Kilindini port and Mombasa Southern Bypass;
3. Low Bridge operation and maintenance cost;
4. Very minimal disturbance of marine traffic flow during construction;
5. Potential to decongest Mombasa town by changing the terminal away from the CBD;
6. Provision of efficient freight transportation between Kilindini Port and Nairobi; and
7. Compatibility with Mombasa Master Plan – specifically the establishment of western hyper corridor strategy targeting Saba Saba area.

#### **Scope and disclosure of rout D (optimum option)**

Route D is taking off at Jela Baridi, passing through Kenya Railways, Moi Avenue, Cannon towers, Bishop Makarios, Komako, the channel, Puma Primary, Mwenza creek, Jambi la wageni to Ziwani where the road will connect to Mombasa Southern Bypass. The route is 10.4 kms long. The actual Bridge is 1.2 kms supported by two pillars placed at a span of 600 meters apart. The 600 meters span is to allow for ease of navigation. In between the span, 150 meters both ends are designated as buffer zones. The highest point of the bridge is 69 meters equivalent to the top of a 20 storied building. The allowable height by Air Carrier Access Act is 210 meters hence the proposed height has not breached the ACAA act. This height is extremely important for navigations of sea vessels. Currently the tallest ship in the sea is 65 meters high. The only challenge is on vessels with high scope eg the Panamax or Neopanamax vessels. Due to demands from the public, the Bridge had provisions for pedestrian line to the Eastern part of the road. The descriptions given are the project details that we are here to disclose. To arrive at all these, a lot

of engineering works has been done. This project is supported by JICA and Government of Kenya under the executing agency of KeNHA.

**The Environmental Impact Assessment:** The project falls under category A of EIA due to its scope. In such the project must undergo a full cycle EIA in line with EMCA legislations. All other issues will be discussed at EIA. National Museum of Kenya had proposed full cultural assessment to be conducted.

**The social impact:** One of the eminent social impacts of this project is displacement of people and their assets. We will identify the properties to be clipped, mostly go-downs. Buildings to the East of Mwakivingo will be fairly clipped. However, most/severe impacts will be along Bishop Makarios road. More importantly, it should be noted that a lot of efforts identified in minimizing displacement.

**Baseline Survey:** The team will conduct environmental baseline survey in order to determine the baseline information of the route. Some of the information to be collected include: air quality monitoring; Water quality monitoring; Ecological survey among others.

**The RAP study:** The RAP study aims at firming up the alignment. Using the coordinates of the Centre line, all the affected properties will be identified; owners of the properties identified and documented; an asset register developed; livelihoods streams for the impacted individuals enumerated; affected interests and vulnerable individuals taken into account; and finally, a list of all Project Affected Persons derived. All the assets will be valued in line with valuation laws.

**The findings of this study:** Study findings will be subjected to public review; thereafter a draft report will be submitted to NEMA for licensing. KeNHA will prepare cadastral report for land acquisition. This report will be submitted to National Land Commission. The NLC will take a lead role in effecting land acquisition and compensation in line with the Land Act. NLC will gazette the properties; make resolutions and awards for compensation. Upon compensation, the project of Gate Bridge construction will start.

The study has a fixed timeline. It started in August and will end by mid-March 2018. We lost some time due to political reasons but will be able to finish within the prescribed time.

It is estimated that the entire project will cost close to 80 billion Kenya shillings. JICA has already committed funds to enable construction of Mombasa Gate Bridge project.

#### **MIN 3/12/2017: Questions and answers;**

The process was coordinated by Mr. Mmanyi– KeNHA engineer.

| Name | Organisation | Question | Answers |
|------|--------------|----------|---------|
|------|--------------|----------|---------|

| Name          | Organisation   | Question                                                                                                                                                                                   | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Salim Mutiye  | Property Owner | 1. If Feasibility study goes to the final stage and it turns out to be every expensive route what will happen. Will the government abandon the project due to high cost of implementation? | 1. Your question is very important, seem you are worried that at the final stage the cost of implementation will go beyond the projected amount of 80 billion. However, the Gok is not saying that the project is costly;                                                                                                                                                                                                                                 |
|               |                | 2. Clarify on the term continues engagement;                                                                                                                                               | 2. Continues consensus building: Continues consultation to come up to with the very best product                                                                                                                                                                                                                                                                                                                                                          |
|               |                | 3. Are individual encroaching on existing road reserves eligible for compensation?                                                                                                         | 3. Most of the land targeted for acquisition is titled, except for the mainland south. But section 40 article 4 of the 2010 constitution allows for NLC to pay compensation for non-titled individuals.                                                                                                                                                                                                                                                   |
| Ben Agoye     | Komako         | The highest point of the bridge is 69 meters and no building underneath the bridge; what measure have you put in place to enhance security of the bridge against terrorism?                | <p>Yes. There will be no building underneath as you have stated. However, there will be high security installations. Currently there are proposals for entry and exit control points.</p> <p>Additionally, bridges of this nature (Nyali and Mtwapa) are always considered for security. There will be constant security surveillance of the bridge.</p> <p>Consequently, construction underneath the bridge is highly discouraged due safety issues.</p> |
| Ali Tongeresh | -              | What will happen if the vehicles no longer use ferry, will there be a toll station? And will the bridge replace/abolish ferry services?                                                    | <p>Ferry operates with levy fees collected from vehicles. Proposal is to establish a toll station for paying. A study was conducted and the findings revealed that people are willing to pay for the bridge to enable ferry to operate though only for pedestrian and also for maintenances.</p> <p>This bridge will be very high -69</p>                                                                                                                 |

| Name           | Organisation                                     | Question                                                                                                                                                                                                                                                                                                                             | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                                                  |                                                                                                                                                                                                                                                                                                                                      | meters- some transport means like Tuk-Tuk will not be allowed to use it because the wind speed and strength at the apex come disrupt cyclists and Tuk-Tuk. People and other disadvantaged category will continue enjoying free services as currently offered by Kenya Ferry Services.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Said Juma      | Kenya Prisons – King’orani                       | I need a clarification. Is prison/station going to be affected now that the area already have a dual carriage way?                                                                                                                                                                                                                   | The road starts at the Mosque. The prison wall will be affected. But we are quite aware that for prison, it is the wall and the towers that make the difference. In such, adequate mitigation measures will be put in place to maintain the prison environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Fatuma Mwidadi | Ganjoni Health Centre – University of Washington | From the presentation its difficulty to identify the impact. My concern is on how future communications will be done. If affected can we start planning to move soon? We depend on research grants from the US and there is no any other clinic in the county offering similar Medicare as we do. All our plans are long term based. | <p>The clinic is not affected by the project but in any case it is, then the county government will ensure that your activities are not interrupted. Only part of Bishop Makarios is affected but the bridge development will concentrate in the road reserve. There is going to be very small impact on the premise.</p> <p>More specifically, the team will come GPS to identify the corridor, measure the ROW and conduct inventory of all impacted assets. With this, we are able to know impact on land and what development exists on land/road reserve. A cut-off date will be declared and not only individual assets are going to be inventoried but also corporate PAPs. 100% inventory must be taken.</p> |
|                |                                                  | How soon should we plan to move?                                                                                                                                                                                                                                                                                                     | <p>Inventory will go up to end of January;</p> <p>KeNHA and public reviews to verify the findings;</p> <p>Detailed designs to take 2 years.</p> <p>In reality, do not start to panic. In</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Name      | Organisation | Question                                                        | Answers                                                                                                                                                                                                                       |
|-----------|--------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |              |                                                                 | any case you can only be asked to move your property after compensation. But as stated earlier, a lot of caution has been taken to minimize impacts.                                                                          |
| Ben Agoye | Komako       | Do you have the list of the affected people? Can it be availed? | No we don't have the list of the affected persons. The team will move around to establish the extent of the corridor on ground and enumerate the affected land and properties. That is the only way we can generate the list. |

From this meeting, you will be required to form common groups and special interest groups. It is in your best interest that we need to meet and discuss more concerns at PAPs level. There are very many things that you have not asked in this meeting including ways of handling disputed properties, inheritance and succession issues etc. We invite any group that requires any engagement. You can form your own committees (GRC) composed of PAPs. The committee will deliberate on matters affecting PAPs.

The challenge is that we don't know each other. Therefore generate the list of PAPs first and then we will form the committees.

The committee will be key in communicating the progress of the study to other PAPs. It is this committee that will inform others that are not here today.

#### **Closing remarks from Eng. Mmanyi**

- Stakeholders to continue engaging with the consultant in order to refine the information needed for the development of the proposed project;
- Cut-off date is vital and will stop intruders;
- The generated list of PAPs is going to be as objective as possible taking into account of who is affected and how;
- In the next ten years, the Mombasa Gate Bridge may replace the iconic task. The pillars in the bridge represents the spears of our Nation hence a show of our heritage;
- I extend my gratitude to all of you and appreciate all that are here – County Government, National Government, Civil society, the media etc. We really need to run more if we are to achieve our target.

#### **Closing remarks from Minster of Land and Physical planning, County Government of Mombasa**

- The county government values public participation, as we get closer we will refine the details;

- This project is for all of us, the relocation process will be for all affected individuals, no one will be left out;
- Form the said committees that will handle anticipated challenges;
- JICA had conducted a study that identified Mombasa as having the highest development potential in the World;
- We are thankful to Repcon, KeNHA, JICA and the National Government for this support;
- To enable us move faster, all we need is information. Challenges can be easily solved with adequate information. One person in court can stop the entire process mainly because of lack of information;
- We will continue to engage with you at all levels
- Thank you and Karibuni Tena.

**MIN 4/04/2016: Any other business**

Kindly provide you email addresses for ease of communication.

There being no any other business, the meeting was closed at 12.21 pm with a word of prayer.

**Approved for Circulation by**

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Date.....

Attendance sheet



Kenya National Highways Authority

Quality Highways, Better Connections

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT

VENUE: CASTLE ROYALE HOTEL, MOMBASA

DATE: 07<sup>TH</sup> DECEMBER 2017

| NO | NAME                | ORGANIZATION/ DESIGNATION                   | CONTACT INFO               | SIGNA |
|----|---------------------|---------------------------------------------|----------------------------|-------|
| 1  | Muhammad Mwanjira   | Mombasa County Govt                         | 0712245720                 |       |
| 2  | Eng Albert T. Keno  | U                                           | 0722822294                 |       |
| 3  | Ronald D Ogetch     | -                                           | 0727408265                 |       |
| 4  | Francis Muthili     | Muzili Group                                | 0733705550                 |       |
| 5  | Kalimbo S. Mugo     | KENHA - COAST                               | 0733 698777                |       |
| 6  | M. Idris SUNDREST   | Home Business Partners Bank District Office | 0702 878895<br>0711 354012 |       |
| 7  | Leban Wanyugi       | Nation Media                                | 0720870492                 |       |
| 8  | Nahid Khond         | Nation Media                                | 0704311323                 |       |
| 9  | Richard Mugo        | NEMA                                        | 0706478156                 |       |
| 10 | SACIM ICNBI         | Sub-county Admin-Subke                      | 0721939485                 |       |
| 11 | Gabriel Onis        | CMS / PM                                    | 0719 273688                |       |
| 12 | LOUISA MARY MUTHONI | B/Wombasa                                   | 0723676563                 |       |
| 13 | Aly Timia Omar      | ACC FOR CC & DC MOMBASA                     | 0711723768                 |       |
| 14 | Eng Peter Mugo      | M.S.A COUNTY GOV                            | 0724724704                 |       |

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**DATE: 07<sup>TH</sup> DECEMBER 2017**

| NO | NAME                                                     | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE |
|----|----------------------------------------------------------|---------------------------|--------------|-----------|
| 1  | STEPHEN W. KIRUNGA                                       | CDF/ MOMBASA              | 0711703135   |           |
| 2  | Samuel Ojua                                              | DMC                       | 0712124493   |           |
| 3  | MUSA ABDILAHIC                                           | Entrepreneur              | 0725030490   |           |
| 4  | AMNES - L. AMES                                          | MSTA Group                | 072623356    |           |
| 5  | SAMU ISSAH                                               | KORA KENYA LTD            | 0772 865389  |           |
| 6  | E. H. O. MAHERO                                          | RESIDENT                  | 0733289166   |           |
| 7  | MOHAMED SEIF                                             | RESIDENT                  | 0722334503   |           |
| 8  | AMINA NURU<br><small>Prings, Kenya of E-mail.com</small> | RESIDENT - GUYONI         | 0733797884   |           |
| 9  | MARTIN. M. KAMAU                                         | KURA                      | 0722271336   |           |
| 10 | DAVID LUNATIBI                                           | ROADS ADMINISTRATION      | 0733631068   |           |
| 11 | MALIKA ABDALLA                                           | ROADS ADMIN               | 0717227656   |           |
| 12 | Theophil Kipona                                          | CGM                       | 0721244599   |           |
| 13 | Fredrick Salimuh                                         | Members Sports Club       | 0722410310   |           |
| 14 | Danson Dungeji                                           | Kenya Airports Authority  | 0722696867   |           |

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**DATE: 07<sup>TH</sup> DECEMBER 2017**

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|----|-------------------|------------------------------------------------------|--------------|-----------|
| 1  | Jumba Kari        | MOMBASA COUNTY<br>WARDS ADMIN                        | 0729966291   |           |
| 2  | Seaveer Pandhal   | Central Furniture Shop Ltd                           | 0723515777   |           |
| 3  | Tajinder Pandhal  | 11                                                   | 0724 170001  |           |
| 4  | Fahna Mhildachi   | Gangori Health Centre                                | 0735451225   |           |
| 5  | Hussein Ali Khaki | Kenya Bonded Warehouse                               | 0725060228   |           |
| 6  | M. RANJAN         | Depean                                               | 0721974358   |           |
| 7  | Lt Col Ahmed      | Kenya Navy                                           | 0722 390515  |           |
| 8  | JAMES KOMU        | MGarjori Health                                      | 0723464479   |           |
| 9  | William Sangar    | Kenya Machine Assembly                               | 0923889847   |           |
| 10 | Ali Mwachamanga   | Mombasa County Government<br>Sub-County Admin-Litani | 0726320093   |           |
| 11 | Samuel Ajiwi      | KPA Mombasa Station                                  | 0724995568   |           |
| 12 | Hemisi Misiganya  | Mombasa County                                       | 0722229880   |           |
| 13 | BINTI OMAI        | COUNTY GOVERNMENT<br>OF MOMBASA                      | 0718885425   |           |
| 14 | Hiray mutororo    | BARAKA FM                                            | 0701134691   |           |



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**DATE: 07<sup>TH</sup> DECEMBER 2017**

| NO | NAME             | ORGANIZATION/ DESIGNATION                           | CONTACT INFO | SIGNATURE |
|----|------------------|-----------------------------------------------------|--------------|-----------|
| 1  | Ndoyabo Gathanya | Medimax Network<br>People Daily Newspaper/Karimanga | 0722402810   |           |
| 2  | MOSES O'LEND     | EMATA PARTS AND<br>PENSION SCHEMERS                 | 07288630804  |           |
| 3  | Florence Sitanga | NGAO                                                | 0711251294   |           |
| 4  | AIDSON OPIHAMBO  | MOMBASA COUNTY (SOMCO)                              | 0701338850   |           |
| 5  | FUNICE WAMBULI   | Reproon associate                                   | 0727951185   |           |
| 6  | WALTER JAMES     | Reproon ASS.                                        | 0721838424   |           |
| 7  | Egal Ndumwa      | Reproon                                             | 0724794796   |           |
| 8  | Edwin Obachwa    | Reproon                                             | 0133 275156  |           |
| 9  | RUTHAMA          | mandani                                             | 0713232148   |           |
| 10 | Sylvia Arieno    | Resident                                            | 0786 797310  |           |
| 11 | Norah Mwangi     | Spanjoni                                            | 0728489524   |           |
| 12 | Fred Nyake       | CEM - MCA                                           | 0722268975   |           |
| 13 | Abdul Zinuni     | BIM - Jubilee Ins                                   | 0704070907   |           |
| 14 | Techu Faraj Abel | Personal -                                          | 0721652416   |           |



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|----|--------------------|---------------------------|--------------------------|-----------|
| 1  | Hassim Ahmed Ali   | Ahmed Ali Investment      | 0721787072<br>0720836999 |           |
| 2  | Dipen Buthuth      | Apex Steel Ltd            | 09336640157              |           |
| 3  | Ali Choker         | -                         | 0707695680               |           |
| 4  | Nancy Githuoya     | R.N MUCHIRI               | 0713096368               |           |
| 5  | PHILIP WANYAMA     | NMK ARCHITECTS/LOGI DEPT. | 07133088618              |           |
| 6  | Patricia Aguda     | KENTHA - COAST            | 0723729384               |           |
| 7  | ABDULLAH ISMAIL    | CEAN ERGE WORKS LTD       | 0707210741               |           |
| 8  | NUR HAZIHA         | TANKFIRM (INTERFER)       | 0722501585               |           |
| 9  | KENNEDY SAROKI     | KURACAST ENGINEER         | 0728482536               |           |
| 10 | OMAR SWALEH        | MSA COUNOT                | 0724907510               |           |
| 11 | JOHN WANJOHI       | LANDS - MSA               | 0722785782               |           |
| 12 | YUSUF ABDUL REHMAN | SHAMUS cars Ltd           | 0721423332               |           |
| 13 | Husam Mwandaa      | Reporter Radio Salam      | 0729364353               |           |
| 14 | Ahmed A-Amin       | MSA community             | 0721644342               |           |

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|----|------------------|-----------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|
| 1  | MURISON MARIUKU  | E.P.G.M LTD                 | m.m_anderson@epgm.com<br>0707455465         |    |
| 2  | Muham Khaliq     | Kenya Bank Waberi b.        | Muham Khaliq @ gmail.com<br>0733 378334     |    |
| 3  | HASSAN HASLAM    | RICE EAST AFRICA LTD        | hassan.msa@rice.co.ke<br>0733 318332        |    |
| 4  | ALAFIA HASSANALI | LAVISEE GAS LTD             | alafia@5mail.com<br>0733 971539             |    |
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| 6  | SAND J. BECHTAU  | KENYA PRISON                | 0721784236<br>Sjbechta@gmail.com            |    |
| 7  | BERNARD OGONE    | COMARCO                     | 0722404557<br>bernard.ogone@comarco.org     |    |
| 8  | SUHTIL ALI       | OCAP GRUBINERINA            | 0722836712<br>suhtil.ali@ocapmm.com         |    |
| 9  | Ahmed N. Bashir  | World Trade Ltd.            | 0733 739 865<br>ahmed@worldtradeltd.com     |   |
| 10 | Rebecca Okwanyi  | Mombasa County Govt (SCARD) | 0727 705 114<br>rebecca.okwanyi@county.gov  |  |
| 11 | Dan Amadi        | K.P.A                       | 0722707327                                  |  |
| 12 | Esther Kaloudu   | MSA COUNTY GOVT             | 0719132476                                  |  |
| 13 | SUHTIL ALI       | ISLAM AG INVESTMENT         | 0722836713<br>suhtil.ali@ocapmm.com         |  |
| 14 | Hussein Melme    | Radio Kaya fm               | 0705358054<br>husseinmelme@kayafm.com       |  |

7

**PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT**  
**VENUE: CASTLE ROYALE HOTEL, MOMBASA**  
**DATE: 07<sup>TH</sup> DECEMBER 2017**

| NO | NAME          | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE                                                                         |
|----|---------------|---------------------------|--------------|-----------------------------------------------------------------------------------|
| 1  | BRIAN O'NEILL | THE STAR                  | 0725789974   |  |
| 2  |               |                           |              |                                                                                   |
| 3  |               |                           |              |                                                                                   |
| 4  |               |                           |              |                                                                                   |
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| 14 |               |                           |              |                                                                                   |

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## PHOTOGRAPHS WITH CAPTION NOTES



**1. Engineer Howard Momanyi from Kenha addressing the meet**



**Assistant county commissioner Madam Florence sitawa addressing the meeting.**



**17Mr. Wairagu, the rap expert making a presentation.**



18. Attendees participating in the question and answer session.

## 3.2: A.C.K Guest House, Likoni

## **Minutes of Second Stakeholders Consultation Meeting Held on 8<sup>th</sup> December, 2017 at ACK Guest House Likoni for the Environmental and Social Impact Assessment (ESIA) in the Feasibility Study for Mombasa Gate Bridge Construction Project**

Attendants list attached.

### **Items of Agenda**

5. Introductions and opening speeches;
6. Presentations;
7. Questions and answers;
8. Any other business

### **MIN 1 of 2/12/2017: Introduction and opening remarks**

The meeting was started at 10.25 am by a word of prayer from one of the participants. After the prayers Eng. Haward Mmanyi -Deputy Director- Kenya National Highways Authority (KeNHA) who chaired the meeting welcomed present members to the meeting. He further asked members to introduce themselves and the organizations they represent.

### **Opening remarks from Eng. Haward Mmanyi, Deputy Director, KeNHA**

In his opening remarks, KeNHA deputy director acknowledged the presence of the multiplicity of the stakeholders in the meeting and congratulated them for setting aside their time and other commitments to attend the meeting. Many have heard of KeNHA projects in Mombasa County. The many road construction projects you have heard of show our desire to connect Mombasa island/town to all parts of the County. Some of the projects executed by KeNHA that are widely mentioned include the Mombasa Port Area Road Development Project (Dongo Kundu), Miriti to Kipevu Port project among others. Our purpose for calling you here is to discuss Mombasa Gate Bridge Construction Project and should not be confused with other ongoing KeNHA processes in Mombasa area. The Mombasa Gate Bridge Construction project is undertaken by KeNHA. The bridge is connecting Mombasa Island with mainland South through Likoni channel. The construction of the bridge will be a landmark that will re-write the history of Mombasa and Kenya. It will extremely change the face and the sky of Mombasa. The bridge will be seen while driving in Changamwe and on arrival to the Airport. The government thought it was wise to start disclosure processes for the Mombasa Gate Bridge Construction project. We want to handle the project in a manner that embraces human dignity by making direct consultation with the affected persons. Even though we have made much progress prior to this disclosure meeting, it is our mandate to make sure that everyone is brought on-board. Therefore the purpose of being here today is to disclose the Mombasa Gate Bridge Construction, Project, to bring everybody to speed by discussing with you some of the process needed to augment on what had been achieved earlier

and also to identify and know the affected persons. We therefore encourage openness during these discussions and we need as much information as possible.

### **Opening Remarks from Area MCA**

He stated that the project is beneficial to the all of us. We are currently experiencing lot of resounding transport challenges and it is believed that the Mombasa Gate Bridge Construction will open up the area and ease traffic congestion. But as much as we are ready to embrace this project, a lot of social and economics consideration concerning the locals that will be impacted by the project should be looked into.

### **Opening Remarks from Madam Mishi Mboko – Likoni Member of Parliament/MP**

The Area MP acknowledged the presence of National government lead by Likoni OCPD, DCIO, DCC and chief and their deputies. MP Mboko welcomed the Mombasa Gate Bridge Construction Project and endeavored to support it. In justifying her support, the MP noted the following points: 1) Likoni and Mombasa town are currently experiencing heavy traffic congestion that impedes effective transportation; 2) Several deaths occasioned by numerous accidents in the Likoni channel are in the rise; 3) There is lack of investors in Likoni area due to discouraging transport systems; 4) This lack of Investors coupled with centralization of factories in Mombasa Island has led to alarming rates of unemployment among the Likoni youths causing crimes in the area; 5) Lack of a functional Bridge linking the Island and Likoni has made the South Coast to lack tourist, most tourist prefer going to Kilifi County which enjoys free and fast transport infrastructure; and 6) There are many projects being implemented at the Mombasa Special Economic Zone, but without a functional road, their potentials to trigger economic group will never be realized.

The Area MP however commented on the consultative process noting that it was done in line with the constitution. She added that it is only through such consultative forums that development of amicable solutions to common existing challenges can be achieved. Conversely, the Area MP observed that compensation has always had issues in almost all projects targeting the locals. She suggested that proper consultations with the PAPs and the National Land Commission should be employed. Land and asset issues must go beyond the human face, and local community to be open minded not to raise issues that would lead to the ceasing of development of the project. The Government is investing a lot of money in this project; let's put some sense in the project- 80 billion is a lot of money; aren't it? She asked. Local participation should be continuous and local community should be given priority in procurement and work. In conclusion, this project of connecting Mombasa and Likoni has my blessings. In all the steps, let's work together remembering that transparency and accountability is the most important aspect of coexistence.

### **Opening Remarks from Deputy County Commissioner DCC**

He thanked the team and all present members. He appreciated the leadership of the project though said the notice to attend consultation was short but thanked everyone for making time to attend

despite the short notice. He introduced the entire administration that attended the forum. His team comprised of 5 Assistant Chiefs, 3 Chiefs, Assistant County Commissioner, Inspector, DCIO, and OCPD for Likoni. The DCC pledged his support for the project and said that the project will create an atmosphere of peace and justice to all. The proposed project will benefit Likoni and Kenya at large because Likoni is the gate to Southern Coast. He requested the people and politicians to work together with the government in order to implement the Bridge Construction-let's give the government easy time he noted. He requested KeNHA and the consultant to identify the PAPs and compensate them fully. The Likoni DCC however insisted that the dictates of the law must be followed irrespective of political affiliations. He urged local leaders to be ambassadors of good will to the project and to desist from spreading roammers. Let's look Likoni positively; we need to start building new and good houses in Likoni now that the SEZ will start next year. He also called for planning standards to be upheld and encroachments to peoples' properties to be discouraged. Let's build a good future for our children. Time without numbers Likoni area has been mentioned as unsafe for investors but this is not true. Likoni is very safe. Leaders should show some soberness in their undertakings rather than writing things in social media, call the security team for talk before spreading roammers because these roammers do scare investors and negate development. He encouraged the local leadership to support the development of Shelly beach as a potential business ground for the youths. There is need to fix street lighting along the Shelly beach for security reasons. The DCC concluded by calling for togetherness in development strategies. We need to attract investors by promoting peace; we need to forget political issues and work together for the benefit of our people; let as consult and work together; other parts of the country are developing rapidly, we don't want Likoni to be left behind.

## **MIN 2 of 2/12/2017: Presentations**

The Lead Environmental Expert Mr. Michael Wairugu thanked KeNHA, Deputy Director for giving him the opportunity to discuss Mombasa Gate Bridge Construction project. Several road construction and infrastructure developments designs and implementations are on-going in Mombasa; he mentioned the Mombasa Northern bypass and Southern bypass, Mombasa Special Economic Zone and The Mombasa Gate Bridge project as just few examples of current designs and implementations in progress. Therefore, with this kind of transport network, 10 years to come one will be able to travel from Shikadabu to Mtwapa without necessarily going through the town Centre and in the shortest time possible. It should be underlined that over the years, transport systems crossing the Likoni channel had suffered a myriad of challenges due to lack of a single functional bridge in the channel. It should be noted further that search for a better transport means across the channel did not originate with us but we are just part of the long process that started way back in 1947 when existing ferry by then had a carrying capacity of only one car. And as early as 1955, even the famous Nyali had no bridge. Without prejudice, the population of Mombasa town has grown exponentially constraining the existing transport infrastructure through relentless traffic congestions and further creating new land use demands. It is in this regard that the government of Kenya has seen sense and is compelled to find a lasting solution to problems associated with lack of a functional bridge linking Mombasa town and Main Land South. Confidently speaking, additional of extra ferries in the channel is no longer an important option to

the current problems. Even with the existing 4 ferries at peak hours, series of ships with the right of way to dock and over 300,000 pedestrians coupled with 6000 vehicles, the Likoni channel is severely over stretched creating more confusion and yet there is no room for more expansion. The only available and lasting option for now is the Mombasa Gate Bridge Construction Project.

The MGBC Project is a project supported by JICA and Government of Kenya. This project has been undergoing development since 2016. The designs are ready. This is not the spiral design that you were earlier aware of but it is a permanent bridge supported by two massive pillars forming spears at the end of each pillar. This design has triggered a feasibility study to be conducted in order to define its impacts on environment and people. The feasibility study should end by mid next year.

In line with the requirements of good project practice, the project must be subjected to a full cycle Environmental and Social Impact assessment due to the nature of its scope. As a starting point, the team decided to call for disclosure meeting and to engage stakeholders in both the Island and mainland south. We conducted a similar meeting yesterday in the Royal Castle Hotel and today we are here to disclose the project to you.

### **Objectives of the meeting**

- vi) To disclose the Mombasa Gate Bridge Construction Project. The MGBC is a project with known dimensions and scope. It is no longer a concept;
- vii) To Highlight potential impacts in line with the Kenyan laws- the constitution requires that PAPs to be informed of all impacts and collect their views prior to implementation of any project;
- viii) To discuss the negative and positive impacts of this known project; displacement is one of the negative impacts anticipated in this project;
- ix) To continuously engagement with stakeholders at mandate holders and local level. Close to 6 such meetings had been held since the beginning of the designing phase including meetings with Kenya Navy, National Museums of Kenya, and Kenya Ports Authority among others. In such, we will be building consensus on previous meetings; and
- x) To obtain stakeholders concerns during this feasibility study before proceeding to detailed study

This exercise is undertaken by Repcon Associates Ltd. Contacts of Repcon Associate was project for the public)

### **Purpose of the meeting**

The main purpose of this meeting is to try to **attempt to solve a problem** that has been there for so long since 1947. The problem in question is lack of a functional road joining Mombasa Island with Mainland South. Contributing causes of this problem includes:

- vii) Growth of Mombasa town overtime overstretching its carrying capacity;

- viii) Mombasa town has been the address/destination of choice since antiquity attracting tourists, investors etc;
- ix) Mombasa has established itself as the Gate-way to both East Africa and other regions in Africa;
- x) The carrying capacity of Mombasa Island has been over stripped;
- xi) Spilling over of the growth to the south has been constrained by lack of a functional bridge denying the mainland south development regimes; and
- xii) Prime developments triggered by tourism in the north have continued to flourish while such developments in the south have remained stubbornly low or dormant.

The current means of crossing to the south is through Ferry services which are overstretched. However, attempts to solve lack of functional road between the island and the south are not of recent times. Past initiatives started in 1947 with a ferry carrying only one vehicle. In such this meeting qualifies to be part of the ongoing process of this problem solving. The current ferry means is not a solution to these problems. Currently four ferries are used to transport vehicles and people. Even adding more ferries in already congested channel of marine ships and sea vessels is not a solution. Present Data from Kenya Ferry Services indicates that close to 300,000 people and 6,000 vehicles cross the channel every day. Ferry services are not a viable means of transport.

Other developments in the Mainland south that require immediate functional road includes:

- iv) The development of Mombasa Southern Bypass road – tenders for this project has been floated for bidding;
- v) The Development of Mombasa Special Economic Zone funded by JICA; and
- vi) The development of additional port in Kilindini with provisions for manufacturing area, free port etc as part of Kenya Vision 2030. The new port will attract over 60,000 newcomers including investors and tourists.

In the wake of all these, the Kenyan government asked JICA to assist in conducting a study with objective of identifying the **most suitable location** for the bridge construction and to assess the project feasibility among others. In line with its objectives, the team/Katahira Engineers identified 9 alignments in its early stages of work. However, on further analysis for optimization, only three routes were identified as potential options. The 3 option were again subjected to further analysis by looking at the reality vis avi abstract/concept at construction phase, environmental consideration, historical perspectives, levels of potential impact, impact of traffic volume in the CBD, cost implications and compatibility with the Mombasa Master Plan blue print.

### **Outcome of the analysis of the three options**

**Option A:** If the functional Bridge is to pass through the current ferry channel with the spiral layout extending to Mama Ngina area, then, the route though the shortest, the route has the highest potential to:

- × Disrupt the ongoing ferry services and other sea vessel operations for 4 years of Gate Bridge Construction phase;
- × Destroy Mama Ngina area’s reach archaeological values;

- × Erode the historical foundation of Mombasa - The existence of Mombasa town can be historically trace to Mama Ngina area;
- × Drain traffic to Mombasa CBD creating even more congestion in the city; and
- × Cause high displacement impact in Likoni area that can significantly steepen cost implementation gradient.

**Option B:** Was rejected by the Kenya Navy citing security of the Naval Barracks as a threat if the bridge is to be located in that alignment and further dismissed by the Kenya Ports Authority quoting the bridge as a threat to future docking of Sea vessels at the port.

**Option D:** Emerged to be the most optimum option by offering a comparative advantage over the other two options (A and B). Upon assessment and evaluation, it comes to light that option D has:

8. Fewer potential displacement impacts;
9. Higher likelihood to augment the development of both Mombasa Special Economic Zone, Kilindini port and Mombasa Southern Bypass;
10. Low Bridge operation and maintenance cost;
11. Very minimal disturbance of marine traffic flow during construction;
12. Potential to decongest Mombasa town by changing the terminal away from the CBD;
13. Provision of efficient freight transportation between Kilindini Port and Nairobi; and
14. Compatibility with Mombasa Master Plan – specifically the establishment of western hyper corridor strategy targeting Saba Saba area.

#### **Scope and disclosure of rout D (optimum option)**

Route D is taking off at Jela Baridi, passing through Kenya Railways, Moi Avenue, Cannon towers, Bishop Makarios, Komako, the channel, Puma Primary, Mwenza creek, Jambi la wageni, Dimbwini, Mtongwe Posta, Shikadabu, to Ziwani where the road will connect to Mombasa Southern Bypass. The route is 10.4 kms long. The actual Bridge is 1.4 kms supported by two pillars placed at a span of 600 meters apart. The 600 meters span is to allow for ease of navigation. In between the span, 150 meters both ends are designated as buffer zones. The highest point of the bridge is 69 meters equivalent to the top of a 20 storied building. The allowable height by Air Carrier Access Act is 210 meters hence the proposed height has not breached the ACAA act. This height is extremely important for navigations of sea vessels. Currently the tallest ship in the sea is 65 meters high. The only challenge is on vessels with high scope eg the Panamax or Neopanamax vessels. Due to demands from the public, the Bridge had provisions for pedestrian line to the Eastern part of the road. To provide approach points, the A14 road will be widened from Catholic Church to Ujama shopping area and an interchange provided at Corner Mpya. The Mtongwe road will also be upgraded to meet KeNHA standards. The descriptions given are the project details that we are here to disclose. To arrive at all these, a lot of engineering works has been done. This project is supported by JICA and Government of Kenya under the executing agency of KeNHA.

**The Environmental Impact Assessment:** The project falls under category A of EIA due to its scope. In such the project must undergo a full cycle EIA in line with EMCA legislations. All

other issues will be discussed at EIA. National Museum of Kenya had proposed full cultural assessment to be conducted.

**The social impact:** One of the eminent social impacts of this project is displacement of people and their assets. We will identify the properties to be displaced. Also disruption of business and other livelihoods streams will be occasioned by the project. Consequently, some people will have to loss shelter. However, the project is committed to see minimal impacts resulting from the project implementation.

**Baseline Survey:** The team will conduct environmental baseline survey in order to determine the baseline information of the route. Some of the information to be collected include: air quality monitoring; Water quality monitoring; Ecological survey among others.

**The RAP study:** The RAP study aims at firming up the alignment. Using the coordinates of the Centre line, all the affected properties will be identified; owners of the properties identified and documented; an asset register developed; livelihoods streams for the impacted individuals enumerated; affected interests and vulnerable individuals taken into account; and finally, a list of all Project Affected Persons derived. All the assets will be valued in line with valuation laws.

**The findings of this study:** Study findings will be subjected to public review; thereafter a draft report will be submitted to NEMA for licensing. KeNHA will prepare cadastral report for land acquisition. This report will be submitted to National Land Commission. The NLC will take a lead role in effecting land acquisition and compensation in line with the Land Act. NLC will gazette the properties; make resolutions and awards for compensation. Upon compensation, the proposed Gate Bridge construction will start.

The study has a fixed timeline. It started in August and will end by mid-March 2018. We lost some time due to political reasons but will be able to finish within the prescribed time.

It is estimated that the entire project will cost close to 80 billion Kenya shillings. JICA has already committed funds to enable construction of Mombasa Gate Bridge project.

### **MIN 3 of 2/12/2017: Questions and answers**

The process was coordinated by Mr. Mmanyi– KeNHA engineer.

| <b>Name</b> | <b>Organisation</b>                              | <b>Question</b>                                                                                                                                                                                                                                                                           | <b>Answer provided</b>                                                                                                                                     |
|-------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Walter      | Truth Justice and Reconciliation Commission/TJRC | We know that even with the bridge in place, ferry services will be devolved to pedestrians and bicycles. You have also talked of a pedestrian lane fixed on the Eastern part of the bridge but this will be a long stretch definitely. The world has gone digital as all can confirm, can | The issue of elevator across the bridge is a good idea that is currently under discussion with JICA. Also under consultation is the issue of toll station. |

| Name        | Organisation                                | Question                                                                                                                                                                                                                                                                             | Answer provided                                                                                                                                                                                                                                                                                                                           |
|-------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                                             | there be an elevators in the bridge to reduce on the height concerns for pedestrians?                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                           |
| Fatuma      | Konza Sub location Assistant Chief          | You said the bridge can be accessed from Jela Baridi and Ziواني; how will those living in Likoni connect to the bridge or they will have to go to Jela Baridi or Ziواني?                                                                                                             | The bridge has several approaching bridges or lanes. Jela Baridi, Mombasa Sports Club, and Corner Mpya in Mtongwe road. Also about 2 Kms from Buma Primary near Mtongwe Barracks, the road will be a normal high way; but proposals are to connect through conveyer/elevator at Bridge Academy to create an equidistance point of access. |
| Omari Raisi | Representative of Likoni Business Community | I also support the issue of a conveyer connection. 30 years to come, the population will be massive and the ferry will not be enough even for pedestrian, can their by an electrical train over the bridge? or what will happen if the carrying capacity of ferry is over stretched? | Unfortunately the weight of the train cannot be supported by the bridge. Also train cannot go climb beyond 2% elevation gradient. Demand at the ferry will reduce with the bridge because commuters will go through town using the bridge.                                                                                                |
| No name     | No organisation                             | Weighbridge and box culverts are always ideal crime zones, How are you going to ensure security of these points? Because if possible consider establishing security posts.                                                                                                           | Protection of the bridge will be of security concern to the government and even all of us. The area under the bridge will be under security surveillance and with constant monitoring at entrances and exits. Kenya navy has already requested for prior engagement. However, security starts with all of us.                             |
| Mtinda      | Representing People Living                  | Ferry services are currently maintained by income from                                                                                                                                                                                                                               | As noted before, the pedestrian lane will be                                                                                                                                                                                                                                                                                              |

| Name        | Organisation                                     | Question                                                                                                                                                                                                              | Answer provided                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | With Disability                                  | <p>vehicles, how will it be sustained when vehicles will be using the bridge?</p> <p>If the wind speed at the highest point of the bridge can blow off a tuk-tuk, what about wheel chairs in the pedestrian lane?</p> | closed with glass to protect against the wind strength and any suicidal missions among the public. The wheel chairs ramp will also be closed with glasses.                                                                                                                                                                                                                                                                                                                   |
| Salim mboga | Community Member                                 | How are you going to handle dispute on land and structure?                                                                                                                                                            | <p>Disputes on properties and land are anticipated and is a normal occurrence. However, the RAP team will not be solving any dispute but will take inventory of all assets and all the interested parties, The disputes or points of conflicts will be noted and transferred to NLC. The NLC will only listen to the complains. If the complains are already registered with a court of law, the due process must be concluded and this will be out of NLC jurisdiction.</p> |
| Walter      | Truth Justice and Reconciliation Commission/TJRC | <p>Time frame, heard from a friend that people are kept waiting for a long time before the compensation is done.</p> <p>On the 40% employment of locals, in most cases the locals are always ignored.</p>             | <p>The time frame for the entire project period has been discussed. On compensation, we hope that by the end of December 2018, the process will have commenced. However, even if we have inventoried your plot, no one stops you from continuing with your development until you are given notice to stop. Compensation depends on several issues.</p> <p>The 40% local participation is a requirement by the government. This can be achieved through supply of</p>         |

| Name       | Organisation | Question                                                                                                           | Answer provided                                                                                                                                                                                                                                                                                |
|------------|--------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |              |                                                                                                                    | local materials and labour. Tender can be given to local firms or youth groups but the groups should be well organized and recognized.                                                                                                                                                         |
| A/C Fatuma |              | The huge support pillars may affect the activities of fishermen denying them access to their livelihood.           | Impact on the fishermen is eminent but their interest will be covert in another forum that involves the entire BMU members. Current proposals suggest that the fishermen will be given a boat for deep sea fishing. However, impact assessment on ecology and biodiversity mapping is on going |
| Henry Kago | Business Man | Toll station payment will disrupt business at the ferry point. We also fear that ferry will start changing people. | Ferry charging on people is the most feared even among politicians. If you introduce charges to the people you are sure of even losing your political seat. It is a government policy that no one is charged when crossing the channel as a pedestrian.                                        |

### **Closing remarks from Eng. Mmanyi**

The Deputy Director thanked leaders and particularly the civic society for coming to the meeting in large number. You can now believe that the question of where the bridge will pass is no longer important but how the bridge will pass has overshadowed it. We really need assistance from the community especially the land owners. We sincerely welcome promises that you have given out on effective collaboration and partnership. On our part we are promising to engage with you all the times and to understand you as well. Thank you all.

### **MIN 4 of 2/12/2017: Any other business**

Kindly provide you email addresses for ease of communication.

There being no any other business, the meeting was closed at 13.41 pm with a word of prayer.

**Approved for Circulation by**

..... Date.....

**Photos with Caption Notes**



Eng. Howard Momanyi of KeNHA issuing the opening remarks.



Madam Mishi Boko, Member of Parliament, Likoni Constituency addressing the meeting.



Mr. Wairagu (seated in front) , the Environmental expert making a presentation on the project as members of the meeting follow attentively.



Members engaging the Environmental expert in some Question during the meeting.

## **Attendance sheets**



**Kenya National Highways Authority**

Quality Highways, Better Connections

**PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT**

VENUE: ACK CHURCH, LIKONI

DATE: 08<sup>TH</sup> DECEMBER 2017

| NO | NAME                | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE |
|----|---------------------|---------------------------|--------------|-----------|
| 1  | HENRY KIRAGO        | N BIASHARA FERRY          | 0702666844   |           |
| 2  | Mwaka Zahoro        | MCA - Nominated           | 0728948307   |           |
| 3  | FELIX MAYA          | ACC - LOMO                | 0722591161   |           |
| 4  | FRANCIS J. KITANUSI | SNR CHIEF MEXGAE          | 0721 646279  |           |
| 5  | MORENCE SIKAWA      | ACC 1                     | 0711251294   |           |
| 6  | MUHAMMAD MUMBATTO   | MCG - UMOA ADMIN          | 07122445720  |           |
| 7  | ERIC MULESU         | Interior - D.CC           | 0722508788   |           |
| 8  | COLLY OUMA          | INTERIOR                  | 0728 722 357 |           |
| 9  | JAMES WAWEM         | REP CON                   | 072888494    |           |
| 10 | WILIAM GITONGA      | REP CON                   | 0722746154   |           |
| 11 | EURICE NAMBULI      | REP CON                   | 0727951185   |           |
| 12 | EDWIN OBADHA        | REP CON                   |              |           |
| 13 |                     |                           |              |           |
| 14 |                     |                           |              |           |



**Kenya National Highways Authority**

Quality Highways, Better Connections

**PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT**

**VENUE: ACK CHURCH, LIKONI**

**DATE: 08<sup>TH</sup> DECEMBER 2017**

**2**

| NO   | NAME                  | ORGANIZATION/ DESIGNATION           | CONTACT INFO | SIGNATURE |
|------|-----------------------|-------------------------------------|--------------|-----------|
| ✓ 1  | Stephen Mutinda       | PWD                                 | 0721254384   |           |
| ✓ 2  | HUSSEIN HASSAN        | SHIKADABU ALLIANCE TEAM             | 0718146767   |           |
| ✓ 3  | Athman Hamisi Mwaraze | RESIDENT                            | 0724270957   |           |
| ✓ 4  | ALI MUKUNYAKA         | RESIDENT                            | 0721760101   |           |
| ✓ 5  | JOHN NEUNGU           | RESIDENT                            | 0700612130   |           |
| ✓ 6  | Ali Mwachamanga       | Sub County Administrator<br>MCG     | 0726320093   |           |
| ✓ 7  | M. WATIRAU            | Deputy                              | 0722274258   |           |
| ✓ 8  | Hon. Meshi Mbororo    | MP                                  | 0722783753   |           |
| ✓ 9  | Hon. Athman Mwaraze   | MCA-LIKONI WARD                     | 0723078750   |           |
| ✓ 10 | FLORENCE GIDEBO       | WARD<br>LIKONI<br>VILDER/C POLICING | 0723974509   |           |
| ✓ 11 | WALI ENKIAS           | Peace/ cohesion security            | 0722725755   |           |
| ✓ 12 | Eng. Howard A.M.      | KenHA                               | 0720738190   |           |
| ✓ 13 | Hon. Ahmed Salim      | M.C.A. Bafu WARD                    | 0715857222   |           |
| ✓ 14 | Hon. Mwakwa Bakari    | M.C.A. Tumbeni                      | 0721847112   |           |



**Kenya National Highways Authority**

Quality Highways, Better Connections

3

**PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT**

**VENUE: ACK CHURCH, LIKONI**

**DATE: 08<sup>TH</sup> DECEMBER 2017**

| NO   | NAME                | ORGANIZATION/ DESIGNATION           | CONTACT INFO | SIGNATURE |
|------|---------------------|-------------------------------------|--------------|-----------|
| ✓ 1  | MELUMA KITAMBI      | YOUTH REP.                          | 0726 543615  |           |
| ✓ 2  | BAURARAD MOI        | Senator                             | 0910 580661  |           |
| ✓ 3  | Mohamed S. Nyembere | CONSTITUENCY MANAGER<br>LIKONI      | 0707448929   |           |
| ✓ 4  | Salim Hamisi Baya   | Retired assistance chief<br>Mlongue | 0722104806   |           |
| ✓ 5  | MWAPASITI JUMA      | NIS                                 | 0728462835   |           |
| ✓ 6  | LT COL AGNES        | KENYA NAVY                          | 0722390515   |           |
| ✓ 7  | ATHUMPA J. MWAKHA   | BALDI MIONGWE                       | 0723728018   |           |
| ✓ 8  | BINTIALI KHA        | SALTI YA WAPAWAKE                   | 0722537288   |           |
| ✓ 9  | Omara Ratsi         | Consultant                          | 0722 990 198 |           |
| ✓ 10 | REV. S.N. NAYAMANA  | CHURCH firm                         | 0722580528   |           |
| ✓ 11 | STANLEY KIBECH      | NPS<br>INSPECTOR OF POLICE          | 0725130312   |           |
| ✓ 12 | BENJAMIN ROTICH     | POLICE DEPARTMENT                   | 0722573407   |           |
| ✓ 13 |                     |                                     |              |           |
| ✓ 14 |                     |                                     |              |           |



Keny National Highways Authority

Quality Highways, Better Connections

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT

VENUE: ACK CHURCH, LIKONI

DATE: 08<sup>TH</sup> DECEMBER 2017

4

| NO | NAME                 | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE   |
|----|----------------------|---------------------------|--------------|-------------|
| 1  | MUABU AU YESI        | INTERIOR                  | 0711515402   | [Signature] |
| 2  | RASHID ABDULLA       | INTERIOR                  | 0724 664 023 | [Signature] |
| 3  | Ali R. MUMMANJI      | INTERIOR                  | 07021598 18  | [Signature] |
| 4  | Said J. KUNDU        | INTERIOR                  | 0723995908   | [Signature] |
| 5  | AKHMANI, M. MWAKOSI  | INTERIOR                  | 0723359557   | [Signature] |
| 6  | Henny Ndombi         | Interior                  | 0722685867   | [Signature] |
| 7  | Esther Kelanda       | USA-COUNTRY GOVT          | 0719132476   | [Signature] |
| 8  | MWALIMU H. MGBWISITA | MCA -SHICABASU            | 0722491463   | [Signature] |
| 9  | DENNIS WAKAFU        | SECURITY                  | 0726143608   | [Signature] |
| 10 | SEBASTIAN MUMMANJI   | SECURITY                  | 0722553477   | [Signature] |
| 11 |                      |                           |              |             |
| 12 |                      |                           |              |             |
| 13 |                      |                           |              |             |
| 14 |                      |                           |              |             |

### 3.4: The Presentationmaterial used in Leaders Meetings



# Public participation meetings

## 1. Peleleza Primary.

## **Minutes of Stakeholders Consultation Meeting Held on 9<sup>th</sup> December, 2017 at Peleza Primary School for Environmental and Social Impact Assessment (ESIA) in the Feasibility Study for Mombasa Gate Bridge Construction Project**

Attendants list attached.

### **Items of Agenda**

9. Introductions and opening speeches;
10. Project Disclosure and Presentations;
11. Questions and answers;
12. Any other business

### **MIN 1/12/2017: Introduction and opening remarks**

After a word of prayer, the chief welcomed the people and called the meeting to order at 10:30 am. In his opening remarks he informed the community that the purpose of the meeting was to discuss proposed developments in Likoni Location. He requested the community members to be attentive and take notes of all that will be discussed in the meeting. The chief then introduced the consultant to the community to elaborate further on the meeting agenda.

### **MIN 2/12/2017: Project Disclosure and Presentations**

The Mombasa Gate Bridge Construction Project was disclosed by the Lead Expert and team leader of the study team. My presence here is to investigate on both the Environmental and Social impacts emanating from the proposed construction of Mombasa Gate Bridge – a Bridge that will connect Mombasa Island with Main Land South.

A team from JICA has been working here in Mombasa for some times close to 2 years looking for an alternative route that will link Mombasa Island to Main Land South. In the verge of their exercise, it was revealed that ferry current operating site cannot be used for bridge construction. Therefore, an alternative route had to be identified. The most convenient alternative was found to be a route that will drain the traffic away from the Mombasa CBD and also providing avenue for ease of movement to a wide range of bigger water vessels. This alternative route will be going through your areas. This route has been confirmed and is no longer a concept but a project with prescribed timelines. I am here to disclose the project and to disclose the expected impact.

**Description of the project:** The Mombasa Gate Bridge Construction Project entails construction of a bridge starting all the way from Jela Baridi in Lumumba Rd to Siwani in in Kwale County. The bridge will be connecting Mombasa Island/town and Mainland South. The Bridge will pass through Limumba road, Moi Avenue next to Cannon Towers, Mwakilingo Street, Puma Primary School, Peleleza School, Mwenza Creek opposite Kenya Navy, Mtongwe Posta, and finally

joining the Mombasa Southern road at Zawani in Kwele County. The bridge will be high enough to allow for normal operations of ships below and will be about 70 meters high from ocean level. The width of the bridge will be 60 meters wide while its length across the channel will be about 1.5 Kms. Therefore, the alignment is set to acquire 60 meters of land triggering displacement of people and their properties. However, the current route was adopted after several route options had been studied. The results of these studies revealed that this route/alignment has the least number of impact and displacement potential compared to the others.

He noted that because of the bridges' height, some areas will have embankments resulting into barriers and sometimes restricting access between two areas. But, mitigation measure including installation of culverts of 5 meters wide will be erected at every 100 meters interval to allow for free movement of vehicle and people. He also explained that the bridge will have a closed **pedestrian lane** facing the East and that provisions of short cuts to enable access to the pedestrian lanes was being sought out.

**Project impacts:** The RAP team will be on the ground to do an asset inventory of the affected plots and any developments/investment on the plots including structures, trees, boreholes, drainage paths, cemeteries/grave yards, and playing grounds among others. **Loss of land** will be compensated with or without land tenure security. The law is very clear even for those without land tenure (Article 40/4 in the Constitution of Kenya was cited), the government would look for ways of compensating. When the elders confirm to the inventory team that the land is yours, we will record it in your name. Public assets that include mosques, schools, and hospitals will also be enumerated. For corporates and communally owned assets, there would be need for proof of members and minutes for community owned organizations will be required. We will also need information on the location of shrines/vingo and other cultural areas that are of community importance. We are therefore requesting you to be open to us and give out all the information needed. The project will compensate for graves and shrines but will not be party to relocation of the same graves and shrines. Community funded projects that are in the proposed alignment will also be inventoried and compensated. Any asset that one has spent his money on will be inventoried and compensated fairly.

Besides assets, the RAP team will conduct social and economic studies in order to understand the existing social structure of the affected population and to understand their social dimensions. This project is keen on loss of business and impact on livelihoods streams of individuals and corporates. It is widely acknowledged that one of the biggest challenges of the government is to fight poverty and creation of employment opportunity; it will therefore be a mockery to see government projects distributing income sources of its own citizens. In such, loss of business will also be enumerated. Finally, the RAP team will collect information on loss of shelter in order to estimate displacement potential of the proposed bridge construction. We will need property owners during inventory process. We will measure and record every property that is impacted by the traverse. However, my team will not settle any dispute on land or asset but will document the nature of dispute and associated interest in asset or land. This will go to National Land Commission (NLC) for further arbitration. The NLC will conduct several public review meetings

after which affected persons will be required to open a bank account of their choice for compensation. The NLC will need joint account for couples but this will be discussed at later stage.

**Compensation package:** After Inventory, an asset register will be developed. The team through a valuer will provided the cost of assets and land. The whole compiled list will be given to the National Lands Commission for compensation to take place. Upon receipt of the costed asset register, the NLC shall conduct a public review meeting before compensation is done. Compensation package will entail; replacement cost of assets at current cost; social disturbances costs; costs of transfer and transaction among others. Compensation will be done in such a manner that enables one to buy land in the same area. Both indigenous & exotic trees, fruits and other plants with high ornamental values will also be compensated.

**Project costs and benefits:** The Mombasa Gate Bridge is going to be one of the biggest in Africa. It is estimated that construction cost is 80 billion Kenya shillings; translating to 8 billion for every kilometer out of the 10.2 kilometers stretch of the entire bridge. It is a government policy, that 40% of the any project cost must benefit the local community. In such, the construction of the Gate Bridge will; create employment for the youths; provide avenues for supply of local materials through tendering process; and provide trading opportunities among others. But our youths must accept to work and demonstrate good workmanship.

**MIN 3/12/2017: Questions and answers;**

After discussions, the local community was allowed to voice their concerns and seek for clarification of facts about the proposed route. The following questions were asked.

| s/no | Name         | Question/ remark                                                                                                                                                                                                                                            | Answer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Juma Manuari | <ul style="list-style-type: none"> <li>The idea to construct a bridge connecting the island and Main land is a good idea, we appreciate the planned development. But when is the compensation going to take place, before or after construction?</li> </ul> | <ul style="list-style-type: none"> <li>Compensation will take place before the project begins after which a three month notice will be given to allow for peaceful relocate.</li> <li>Before compensation, two committees will be formed: PAPs committee and Grievances Redress Committee.</li> <li>Vulnerable individuals will also be identified. The constituted committee will assist the vulnerable to ensure justice is delivered. The Vulnerable include orphans with less than 18 years,</li> </ul> |

|   |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>people living with disability and the elderly.</p> <ul style="list-style-type: none"> <li>• If land and assets have disputed ownership and court process is underway, the final verdict from the courts shall prevail. However, we are advising for early arbitrations to mitigate compensation delays.</li> </ul>                                                                                                                                                                                                                       |
| 2 | Juma kizuri  | <ul style="list-style-type: none"> <li>• When will the project start and end?</li> <li>• How are you going to compensate other impacts eg the risks, will there be a risk analysis in your work?</li> </ul>                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>• The research period is expected to take two years after which the construction period will take four years;</li> <li>• By the end of next year all compensation process will have been concluded;</li> <li>• Three months' notice to move/relocate with all important materials salvaged will be issued to all PAPs</li> <li>• Baseline surveys on Air quality, Vibrations, Marine ecology, noise levels among other will be conducted to manage risks and monitor change overtime.</li> </ul>     |
| 3 | Musa Omwanda | <ul style="list-style-type: none"> <li>• How will you consider the disabled and other human traffic when developing the pedestrian lane?</li> <li>• The 40% required for local participation may not be realistic. Most local companies (Base Titanium was cited) to not provide opportunity for the youths; not even supporting activities such as football clubs. Also, local employment to incorporate companies owned by local people and first priority to be given to local people.</li> </ul> | <ul style="list-style-type: none"> <li>• The pedestrian lane will be spiral to allow for wheelchair movement.</li> <li>• Ferry services will also still be operational.</li> <li>• It is a government policy that 40% of all labour (semi-skilled and skilled if available) should be sourced from the local community and that 40% of all contracts should be awarded to the locals. However, a clear line should be drawn between Corporate Social Responsibility (CSR) and local participation in projects. Your question has</li> </ul> |

|   |                      |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                               |
|---|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                      |                                                                                                                                                                                                      | <p>mixed views. CSR is percentage given back to the community at operation phase of a company eg Bamburi Cement can decide to build schools and roads from the benefits the company has received. The 40% requirement in reference is local participation at construction period.</p>                                                                         |
| 4 | Amedi Hamisi Mwanga  | We are fishermen and our homes and assets are in the riparian reserve owned by KPA – Kenya Ports Authority, how will compensation of such be done noting that we don't own any other land elsewhere? | <ul style="list-style-type: none"> <li>Riparian land belongs to the government. But the constitution under article 40/4 provides the guidelines for negotiations and compensation under such circumstances. The government will not compensate for affected assets and leave you without land.</li> </ul>                                                     |
| 5 | Japheri wa Insaka    | What is the way forward on land owned by the community?                                                                                                                                              | <ul style="list-style-type: none"> <li>Any community project will be compensated but proof of community ownership must be demonstrated. Records of registrations of community group, minutes and other statutory documents will be required for ease of enumeration.</li> </ul>                                                                               |
| 6 | Juma Bakari          | When will you identify Persons Affected by the Project? Because following your explanation, it apparent that the PAPs should be Identified first.                                                    | <p>The team is ready to undertake full inventory even today. What we need is an agreeable date. We will also require two village elders to guide the RAP team in identification of land owners. We will also need 4 youths to assist as in enumeration. The enumerators will be trained but must have at least diploma certificate in any field of study.</p> |
| 7 | Mohamed Juma Kawingo | Where will the 60 meters start at?                                                                                                                                                                   | <p>From the age of the water mark, a Centre line/middle of the road will be established by the RAP team, then from this middle line, 30 meters both sides will be measured physical to provide limits of our inventory. Everything falling within the corridor</p>                                                                                            |

|  |  |  |                     |
|--|--|--|---------------------|
|  |  |  | will be documented. |
|--|--|--|---------------------|

**Resolutions of the meeting:**

The meeting resolved that on Tuesday 12/12/2017, the inventory process will commence at Puma Primary school stating at 9.00 am;

Property owners will stand on their properties and provide the needed information to facilitated faster identification of PAPs;

The meeting proposed the names of Muhamed Mwanga and Manadibu Hamisi as the elders to guide the team until they reach the boundaries of Mutongwe and Likoni;

The meeting further proposed 4 enumerators for training. The enumerators were:

| Name           | Locality        | Telephone contact |
|----------------|-----------------|-------------------|
| Juma Mohamed   | Peleleza        | 0717738521        |
| Rashid Amran   | Jamvi la Wageni | 0711546709        |
| Fatuma Mohamed | Dimbwini        | 0700873252        |
| Juma Kizuri    | Migombani       | 0727938265        |

**MIN 1/12/2017: Any other business**

There being no any other business left for discussion, the meeting was closed at 12.17 pm with prayers.

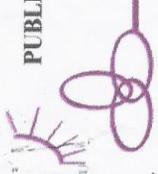
**Approved for Circulation by**

.....

Date.....

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT  
 VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA

DATE: 9<sup>TH</sup> DECEMBER 2017



Repcon associates

| NO | NAME                      | ORGANIZATION/DESIGNATION | CONTACT INFO | SIGNATURE   |
|----|---------------------------|--------------------------|--------------|-------------|
| 1  | SALIM RIZKI               |                          | 0703482631   | [Signature] |
| 2  | HANISI HUSSINI            |                          | 0714147732   | HANISI      |
| 3  | MOHAMMED PENNY            |                          | 0720387232   | [Signature] |
| 4  | HANISI JUMA MBWARWA       |                          | 0723890817   | [Signature] |
| 5  | Juma Mohamed Kawingo      | JAMU LA WAGENI           | 0717738581   | [Signature] |
| 6  | SADAI MUBUMWA             |                          | 0701615936   | [Signature] |
| 7  | KIBULIPANDA HANISI MUMARI |                          |              | [Signature] |
| 8  | KHAMUS ABDALAH SAID       |                          | 0723001549   | [Signature] |
| 9  | KHAMUSI SKUM ABDURAMMAN   |                          | 0712127565   | [Signature] |
| 10 | ABDULWAH HANISI KITO SO   |                          | 0728127473   | [Signature] |
| 11 | MOHAMMED RAMADHAN         |                          | 0712127565   | [Signature] |
| 12 | MESKURIZA JUMA            | JAMU LA WAGENI           | 078941815    | [Signature] |
| 13 | MARY ACHIENY              | JAMU LA WAGENI           | 0785732168   | [Signature] |
| 14 | MUHAMMED J. KAWINGO       | JAMU LA WAGENI           | 0705665133   | [Signature] |



Repcon associates

**PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA**

**DATE: 9<sup>TH</sup> DECEMBER 2017**

| NO | NAME                   | ORGANIZATION/ DESIGNATION | CONTACT INFO  | SIGNATURE |
|----|------------------------|---------------------------|---------------|-----------|
| 1  | Azi S. Mwakumya        | CHAIRMAN CDF              | 0721760101    |           |
| 2  | HASSI M. Mwanza        | WILKASEZOR                | 0724019800    |           |
| 3  | SAJIM MAKARE           | JAMU SA KACEKI            | 0728986295    |           |
| 4  | Mahmoud Ali Abdallah   | Bofu                      | 0759183993    |           |
| 5  | K. BIANA Mwakimw       | Dinwaki                   | 0718841214    |           |
| 6  | KHALIFAN SULEMAN       | BOFU                      | 0712211869    |           |
| 7  | JUMA Ali VITA          | BOFU                      | 0726594739    |           |
| 8  | MUNINI RASHID          | BOFU                      | 0743774576    |           |
| 9  | Bwari Hamza            | BOFU                      | 0724274806    |           |
| 10 | BAKARI M. MASUD        | BOFU                      | 0790442279    |           |
| 11 | Ashfa m. Mwakima       | BOFU                      | 0713-498905   |           |
| 12 | Mwakumanyi J. Kandi    | BOFU                      | 0722-348936   |           |
| 13 | Said Mohamed Mwakusoud | BOFU                      | 0790 799490   |           |
| 14 | Malika Bawab Said      | BOFU                      | 0710 - 873233 |           |

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA

DATE: 9<sup>TH</sup> DECEMBER 2017



Repcon associates

| NO | NAME                 | ORGANIZATION/DESIGNATION | CONTACT INFO | SIGNATURE |
|----|----------------------|--------------------------|--------------|-----------|
| 1  | SALIM MNAKUNYAPA     | MOMBASA                  | 0714576466   |           |
| 2  | DMAR BARE            | JAMVI LA WAGENI          | 0718092020   |           |
| 3  | AMANI MOHAMED        | JAMVI LA WAGENI          | 0715450961   |           |
| 4  | MFAH SALIMU          | JAMVI LA WAGENI          | 0796264246   |           |
| 5  | SINENO PETHUMANT     | JAMVI LA WAGENI          | 0724176087   |           |
| 6  | RASHID XLI RASHID    | ROFU                     | 0728331551   |           |
| 7  | JUMA SUKREH          | ROFU MUKANI              | 0718015577   |           |
| 8  | KADALIA KHAFAN       | ROFU MUKANI              | 07           |           |
| 9  | DAMA ADAM            | JAMVI LA WAGENI          | 0728766992   |           |
| 10 | MUSUF MUABALA        | ROFU MUKANI              | 0717600025   |           |
| 11 | SALIMU MARSANDA      | ROFU WARD                | 0723796561   |           |
| 12 | MUHAMMED AZI         | ROFU WARD                | 0729141505   |           |
| 13 | Salimu Said Mwabundi | ROFU WARD                | 0717788521   |           |
| 14 | MUHAMMED CH. LIPPI   | JAMVI LA WAGENI          | 0714156922   |           |

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA

DATE: 9<sup>TH</sup> DECEMBER 2017

Report associated

| NO | NAME                | ORGANIZATION/ DESIGNATION                | CONTACT INFO | SIGNATURE |
|----|---------------------|------------------------------------------|--------------|-----------|
| 1  | SABU J. KANDY       | CHIEF LIKONI                             | 0723995958   |           |
| 2  | JUMA A. KIZIBI      | BOFU                                     | 0722938265   |           |
| 3  | MuHAMMED Mwanjyotta | MOMBASA COUNTY<br>WARD ADMIN - BOFU WARD | 0712245720   |           |
| 4  | ABDALLA RASHID      | BOFU MASHAKANI                           | 0723988856   |           |
| 5  | N BIKANA BABU       | SECRETARY B.M.U. LIKONI                  | 0918091503   |           |
| 6  | EDWIN OMYANNO       | BOFU                                     | 0714321871   |           |
| 7  | CHENJA HAMISI       | BOFU                                     | 0719117123   |           |
| 8  | RASHID XUMRAN       | JAMVI LAWAGANI                           | 0711546709   |           |
| 9  | MOHAMMED JUMA       | B.M.U. LIKONI                            | 0771200372   |           |
| 10 | OMARI SHEE          | BOFU                                     | 0728441806   |           |
| 11 | SAMSON MASHOMBO     | JAMVI LAWAGANI                           | 0796527832   |           |
| 12 | ATHUMAN H. MATELO   | BOFU RESIDENT                            | 0722 310 719 |           |
| 13 | SHAKURA ABDALLA     | JAMVI LA WAGANI                          | 0712455174   |           |
| 14 | JUMA MAQUARI        | LIKONI CPF                               | 0704215482   |           |

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT  
 VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA

DATE: 9<sup>TH</sup> DECEMBER 2017

Repcon associates

| NO | NAME                      | ORGANIZATION/ DESIGNATION                     | CONTACT INFO | SIGNATURE |
|----|---------------------------|-----------------------------------------------|--------------|-----------|
| 1  | BSP. PATRICK E. M. OMBESI | CLASH (BISHOP)                                | 0722620093   |           |
| 2  | HANISI HUSSEIN BARDU      | Bonu Likoni                                   | 0714773232   |           |
| 3  | HANISI S. Mwanouwe        | Likoni Bonu Chairman                          | 0720850963   |           |
| 4  | KENYON A. SIMON MURIBWU   | LIKONI                                        | 0710581265   |           |
| 5  | SHUGHULI HANISI MUKOZA    | LIKONI BOFUGIF<br>JAMES FINLAY MSA CO OFFICER | 0726092483   |           |
| 6  | SALIM SWAKESH MUMBARA     | BOFU LIKONI                                   | 0712524672   |           |
| 7  | DAFFAR MUMBI              | BOFU MOMBASA                                  |              |           |
| 8  | GEOFFREY WAKUSAKA         | BOFU                                          | 0726 080458  |           |
| 9  | MATHAMBA HANISI MURIBWU   | BOFU Resident                                 | 077743964    |           |
| 10 | JUMA RASHID TABWARA       | BOFU                                          | 0710877169   |           |
| 11 | NAFIRO FAD MUMBARA        | BOFU                                          | 0720427071   |           |
| 12 | GEORGIUS JIMBARA          | BOFU                                          | 0704196891   |           |
| 13 | HANISI JUMA MURANDA       | BOFU                                          | 0721405560   |           |
| 14 | SWAKESH A. MURIBWU TAPA   | BOFU                                          | 0712596400   |           |

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

VENUE: PELELEZA PRIMARY SCHOOL, MOMBASA

DATE: 9<sup>TH</sup> DECEMBER 2017

repcen associates

| NO | NAME                  | ORGANIZATION/DESIGNATION | CONTACT INFO | SIGNATURE |
|----|-----------------------|--------------------------|--------------|-----------|
| 1  | M KIKASHA JUMA        | JAMU LA WAGENI           | 0722246132   |           |
| 2  | MWARAFURATHA ALI      | JAMU LA WAGENI           | 0702900212   |           |
| 3  | Alice Wanjiku         | MIGOMBANI                | 0714411781   |           |
| 4  | MUMNY KELU            | JAMU                     | 0744515689   |           |
| 5  | MOMO HASSAN           | JAMU                     | 0700348210   |           |
| 6  | MEKINGI KINGI         | JAMU                     | 0717732602   |           |
| 7  | PAULINAH K. KIWOI     | MIGOMBANI                | 0728771751   |           |
| 8  | MESADI ALI            | MIGOMBANI                | 0731794057   |           |
| 9  | SWALEH HAMIS MUYIACHA | MIGOMBANI                | 07891605754  |           |
| 10 | UMI MAJANO ALI        | MIGOMBANI                | 0722703419   |           |
| 11 | SHEIKH JUMA BEGA      | IKAMU                    | 0776825426   |           |
| 12 | HAMISI SUDI MKONGO    | BOTU                     | 0702818433   |           |
| 13 | HAMES HAMISI          | BOTU                     | 0788290110   |           |
| 14 | MPOKAMCO MAZIRA       | BOTU                     | 0755524223   |           |

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## 2.Kibaki Estate

## **Minutes for Public Baraza for the Environmental and social impact assessment on the Mombasa Gate Bridge Project**

**Venue: Kibaki Estate**

**Date: 13/12/2017**

### **Preliminaries**

The meeting was called to order with a word of prayer by Mohhamed Said at 2:30 pm and was attended by sixty eight (68) members of the community. The chief then welcomed all the members of the community and disclosed that the purpose of the meeting was to discuss the proposed developments in the Likoni area. He urged them to be attentive as issues to be discussed and that they should also feel free to ask any questions and also raise any issues.

He then invited the Environmental team leader for the Project disclosure.

### **Project disclosure – Mr. Wairagu- Repcon Associates**

He started by apologizing for arriving late, as he had been at peleleza kick-starting the inventory take exercise.

He stated that his presence here is to investigate on both the Environmental and Social impacts emanating from the proposed construction of Mombasa Gate Bridge – a Bridge that will connect Mombasa Island with Main Land South.

He informed the members of the community that a study team from JICA had been working for the past two years trying to find a suitable alignment as the current ferry area would not do without affecting the normal operations of the ferry.

He stated that the route had been confirmed and was no longer a concept but a project with prescribed timelines and thus his presence there was to disclose the project and to disclose the expected impact.

**Description of the project:** The Mombasa Gate Bridge Construction Project entails construction of a bridge starting all the way from Jela Baridi in Lumumba Rd to ziwani in in Kwale County. The bridge will be connecting Mombasa Island/town and Mainland South. The Bridge will pass through Lumumba road, Moi Avenue next to Cannon Towers, Mwakilingo Street, Puma Primary School, Peleleza School, Mwenza Creek opposite Kenya Navy, Mtongwe Posta, and finally joining the Mombasa Southern bypass road at Zawani in Kwale County. The bridge will be high enough to allow for normal operations of ships below and will be about 70 meters high from ocean level. The width of the bridge will be 60

meters wide while its length across the channel will be about 1.5 Kms. Therefore, the alignment is set to acquire 60 meters of land triggering displacement of people and their properties. However, the current route was adopted after several route options had been studied. The results of these studies revealed that this route/alignment has the least number of impact and displacement potential compared to the others.

He noted that because of the bridges' height, some areas will have embankments resulting into barriers and sometimes restricting access between two areas. But, mitigation measure including installation of culverts of 5 meters wide will be erected at every 100 meters interval to allow for free movement of vehicle and people. He also explained that the bridge will have a closed **pedestrian lane** facing the East and that provisions of short cuts to enable access to the pedestrian lanes was being sought out.

Mr. Wairagu informed the members of the community that the RAP team will be on the ground to do an asset inventory of the affected plots and any developments/investment on the plots including structures, trees, boreholes, drainage paths, cemeteries/grave yards, and playing grounds among others. **Loss of land** will be compensated with or without land tenure security. he said that the law is very clear even for those without land tenure (Article 40/4 in the Constitution of Kenya was cited), the government would look for ways of compensating. When the elders confirm to the inventory team that the land is yours, we will record it in your name. Public assets that include mosques, schools, and hospitals will also be enumerated. For corporates and communally owned assets, there would be need for proof of members and minutes for community owned organizations will be required. We will also need information on the location of shrines/fingo and other cultural areas that are of community importance. The project will also compensate for graves and shrines but will not be party to relocation of the same graves and shrines. Community funded projects that are in the proposed alignment will also be inventoried and compensated.

Besides assets, the RAP team will conduct social and economic studies in order to understand the existing social structure of the affected population and to understand their social dimensions. This project is keen on loss of business and impact on livelihoods streams of individuals and corporates. It is widely acknowledged that one of the biggest challenges of the government is to fight poverty and creation of employment opportunity; it will therefore be a mockery to see government projects distributing income sources of its own citizens. In such, loss of business will also be enumerated. Finally, the RAP team will collect information on loss of shelter in order to estimate displacement potential of the proposed bridge construction. We will need property owners during inventory process. We will measure and record every property that is impacted by the traverse. However, my team will not settle any dispute on land or asset but will document the nature of dispute and associated interest in asset or land. This will go to National Land Commission (NLC) for further arbitration. The NLC will conduct several public review meetings after which

affected persons will be required to open a bank account of their choice for compensation. The NLC will need joint account for couples but this will be discussed at later stage.

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**Question and answer session.**

| <u>s/no</u> | <u>Name</u>       | <u>Question/ comment</u>                                                                                                                                                    | <u>Answer</u>                                                                                                                                                                                                                                                                                                          |
|-------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | Mwakodza wa Kodza | <ul style="list-style-type: none"> <li>• is there a custodian to the amounts paid by the NLC or its solemnly the owners?</li> </ul>                                         | <ul style="list-style-type: none"> <li>• The government has put in measures where the amounts go directly to the affected persons.</li> <li>• The national lands commission advises that accounts where such amounts are to be transferred be opened together with the spouses for accountability purposes.</li> </ul> |
| 2           | Mohamed Athman    | <ul style="list-style-type: none"> <li>• How will he get information on when the RAP team was doing the exercise in hi area as the alignment passes by his plot?</li> </ul> | <ul style="list-style-type: none"> <li>• Was advised that the whole group attending the meeting gives a specific day in which they would all set aside for the exercise</li> </ul>                                                                                                                                     |

|   |                     |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                    |
|---|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                     |                                                                                                                                        | to take place in their area.                                                                                                                                                                                                                                                                                                                       |
| 3 | Malumba             | <ul style="list-style-type: none"> <li>• His house is under construction, Should he continue with the construction process?</li> </ul> | <ul style="list-style-type: none"> <li>• Construction and any development on the piece of land should continue until the day when NLC compensates, then it can stop and a three month notice is issued to relocate.</li> </ul>                                                                                                                     |
| 4 |                     | <ul style="list-style-type: none"> <li>• When is the construction due to start and how long will it take?</li> </ul>                   | <ul style="list-style-type: none"> <li>• The designing stage is set to take two years up until end of 2019.</li> <li>• Construction process to start in 2020 and will take four years.</li> <li>• The project will cost 80 billion.</li> </ul>                                                                                                     |
|   |                     | <ul style="list-style-type: none"> <li>• What are the measures put in place to ensure that the project benefits the locals?</li> </ul> | <ul style="list-style-type: none"> <li>• it is a requirement that 40% of the participation goes to the locals, eg the supply of raw materials and also that of skilled and unskilled labour.</li> <li>• During the implementation, committees should be formed by the locals to ensure they front the suitable personnel's for the job.</li> </ul> |
|   |                     | <ul style="list-style-type: none"> <li>• How will the public facilities affected be compensated?</li> </ul>                            | <ul style="list-style-type: none"> <li>• Such can be paid cash wise to the relevant authorities, but if the committees formed can agree that such facilities be moved to a different place and be constructed there.</li> </ul>                                                                                                                    |
| 5 | Mohamed Ali Mwawito | <ul style="list-style-type: none"> <li>• How are mosques, churches and schools</li> </ul>                                              | <ul style="list-style-type: none"> <li>• in most cases such amenities are</li> </ul>                                                                                                                                                                                                                                                               |

|   |                      |                                                                                                                                                                                                     |                                                                                                                             |
|---|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|   |                      | handled?                                                                                                                                                                                            | avoided during alignment but if inevitable, committees are formed to give a way forward on the compensation of such.        |
| 6 | Bwana Mwingi Mwabibi | <ul style="list-style-type: none"> <li>Complained of being man handled by the NLC commissioners and that he was not compensated for his open field on another project (southern by-pass)</li> </ul> | <ul style="list-style-type: none"> <li>He was convinced that the compensation on the said project had not begun.</li> </ul> |
| 7 | Wainaina Simon       |                                                                                                                                                                                                     |                                                                                                                             |

### **Closing remarks**

The chief urged the local to make the necessary preparations to make the cut that will be required once the contractor starts hiring.

The meeting ended at 01:50 pm with the Environmental expert saying he would take the locals along the alignment.

### **Attendance sheets**

# BARAZA @ KIBAKI ESTATE.

|    | NAME                  | CONTACT    | SIGN.   |
|----|-----------------------|------------|---------|
| 1  | Kasheed Abdallah.     | 0724664023 |         |
| 2  | TUSUFU ALI YESSI      | 0711515402 |         |
| 3  | JOEL KIRUGIA          | 0721909011 |         |
| 4  | Simon KAHATO WAINAINA | 0716562084 | Kahato  |
| 5  | KHAMISI MOHAMMED      | 0725607020 | Khamisi |
| 6  | MOHAMMED SARIM        | 0728397711 | MA      |
| 7  | HAMISI HASSAN         | 0705492769 | HAM     |
| 8  | HASSAN AHMAN          | 0708335662 | HAM     |
| 9  | AHMED FARAJ           | 0728063761 |         |
| 10 | BAKAR ABDALLAH        | 0708605254 |         |
| 11 | SUDI ALI              | 0728670159 |         |
| 12 | BERBARAD MOI          | 0710580661 | S-A-D   |
| 13 | KHA-CID H MWANYENZA   | 0718807385 | KCID    |
| 14 | JUMA HASSAN           | 0719602853 |         |
| 15 | Beard Mwai            | 070674283  |         |
| 16 | Maxwell Nijamira      | 0701350825 |         |
| 17 | Obnoch Steph          | 0719866383 |         |
| 18 | HUSSEIN Suheiman      | 0716236726 |         |
| 19 | Joseph ODIAMBO        | 0790290244 |         |
| 20 | MOHAMED A.MWAWIYO     | 0702381997 |         |
| 21 | Mwinyi MWABIBO        | 0701749778 |         |
| 22 | JOSEPH MURURU         | 0721478818 |         |
| 23 | M. H. CHIKURUGO       | 0716135937 |         |
| 24 | Mzee SIK HANI         | 07424056   |         |
| 25 | KHAMIS-O MWAKISAWGA   | 0726107663 | Khamis  |
| 26 | Juma SALIM            | 0704529685 |         |
| 27 | Wakwani Neebongo      | 0721955268 |         |

|    |                 |                 |            |  |
|----|-----------------|-----------------|------------|--|
| 28 | RASHID          | SALIM           | 0724641975 |  |
| 29 | Geoffrey        | Chumba          | 0720984556 |  |
| 30 | Caleb           | WEL             | 0722211224 |  |
| 31 | Samuel          | Hyawara         | 0727997466 |  |
| 32 | STEVE           | N. MWAKIO       | 0728156439 |  |
| 33 | Steve           | O. Klamson      | 0742622084 |  |
| 34 | Jacqueline      | L. Kerempu      | 0724394925 |  |
| 35 | BELLA           | M. WECU         | 072129091  |  |
| 36 | IRENE           | KIMANGA         | 0717368701 |  |
| 37 | JENIFFER        | MUTUA           | 070233854  |  |
| 38 | JOHN G.         | KINUTHIA        | 0720207157 |  |
| 39 | MESALIM         | BAKARI          |            |  |
| 40 | FATUMA          | SAM SALIM       | 0716354250 |  |
| 41 | EMILI           | ODGERI          | 0723982815 |  |
| 42 | MOHAMED         | KOBA            | 0728489198 |  |
| 43 | MOHAMMED        | KASSIM SAIB     | 0728418754 |  |
| 44 | HANISI          | SALIM Mwakodza  | 0720998020 |  |
| 45 | JUMA            | SUDI ANI        | 0705219247 |  |
| 46 | CRANI M. BAYUMA |                 | 0720925529 |  |
| 47 | OMARI           | S. MWABEI       | 0738010195 |  |
| 48 | MOHAMED         | AITHUMAN        | 0727166147 |  |
| 49 | RASHID          | HASSAN KURENTWA | 0712778325 |  |
| 50 | Maxwell         | Olunga          | 072713185  |  |
| 51 | Zachary         | Chabai          | 0725520824 |  |
| 52 | MWAZUKA         | MASHUA          | 0702743074 |  |
| 53 | ISAAC           | KIMU            | 0703877741 |  |
| 54 | HASSAN          | FUMO            | 0726072153 |  |

|                   |            |                  |
|-------------------|------------|------------------|
| Daniel Kwoyo      | 0711525257 | <del>Fahad</del> |
| FATHMA FAIZAL     | 071410214  | Jolina           |
| KHADIJA HASSAN    | 0701314369 | KHANJA           |
| Jennifer Ndoku    | 0704972375 | <del>Pray</del>  |
| BAHATI MUHAMMED   | 0723432013 |                  |
| MWAKALAMEI HAMAD  | 0411883040 | Mel              |
| HAMIS, HAMAD      |            |                  |
| Dorcas odo        |            | Doris            |
| Khadija Burhani   |            | <del>KB</del>    |
| Esha Shabani      |            | ES               |
| Saim Swaleh       |            |                  |
| ALKADIS MARYO     |            | AK               |
| SUZAN MIAMI       |            | MIAMI            |
| Albani M. Mwakasi | 0722389257 | MALKA            |
| Eunice Njunge     | 0727951185 | LN               |

**Mtongwe polytechnic**

## **Minutes for Public Baraza for the Environmental and social impact assessment on the Mombasa Gate Bridge Project**

**Venue: Mtongwe Polytechnic**

**Date: 19<sup>th</sup> December 2017**

### **Preliminaries**

The meeting started at 3.00 pm with a word of prayer and was attended by over sixty nine (69) members of the community. The chief welcomed the members of the community to the meeting and asked them to feel free to raise issues that were of their concern and also seek clarifications where such were needed. He afterwards went ahead to invite the environmental expert, Mr Wairagu who had requested the meeting to go on with his presentation.

### **Project disclosure- Mr. Wairagu**

Mr.wairagu first apologized for the short notice given for the meeting .He said that the RAP team had been on the ground conducting an asset inventory in likoni, and once they got to Mtongwe realized that enough sensitization had not been done hence the need for an urgent meeting.

He stated that his presence here is to investigate on both the Environmental and Social impacts emanating from the proposed construction of Mombasa Gate Bridge – a Bridge that will connect Mombasa Island with Main Land South.

He informed the members of the community that a study team from JICA had been working for the past two years trying to find a suitable alignment as the current ferry area would not do without affecting the normal operations of the ferry.

He stated that the route had been confirmed and was no longer a concept but a project with prescribed timelines and thus his presence there was to disclose the project and to disclose the expected impact.

**Description of the project:** The Mombasa Gate Bridge Construction Project entails construction of a bridge starting all the way from Jela Baridi in Lumumba Rd to ziwani in in Kwale County. The bridge will be connecting Mombasa Island/town and Mainland South. The Bridge will pass through Lumumba road, Moi Avenue next to Cannon Towers, Mwakilingo Street, Puma Primary School, Peleleza School, Mwenza Creek opposite Kenya Navy, Mtongwe Posta, and finally joining the Mombasa Southern bypass road at Zawani in Kwale County. The bridge will be high enough to allow for normal operations of ships below and will be about 70 meters high from ocean level. The width of the bridge will be 60 meters wide while its length across the channel will be about 1.5 Kms. Therefore, the

alignment is set to acquire 60 meters of land triggering displacement of people and their properties. However, the current route was adopted after several route options had been studied. The results of these studies revealed that this route/alignment has the least number of impact and displacement potential compared to the others.

He noted that because of the bridges' height, some areas will have embankments resulting into barriers and sometimes restricting access between two areas. But, mitigation measure including installation of culverts of 5 meters wide will be erected at every 100 meters interval to allow for free movement of vehicle and people. He also explained that the bridge will have a closed **pedestrian lane** facing the East and that provisions of short cuts to enable access to the pedestrian lanes was being sought out.

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### Question and answer session.

| s.no | Name           | Question/ comment                                                                                                                                                                                                                                                                                           | Answer                                                                                                                                                                                                                                                                                                             |
|------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Geoffrey adans | How sure are you that the project will be implemented?                                                                                                                                                                                                                                                      | The government of Japan has set aside kshs. 80 billion for the construction of that project and wants all compensation to be done by 2019 for construction to begin.                                                                                                                                               |
|      |                | Can we continue with more developments on our properties?                                                                                                                                                                                                                                                   | The only organization to stop developments on such properties will be NLC and that will be after full compensation has been done.                                                                                                                                                                                  |
| 2    | Eric Amollo    | <ul style="list-style-type: none"> <li>• He noted it is a good project but with challenges such as land grabbing from the community.</li> <li>• What will stop people from building on the road reserve to avoid displacement?</li> <li>• Is it possible to stop the project with a court order?</li> </ul> | <ul style="list-style-type: none"> <li>• The environmental expert stated clearly that he had not been sent by anyone to look for land to grab.</li> <li>• Highways are wide thus requiring more land.</li> <li>• When there is no agreement with the NLC, one is free to go to the environmental court.</li> </ul> |

|   |                        |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                        |                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3 | Reuben Nderitu         | <ul style="list-style-type: none"> <li>• Is the 90 Meters total area of acquisition?</li> </ul>                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Yes the 90 meters acquired is the total area and the contractor is limited to work from that area during implementation.</li> <li>• The acquisitions done for highways by the government is done on the higher side to avoid future acquisitions in the future.</li> </ul>                                                                                                                                                                                                                                                                                                           |
| 3 | Stephen Mwakisla       | <ul style="list-style-type: none"> <li>• What form of compensation will be used? Is it land for land resettlement or compensation?</li> <li>• What will happen to the non- impacted homes next to the road?</li> <li>• How to deal with the pollution during implementation like water at the creek and other forms of pollution like noise and dust?</li> </ul> | <ul style="list-style-type: none"> <li>• Compensation will be done as either land for land or cash compensation. The amounts compensated will beat the then market price such that the affected can comfortably acquire land close to where they were living. There will also be a 15% disturbance fee.</li> <li>• Each home next to the road will get an entry to their compound.</li> <li>• the road construction is being done away from the creek, also a lot of research is being undertaken so as to come up with a solution to Mitigate all forms of pollution experienced during the implementation stage.</li> </ul> |
| 4 | Rashid salim Shame     | <ul style="list-style-type: none"> <li>• How will you prepare members psychologically before displacement?</li> </ul>                                                                                                                                                                                                                                            | The NLC will prepare people and also give guidance on the resettlement project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5 | Elizabeth Mwayala Cose | <ul style="list-style-type: none"> <li>• How will they relocate before compensation?</li> </ul>                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Relocation cannot be before compensation is done by the NLC. After compensation, a notice of at least four months is given for members to look for new</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    |

|   |             |                                                                                                                                                                      |                                                                                                                                         |
|---|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|   |             |                                                                                                                                                                      | places to relocate to.                                                                                                                  |
| 6 | Triza Awour | <ul style="list-style-type: none"> <li>in case of families employed and the property of the employer is the one being affected, how will such be treated.</li> </ul> | <ul style="list-style-type: none"> <li>There is always a provision for other persons affected other than the property owner.</li> </ul> |

### **Closing remarks**

There being no other business the meeting ended at 4.00 pm with the Mr.wairagu stating that he would take the members to where the alignment passes though.



Mr. Wairagu the Environmental Expert Addressing the meeting.



Attendance list

Public baraza @ mtongwe Polytechnic

| Name                       | I.d no   | Phone no   | sign               |
|----------------------------|----------|------------|--------------------|
| 1. SAID RAMADHAN           | 23884711 | 0712048485 | <i>[Signature]</i> |
| 2. ABDULLA Meji            | 8619601  | 0720596406 | <i>[Signature]</i> |
| 3. Meju mali               | 23165638 | 0117779025 | <i>[Signature]</i> |
| 4. Zubeda Athumani         | 10957798 | 0727052735 | <i>[Signature]</i> |
| 5. Mwanamisi Juma          | 23658893 | 0713532611 | <i>[Signature]</i> |
| 6. Semu Hamisi             |          | 0713958105 | <i>[Signature]</i> |
| 7. Mwijit Mwanjira, guzo   | 0469892  | 0727684214 | <i>[Signature]</i> |
| 8. Kausel Ndirimu          | 13319165 | 0728055960 | <i>[Signature]</i> |
| 9. Swale Ramadhan          |          |            | <i>[Signature]</i> |
| 10. MWANAJUMA ABDALLAH     | 22489532 | 0706042492 | <i>[Signature]</i> |
| 11. ZUENA SAFARI           | 25358538 | 0718293873 | <i>[Signature]</i> |
| 12. MOHAMMED MWAKAZI       | 22368739 | 0722587439 | <i>[Signature]</i> |
| 13. NELSON ODHIAMBO SEDU   | 11738350 | 0713958279 | <i>[Signature]</i> |
| 14. MWANAMISI ATHUMAN GAO  | 31475702 | 0795778931 |                    |
| 15. MWANAMIASI KASSIM ZANI | 9471596  | 0718677388 |                    |
| 16. HALIMA JUMA KORA       | 11601904 | 0707389420 |                    |
| 17. Lucy Night Wandera     | 23452052 | 0716387517 |                    |
| 18. AZIZA JUMAA BAKARI     | 10576433 | 0727204750 | <i>[Signature]</i> |
| 19. Hamisi Athuman Ayub    | 27454131 |            | <i>[Signature]</i> |

ATTENDANCE LIST for chiefs Bayaza Ch Mtongwe Polytechnic  
for the Mombasa Gate Bridge Project -

| Name                           | ID No    | Phone no   | Sign               |
|--------------------------------|----------|------------|--------------------|
| 1. STEPHEN MWAKUSA             | 13822761 | 0727982026 | <i>[Signature]</i> |
| 2. CHRISTOPHER OKETO           | 23377376 | 0729175881 | <i>[Signature]</i> |
| 3. OTHENG E. AMOLLO            | 22831599 | 0725868177 | <i>[Signature]</i> |
| 4. JARED OKUMU                 | 10968762 | 0724870620 | <i>[Signature]</i> |
| 5. ALBERT K. WUNGA             | 4875609  | 0723603262 | <i>[Signature]</i> |
| 6. RAMA NYANJE                 | 20727536 | 0727365739 | <i>[Signature]</i> |
| 7. EMOCK OICOTI                | 2107411  | 0720429360 | <i>[Signature]</i> |
| 8. GEORGEY ARDEN MWANBO        | 11596606 | 0710525073 | <i>[Signature]</i> |
| 9. ANANT ODUOR OROCH           | 24388724 | 0714010577 | <i>[Signature]</i> |
| 10. RASHIDA SALIM SHAME        | 8421963  | 0717599210 | <i>[Signature]</i> |
| 11. MWANAKOMBO ALI             | 27795432 | 0702311770 | <i>[Signature]</i> |
| 12. LUDIAL K. MKALA            | 4967910  | 0712421695 | <i>[Signature]</i> |
| 13. ROSEMARY MKIRI             | 5053770  | 0791035746 | <i>[Signature]</i> |
| 14. MWANAJE ISSA               | 26788984 | 0702017742 | <i>[Signature]</i> |
| 15. SHEROMISS MACHARIA         | 21808917 | 0723537016 | <i>[Signature]</i> |
| 16. TRESSER ANBOT              | 20580242 | 0724916033 | <i>[Signature]</i> |
| 17. SERIANAH MTAMBA            | 30845505 | 0702869356 | <i>[Signature]</i> |
| 18. MWANALWA M MWAKIBWA        | 27113659 | 0743388545 | <i>[Signature]</i> |
| 19. MANGALO HADAWA             | 9395226  | 0792671664 | <i>[Signature]</i> |
| 20. JUMA AHI MWAHATI           | 9986002  | 0705403708 | <i>[Signature]</i> |
| 21. ELIZABETH GWAYI            | 13197670 | 0727523982 | <i>[Signature]</i> |
| 22. MWANAZIA LUCHI             | 33154635 | 0727616779 | <i>[Signature]</i> |
| 23. JUMA MWANAJE               | 8427836  | 07868547   | <i>[Signature]</i> |
| 24. ALI S. SANA                | 0467214  | 0726339088 | <i>[Signature]</i> |
| 25. SALIM MURABU SAID          |          | 0705239188 | <i>[Signature]</i> |
| 26. MWANASHA RAJUB MWAKANENO   |          | 0711774043 | <i>[Signature]</i> |
| 27. BINTI MOHAMED MWAKANIBWAKA |          | 0728997764 | <i>[Signature]</i> |
| 28. MWANAJE JUMA               |          | 0700682531 | <i>[Signature]</i> |
| 29. Tumaini MWADAMA            |          | 0712494578 | <i>[Signature]</i> |
| 30. MEGUMAA ALI                |          | 0716127166 | <i>[Signature]</i> |
| 31. AITUMAN J. MWABATI         |          | 0723728018 | <i>[Signature]</i> |
| 32. BAKARI AITMAN CASCARE      |          | 0714465768 | <i>[Signature]</i> |
| 33. RASHID. ABDALLA            |          | 0715365841 | <i>[Signature]</i> |

| Name                  | ID. NO   | Phone no   | Srgr. |
|-----------------------|----------|------------|-------|
| MUETZO CHARO BAYA     | 30270112 | 0708899511 | Alno  |
| BIKARI ABDALLA JUMALI | 26749128 | 0702662822 | Alno  |
| STEPHEN JAWA MUMGA    | 26381210 | 0713361657 | Alno  |
| OMAR AHMAN MUWAPERO   | 5384461  | 0726547132 | Alno  |
| MWALIMU HARRISI       | 11789988 | 0706113185 | Muho  |
| EMITH WATHIRA CHGE    | 11307563 | 0710181704 | Alno  |
| Peter Gchana          | 13235697 | 0725863047 | Alno  |
| Athuman Ali Salim     | 20813421 | 0725893495 | Alno  |
| Juma Salim            | 3912931  | 0710800883 | Alno  |
| ALI Nyasa Athuman     | 35171776 | 0740359615 | Alno  |
| Ozaria Kevu           | 32568804 | 0729379480 | Alno  |
| Rashid Masoud         | 32274357 | 0716189321 | Alno  |
| CHRISTINE KIMANZI     | 13495660 | 0720280555 | Alno  |
| KEPHA OTIENO          | 24420033 | 0720092249 | Alno  |
| RASHID KIVYASO        | 0346759  | 0733826581 | Alno  |
| KHAMIS J. TURUZI      | 1015569  | 0722169797 | Alno  |
| MWINGA LWAMBI ALI     | 27080128 | 0703310864 | Alno  |

## **4. Beach Management unit, Bofu Maskani**

**Minutes For A Stakeholder Sensitization/Consultative Meeting with Bonafide Members of The Likoni Beach Management Unit on The Proposed Mombasa Gate Bridge Project, Held at Bofu Maskani on The 5<sup>th</sup> of January, 2018 at 9.00am.**

**ITEMS OF AGENDA**

- 1. Introduction**
- 2. Presentation**
- 3. Questions and answers**
- 4. Any other business**

**MIN 1/05/01/2018: Introduction**

The meeting was called to order by the BMU chair, Mr. Hamisi Mwamoe Saidi at 9:30 am, with 38 registered members being in attendance.

He began by familiarizing the Lead Environmental Expert commissioned to undertake the EIA study for project, Mr. Michael Mwangi Wairagu with the BMU background, formation, membership and operational protocols.

The Likoni Beach Management Unit, he said, was established in the year 2008 and has jurisdiction on all fish landing sites from the Likoni Ferry channel, new port, mvumoni, mwasefu, mikokoni, all the way down to Mweza Creek.

Since its inception, the group has recruited and registered 500 members, with the main vetting criteria for qualification being ones participation in the group's activities, registration and recognition by the group and statutory recognition by the state through registration by the state's department of fisheries.

All of its members are persons whose daily livelihoods are directly dependent on the beach, such as:

- Fishermen
- Divers
- Fish Vendors
- Mama Samaki and lately,
- Mama Lishe

He then kindly asked all the members present to rise and formally introduce themselves, stating their names and the type of activity they are engaged in at the beach, before handing over the days proceedings to the lead expert to address the members.

### **MIN 2/05/01/2018: Presentation - Mr. Wairagu- Repcon Associates**

Upon taking charge of the proceedings, Mr. Wairagu first took time to sensitize and familiarize the project to the gathering by giving a detailed description of the project, its status as at of nowogress report on it, shared with them on the progress of the project, showed them the plan and disclosed the financing component, as well as consult them on what they felt therefore, would be the projects social ramifications on their livelihoods with a view to working out amicable mitigational measures in as far as disturbances, and or resettlement is concerned.

The Proposed Mombasa Gate Bridge Project, he explained, is a major infrastructural project being funded by the Government of Japan, through its overseas cooperation agency, JICA, with an estimated budget of Kshs. 80Bn to be implemented in a 6years time frame.

The main objective of the project, he said, was to help reduce commuter traffic at the Ferry and help open up Likoni for expansion as well as facilitate an ease implementation of other mega projects lined up for the area courtesy of the governments vision 2030 flagship projects such as the Special Economic Zone planned for Mtongwe etc.

The bridge, he said, is planned to cross the Kilindini channel at an elevated height of 69metres, also equivalent to a 23 storey building. This, he said, is to allow ships entering the port to pass beneath it. In order to acquire the said elevation therefore, it has been proposed that the bridge starts rising at Jela Baridi in Kingorani - Majengo on the island side, dropping to hit the ground at Jamvi la Wageni in Likoni, on the South Mainland side, snaking its way through The Mombasa City Polytechnic in Mtongwe, cross the new Mtongwe road at Posta into Hon. Mwahimas land as it heads towards Ziwani in Pungu to join the Dongo Kundu By Pass.

All that development therefore, would need a huge chunk of land for it to anchor on, which, he said, is one of the major motivation behind this particular meeting.

The government, he said, is looking to acquire a 90 metres wide chunk of land across the entire traverse of the proposed development, as such therefore, part of his mission brief, is to carry out an inventory survey for all the properties, and or developments along the

corridor and come up with an amicable resettlement plan that will ultimately lead to the acquisition of the land for the project.

He went ahead to inform that the RAP team was also on the ground undertaking an inventory survey and would later on create a Project Affected Persons (PAPs) register, out of which, a committee will be formed, elected by all the PAPs, to advocate for their needs.

**MIN3/05/01/2018 Question and answer.**

| <b><u>s/no</u></b> | <b><u>Question</u></b>                                                            | <b><u>Name</u></b>                                                    | <b><u>Answer</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                  | What are the methods employed by the fishermen in their daily fishing activities? | Hamisi Mwamoe                                                         | <ul style="list-style-type: none"> <li>The most common forms/types of fishing methods employed here are fish traps, fishing nets, basket fishing, handline fishing, scoop fishing etc.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2                  | Where do the fishermen train for their craft?                                     | Mohamed Juma                                                          | <ul style="list-style-type: none"> <li>Most, if not all of the fishermen here were taught the trade by their fathers, who were taught by their fathers before and passed it down.</li> <li>Training can therefore be described as hereditary.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3                  | What is the daily average income per individual fisherman?                        | <p>Mrima Kamache (Sonyi Cargo)</p> <p>Mohammed Juma (Trap Fisher)</p> | <ul style="list-style-type: none"> <li>Daily average income is dependent on the type/method of fishing employed and the catch, ornamental fish for example, are priced per piece, as opposed to the other regular fish, who are weighed and priced per kilo.</li> <li>The traps are most commonly set to catch prawns, lobsters, squids and sometime land some ornamental fish which are readily sold to Sonyi Cargo for export.</li> <li>Daily catch varies, depending on the season and the level of investment on the traps, but averagely could be placed at 100kgs.</li> <li>Personally, invests about Kshs. 800,000 in every 6 months on his trap.</li> </ul> |



The meeting was adjourned at 12:50 pm with a promise from the Environmental expert of another meeting which he will schedule up and communicate back to the members in good time on the date, time and venue so that he gets to meet with all the members.

## **Attendance sheets**

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT  
 GROUP: BEACH MANAGEMENT UNIT (BMU)

| NO  | NAME            | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE                                                                           |
|-----|-----------------|---------------------------|--------------|-------------------------------------------------------------------------------------|
| 1.  | Hemisi Mwendu   | Chairman - BMU            | 0720854968   |    |
| 2.  | Mwene Babu      | Former Secretary          | 0718091503   |    |
| 3.  | Mohamed Juma    | Fisherman (Uzi)           | 0771200372   |    |
| 4.  | Thoyi Kenge     | AQUARIUM FISH             | 0719505338   |    |
| 5.  | Hemisi Mwendu   | FISHERMAN (UZI)           | 0723890817   |    |
| 6.  | Mwini Kenge     | AQUARIUM FISH             | 0723206926   |    |
| 7.  | Daudi Mwingi    | FISHERMAN                 | 0708498600   |    |
| 8.  | Juma Mohamed    | Fisherman                 | 0717738521   |   |
| 9.  | Juma Hemisi     | FISHERMAN                 | 071447322    |  |
| 10. | Selim Mohamed   | Fisherman                 | 0720979053   |  |
| 11. | Saidi Hemisi    | Fisherman                 | 0726406032   |  |
| 12. | Nessoro Juma    | FISHERMAN                 | 0723907875   |  |
| 13. | Bakeri Daudi    | Fisherman                 | 0708498600   |  |
| 14. | Mwiliwa Abdulla | Fisherman                 | 0727788554   |  |



Kenya National Highways Authority

Quality Highways, Better Connections

PUBLIC PARTICIPATION MEETING FOR THE MOMBASA GATE BRIDGE PROJECT

GROUP: BEACH MANAGEMENT UNIT (BMU)

| NO  | NAME               | ORGANIZATION/ DESIGNATION | CONTACT INFO | SIGNATURE |
|-----|--------------------|---------------------------|--------------|-----------|
| 15. | Fauzi Selim        | FISHERMAN                 | 0796269246   |           |
| 16. | Hamed Mwangangi    | FISHERMAN                 | 07882290110  |           |
| 17. | Abdulkareem Hemisi | FISHERMAN                 | 0714447322   |           |
| 18. | Hester A. Bwabi    | FISHERMAN                 | 0718533987   |           |
| 19. | Amari Mohamed      | FISHERMAN                 | 0715450961   |           |
| 20. | Mwidi Suleh        | FISHERMAN                 | 0706899291   |           |
| 21. | Musa S. Mwangi     | FISHERMAN                 | 0721691074   |           |
| 22. | Hemisi J. Selim    | FISHERMAN                 | 0746314998   |           |
| 23. | Mohid Q. Mwangi    | FISHERMAN                 | 0728705433   |           |
| 24. | Shaji S. Mzon      | FISHERMAN                 | 0702677355   |           |
| 25. | Hemisi Selim       | FISHERMAN                 | 072127565    |           |
| 26. | Mwinyiherisi Sudi  | FISHERMAN                 | 0734381566   |           |
| 27. | Alger Suleiman     | FISHERMAN                 | 0712211869   |           |
| 28. | Juma Mohid         |                           |              |           |

## **Appendix 8.2: Record of Technical Working Sessions with bearing on ESIA**

**Preparatory Study for the Mombasa Gate Bridge Construction Project  
Minutes of 1<sup>st</sup> working session with Marine Operations Department of KPA**

**Date:** 19<sup>th</sup> April, 2017

**Venue:** Marine Operations Department, KPA

**Attendance List:** The same is hereby attached.

**Agenda:** JST wanted to seek further clarification on safety measures for vessels calling in and out of Mombasa Port. A semi structured questionnaire (attached) was used to guide discussion.

**Proceedings:** The meeting was called to Order by Capt Ruto at 3.30 Pm. Eng Makori thanked the host for granting the appointment and observed that the purpose of the meeting was for JST to report back to KPA progress Achieved so far and raise any issues that require clarification.

| <b>Person contributing</b> | <b>Issue raised</b>                                                                                                                                                                      | <b>Response</b>                                                                                                                                                                                                                                       |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mr. Soemu Oshita           | He reported that investigations had now narrowed down to options A2, B2 and D. The St was now investigation matters of span arrangement and pier protection, hence the meeting with KPA. |                                                                                                                                                                                                                                                       |
|                            | On navigation clearance, Mr. Oshita, wished to clarify the previous use of 69m+LWL still holds                                                                                           | Capt Ruto responded that he will consult minutes of past meetings and report back. However, was of the view that 69m+HWL was the preferred standard.                                                                                                  |
| Mr Isakamoto               | Reported that next phase of study will now explore pier protection measures for selected route.                                                                                          |                                                                                                                                                                                                                                                       |
| SO                         | Are vessels controlled by Pilot of Tugboat                                                                                                                                               | Capt Ruto responded that they are controlled by both depending on destination.<br>Piloting is compulsory for vessels within the harbour.                                                                                                              |
| SO                         | Whats is the possibility of vessels loosing control                                                                                                                                      | Capt Ruto: This can happen on account of vessels loosing engine power.<br>Max speed in Channel is 10knots but min speed is that which allows control of the vessel.<br>Max size of vessel expected is 200,000DWT with the new draft of 18m below msl. |
| Isakamoto                  | Beyond 700m span, you need cable stayed bridge. A 300m horizontal clearance, a 100m buffer zone is required.                                                                             | Capt Ruto expensive protection: Which is the most ideal option?. Option 2 (B3) has cheaper bridge but expensive protection.<br>Role of KPA is to issue requirements against which the consultant will                                                 |

|  |  |                                                                                                                                    |
|--|--|------------------------------------------------------------------------------------------------------------------------------------|
|  |  | recommend appropriate options based on cost consideration among other factors. Cost effective vendors are available in the market. |
|  |  | A new masterplan is under preparation to update that previously done by JICA.                                                      |

**Preparatory Study for the Mombasa Gate Bridge Construction Project  
Minutes of Working Session with Kenya Maritime Authority-KMA**

**Date:** 19<sup>th</sup> April, 2017

**Venue:** KMA- Operations

**Attendance List:** The same is hereby attached.

**Agenda:** JST wanted to seek further clarification on safety measures for vessels calling in and out of Mombasa Port.

| <b>Person contributing</b> | <b>Issue raised</b>                                                                                                                                                                                                                                                                        | <b>Response</b>                                                                                                                                                                                                                                                             |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KMA                        | Apologised that MD was away and unable to meet team.                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                             |
| Eng Makori                 | Introduced Mission for MGB and reported that JST for GB was finalising the preparatory Study but needed to clarify few issues. Several routes for the proposed Gate Bridge had been compared and 3 routes;- A2, B3 and D had been elected for further study of which D was most promising. |                                                                                                                                                                                                                                                                             |
|                            | Clarification was required on the 2 issues of Navigation clearance ( 69m+LWM or 65m+HWM) and location of piers in routed D given the wide span(720m) for the bridge.                                                                                                                       | KMA will consult with SH and respond.<br>Eng Makori inquired on the time line for reporting back.                                                                                                                                                                           |
| Isakamoto                  | On issue of pier protection he observed that a 150m buffer between navigation channel (300m) and pier protection would mean a span of 600m. The wider the span, the more expensive the bridge. He wondered whether a 150m horizontal clearance is necessary.                               | KMA reported that the 150m clearance is used by shallower draft vessels mainly for fishing. KMA will consult with the KPA and issue a response.                                                                                                                             |
| SO                         | On pier protection, SO observed that though Port Masterplan had projected max vessel size of 100,000DWT, KPA has a revised size of 200,000DWT. Is it possible to obtain data on forecasted breakdown of vessels likely to call at Mombasa Port by size?                                    | KMA referred the JST back to KPA observing that though KMA mandated by IMO, traffic forecasts mandate falls on the Port harbourmaster who is therefore best placed to provide forecast data.<br>KMA also wanted to know whether there will be impact on AIDS to navigation. |
|                            | On matters related to safety, KPA had previously agreed to a one day closure during construction. Does KMA have a stand on that?                                                                                                                                                           | KMA: Issues will be escalated to the MD who will issue a response.                                                                                                                                                                                                          |

|           |                                                   |  |
|-----------|---------------------------------------------------|--|
| Isakamoto | Who regulates fishing vessels                     |  |
|           | How will security be managed during construction. |  |

**Preparatory Study for the Mombasa Gate Bridge Construction Project  
Minutes of 2<sup>nd</sup> meeting with Marine Operations Department of KPA**

**Date:** 21<sup>st</sup> April, 2017

**Venue:** Marine Operations Department, KPA

**Attendance List:** The meeting was attended by 7 people (3 from KPA and 4 from JST). See attached list.

**Agenda:** JST wanted to seek further clarification on safety measures for vessels calling in and out of Mombasa Port. A semi structured questionnaire (attached) was used to guide discussion.

| Issues raised                                          | Answer provided                                                                                                                                                                                                                                                                                   | Follow-up |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q1 on use of tug boats and Pilots in escorting vessels | KPA policy is for pilot control / pilot authorization for all vessels operating in the Mombasa Port.                                                                                                                                                                                              |           |
| Q2 On vessels being escorted by tugboats               | Vessels are escorted depending on their destination in the harbour. The main aim is to prevent collision with docked vehicles.                                                                                                                                                                    |           |
| Q3 on possibility of collision                         | Possibility of collision is always there regardless of how small. It can be caused by engine failure or weather condition.                                                                                                                                                                        |           |
| Q4 On recommended location of protection measures      | Would prefer the farthest location to minimize hazards. However a 150 +50m would be required to minimize hazards in the Island side. Once bridge is commissioned, KPA will re-plan operations factoring in new risks posed by the bridge.                                                         |           |
| Q5 Size of Vessels                                     | JST should design for 200, 000 DWT as rate of big vessels calling at Mombasa has increased over the last 15 yrs. Port handles a 157,000DWT vessel every 2wks and offers for bigger vessels keep on being received. Simulations have shown that 297m long vessels can be accommodated in the Port. |           |
| Q6 on Pier protection measures                         | All protection should be visible during day and night at HWL. Rubber fenders are advisable to avoid impact when hit by vessels.                                                                                                                                                                   |           |
| Q7 On wind measurement                                 | KPA has a met department which provides data to operations Department. A past simulation study involved wind study. Same study to be availed by KPA.                                                                                                                                              |           |
| On installation of anemometer at the KPA Control Tower | The same is possible. Capt Ruto will avail data on windspeed from engineering Dept.                                                                                                                                                                                                               |           |

## Minutes of the Consultative meeting with NEMA-Coast Regional Office-Mombasa

**Date:** Wednesday, 14<sup>th</sup> March 2018

**Venue:** NEMA, Coast Regional Office for Mombasa-Taara Hse-Ganjoni

**Attendance:** As below

| SN | Name            | Institution                                                  |
|----|-----------------|--------------------------------------------------------------|
| 1  | Nyamache Tinga  | NEMA-Regional Coordiantor-Coast                              |
| 2  | Martin Shimba   | Snr Compliance Office-NEMA Coast                             |
| 3  | James Kanuka    | Snr Marine Officer-NEMA Coast                                |
| 4  | Taiji Taniguchi | Environmental Specialist-JST for Mombasa gate Bridge Project |
| 5  | Takao Fukuma    | Social Specialist-JST for MGB                                |
| 6  | Michael Wairagu | ESIA & RAP Team Leader for MGB                               |
| 7  | Edwin Obadha    | Biometrician-ESIA for MGB                                    |
| 8  | Janet Wairagu   | Stakeholder Engagement Coordinator ESIA for MGB              |

**Agenda:** Cultural Impact Assessment in the ESIA for Mombasa gate Bridge Project

**Minute 001 of 14<sup>th</sup> March 2018- Calling to Order:** The Meeting was called to Order at 11.00 am by Mr. Kamula of NEMA who was coordinating the discussion. After self introduction, the JST was requested to lead the discussion.

**Minute 002 of 14<sup>th</sup> March 2018:** Mr Taiji Tanoguchi provided a background to the discussion. He observed that the Meeting had been called to get NEMA's advice on direction on the scope and requirement of Cultural Impact Assessment in the Mombasa gate Bridge Project.

Mr. Wairagu picked up and explained the whole Mombasa Gate Bridge Project to the NEMA Team. He explained as follows:-

- The MGB had undergone a 2 yr prefeasibility Study by the JST
- As a result of the prefeasibility Study, an optimum alignment for the MGB had been selected. The route starts at Lumumba Rd near Kingorani Prison, passes overhead Mombasa railway Station, crosses overhead Moi Avenyue to the west of Canon Towers, overhead Archbishop Makarios Rd, Turns left at Ganjoni to cross Likoni Channel to the east of COMACO, enters Likoni overhead Puma Primary School play filed, touches down before the Seamen's Barracks, proceeds as an

embankment road to cross Mtongwe Rd at the Post Office, thereafter proceeds to join the proposed Mombasa Southern Bypass at Ziwani.

- After conclusion of the Prefeasibility Study, the Project will undergo a 2yr Feasibility Study and another 2 years of Detailed Design.
- The Feasibility Study Phase had started in October and the Project was undergoing both ESIA and RAP as part of Feasibility Study.

**Minute 003 of 14<sup>th</sup> march 2018-The Matter of Cultural Heritage in Mombasa:** Mr Wairagu explained to NEMA that, as part of the prefeasibility Study, an alignment for the bridge which started at YWCA in Likoni and landed at Mama Ngina Park-the Spiral Bridge had been selected. However, upon consultation with the National Museums, the JST was advised that Mama Ngina Park cannot host bridge construction because it is a national Monument gazetted in November 2004, Vide gazette Notice No 9494 for purposes of conserving the Archaeological Heritage given that this is where Mombasa Town started, given that it holds relics from past colonisations, notably war bunkers and Tunnels used by the Portuguese occupation dating to 15<sup>th</sup> Century, and later on, World war II occupation by British forces. The ancient Baobabs were also observed to have deep cultural value.

Upon Consideration, the JST opted to drop any alignment that would touch on Mama Ngina.

**Minute 004 of 14<sup>th</sup> March 2018- Preliminary Cultural Impact Assessment by the NMK:** As part of the prefeasibility Study, numerous discussions were held between the NMK and the JST. The NMK required that a Cultural Impact Assessment be conducted for the MGB sites and this can only be conducted by the NMK staff. As a result, the NMK Team was commissioned to undertake a CIA for Project Sites proposed for the Bridge in Likoni culminating in production of a 2 page Report signed by the Head of Coastal Archaeology at NMK. A copy of this Report was shared with NEMA. Among others, the CIA Report identified sites where archaeological heritage exists required that, such sites be subjected to both archaeological and social inquiry before Project start-up.

**Minute 005 of 14<sup>th</sup> March 2018-request by the JST:** Following the presentation, the JST requested for advice and direction from NEMA given that bridge alignment had avoided all sensitive sites identified by the NMK.

**Minute 006 of 14<sup>th</sup> March 2018-Reaction by NEMA:** The NEMA Team reacted as follows:-

- Firstly, the law does not expressly require that a CIA be undertaken.
- In previous Projects such as that for Port Dredging was incorporated into the ESIA Report but was not conducted as a separate stand-alone Study.
- In the case of the ESIA for MGB, the CIA should be inbuilt into the ESIA Study
- Further, given that the NMK had already conducted the preliminary screening for sites targeted by the bridge, which would be adequate for the ESIA Study.

**Minute 007 of March 2018- advice by NEMA:** NEMA was of the view that, a CIA had been conducted to screen the MGB Project and was instrumental in selecting a suitable alignment for the Bridge. As such, an additional CIA was not a necessity. Rather, what was required was for the NMK Team to be involved in further stages of Project Development including Construction so that they could advise on modalities of handling any Chance Finds as per OP 4.11 of World Bank.

**Minute 008 of 2018-Conclusion:** The JST thanked NEMA for their advice. In conclusion, NEMA requested to be updated on findings of the ESIA Study so far. The same was shared. NEMA gave further advice on stakeholders that should be consulted as part of the ESIA Stu. Meeting was concluded.

### **Appendix 8.3: Record of Focus Group Discussions and Key Informant Interviews**

## Kenya National Highway Authority-KeNHA

### Stakeholder consultation in the ESIA Study for Mombasa Gate Bridge Construction Project

**Background:** The Government of the Republic of Kenya, through the Kenya National Highway Authority-KeNHA and support of the Government of Japan through JICA, is developing the Mombasa Gate Bridge Construction Project with the aim of providing a functional road connection between Mombasa Island and Mombasa Mainland South both separated by the Likoni Channel which is currently crossed through ferries operated by the Kenya Ferry Service (KFS). Overtime, increase in volume of passenger and vehicular traffic across the channel have challenged the viability of the ferry service especially during peak demand hours which are characterised by huge backlogs of masses and motor vehicles traffic waiting to cross. Expansion of the ferry Service is constrained by the need to keep the Channel free for use by vessels calling into the Kilindini harbour, and whose movement requires interruption of the Ferry Service thus constraining time efficient demand management. The proposed Mombasa Gate Bridge Construction project is aimed at solving this dilemma through provision of a bridge connecting Mombasa Island to the Mainland South in the Likoni area. Basic Scope of the MGB Project is as follows:-

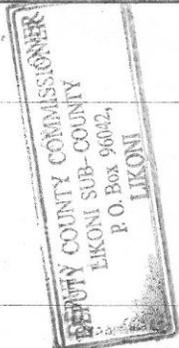
- ❖ **Objective:** To construct a bridge overhead the Likoni Channel to Link Mombasa Island to Mombasa Mainland South
- ❖ **Physical Location:** Bridge starts at Lumumba Road near King'orani Prison, crosses Mombasa Railway Station, Moi Avenue (at canon Towers), overhead Archbishop Mackarrrios Rd and Liwatoni, crosses the Channel to enter Likoni side at Puma Primary, ultimately landing at the *Jawi la wageni* area then proceeding as a Highway to cross Mtongwe Rd at Post Office and joins the Mombasa Southern Bypass at Ziwani on the boundary with Kwale County.
- ❖ **Total length of the road:** 10.5km, 4 lanes and sidewalk (one side)
- ❖ **Length of the bridge:** 1.4km; **Length of approach road:** Mombasa side-2.8km, Likoni side- 4.7km
- ❖ **Height of bridge:** 69 metres above High water Mark to enable tallest Vessels to pass underneath.

In line with requirements of the Environmental Management and Coordination Act, EMCA (Cap 387), the proposed project will be subjected to an Environmental and Social Impact Assessment (Study) conducted as per *Legal Notice* 101 of June 2003. The ESIA Process will be conducted by Repcon Associates- NEMA Firm of Experts No. 0002.

**Stakeholder Consultations:** In line with NEMA requirements for EIA, stakeholder consultations will be undertaken in order to get the views of all project affected and interested parties. Please sign your comments in the matrix provided below.

| Institution | Name/Designation | Issues raised | Comments made | Signature/date |
|-------------|------------------|---------------|---------------|----------------|
|             |                  |               |               |                |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution          | Name/Designation                                        | Issues raised                                                                                                                                                                        | Comments made                                                                                                                                                                                                                                                                                                                                                                                                                              | Signature/ date                                                                                                                                                        |
|----------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIKONI<br>SUB-COUNTY | ERIC WA<br>MULEVU<br>- Deputy<br>COUNTY<br>COMMISSIONER | - DISPLACEMENT OF<br>LOCALS<br>(RESSETLEMENT)<br>NLC section 117 <sup>2</sup><br>123<br><br>- SENSITIZING THE<br>SCHOOLS ON THE<br>CONSTRUCTION<br><br>- HIV & AIDS<br>SENSITIZATION | Mitigation:<br>1 There is need to establish the affected<br>2 There is a need to establish a places<br>relocation within the sub-county.<br>3 The process should be well planned.<br><br>- Due to the influx of construction<br>works<br>- Opportunities should go the locals<br>for Unskilled & skilled labour.<br><br>- There is a need for sensitization<br>of both the construction workers<br>& community on HIV & AIDS<br>PREVENTION | <br> |



**ERIC WA MULEVU**  
Deputy County Commissioner  
Likoni Sub-County

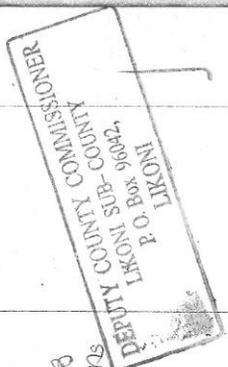
Mob: 0722 508 788 / 0715375217  
Email: subcountylikoni@gmail.com  
emulevu@yahoo.com

P.O. Box 96042 - 80110 Likoni  
P.O. Box 13843 - 00100 Nairobi

Repton Associates-NEMA Firm of experts no 0002. Contact Mr. MM Wairagu-ESIA Team Leader on 07221274358

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised                                                                 | Comments made                                                                                                                                                                                                                                                                                                                | Signature/date                                                                    |
|-------------|------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|             |                  | <p>OVER-POPULATION<br/>URBAN &amp; PETTY<br/>CRIME.</p>                       | <p>Mitigation:<br/>1. Need to have a chiefs camp &amp; a police post assisted by elders of the community.<br/>2. the above need surveillance systems, community policing &amp; direction of criminal investigations for purposes of curbing terrorism. To ensure emotive land issues to give rise to resistance Militia.</p> |  |
|             |                  | <p>PROGRAMMES<br/>ON ANTI-RADICALISATION<br/>&amp; INTERDICTIVE AWARENESS</p> | <p>1. Create programmes to engage the local militia (potential) to de-escalate them/readiness using mindal youth, sauti ya kina-mama &amp; muslim youth alliances to reach out to them.</p>                                                                                                                                  |                                                                                   |

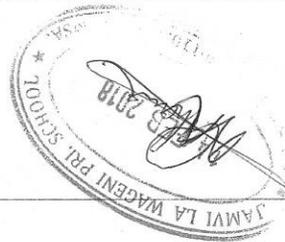


This programme requires budgetary allocation.

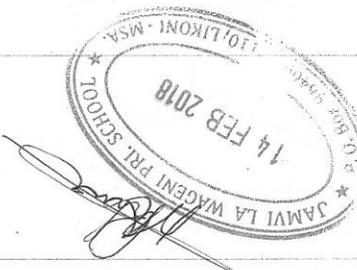
Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised                                                                                    | Comments made                                                                                                                                                    | Signature/Date                                                                                                                                                  |
|-------------|------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                  | <p>Government's<br/>Intelligence collection,<br/>Surveillance<br/>to curb illicit<br/>trade.</p> | <p>- Government must<br/>improve its crime alleviation<br/>for cyber crime due to investors,<br/>improve local policing &amp; administrative<br/>mechanisms.</p> | <p><i>[Signature]</i></p> <p>REPRODUCTION OF THIS DOCUMENT IS PROHIBITED<br/>DEPUTY COUNTY COMMISSIONER<br/>LIKONI SUB-COUNTY<br/>P.O. Box 90042<br/>LIKONI</p> |

Stakeholder consultation in the ESIA Study for the Mombasa Gafe Bridge Construction Project

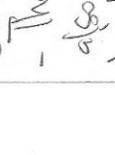
| Institution                        | Name/Designation                                         | Issues raised                                   | Comments made                                                                                                                                                                                                                                                            | Signature/date                                                                    |
|------------------------------------|----------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| JAMVI LA WAGENI PRIMARY SCH LIKONI | MWALIMU ABULRAHMAN GHANA<br>- Head teacher<br>0721403609 | - CONCENTRATION OF CHILDREN DURING CONSTRUCTION | - The Construction could hamper the attention of the students with regards to the equipment acting as distractions to the school childrens classroom activities<br>Mitigation:<br>1. Suggesting a temporary wall between the construction & school to prevent the above. |  |
|                                    |                                                          | - PEDESTRIANS CROSSING TO NYONGWA               | - The bridge may cut off pedestrian crossing between the two areas ie school & Nyongwa<br>Mitigation:<br>1. Suggesting an underpass under the bridge for easement of the above.                                                                                          |                                                                                   |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised                                                           | Comments made                                                                                                                                                                                                                                                                                                              | Signature/date                                                                    |
|-------------|------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|             |                  | SECURITY OF THE<br>FEMALE STUDENTS<br>FROM EXPLOITATION<br>BY LABOURERS | The Male construction casual labourers<br>may want to sexually exploit the girls.<br>Mitigation: sensitization of the community<br>& the children on the influx of<br>this structure casual labourers &<br>the potential for sexual<br>exploitation & statutory rape.<br>Involving Parents, security<br>administration etc |  |

| Institution                             | Name/Designation                                  | Issues raised                                                                             | Comments made                                                                                                                                                                                                 | Signature/date                                                                                                                                                             |
|-----------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PELELEZA<br>PRIMARY<br>SCHOOL<br>LIKONI | MOHAMED<br>SAID<br>BAMBANYA<br>DHTR<br>0720889252 | LEARNING<br>ATMOSPHERE<br>DURING CONSTRUCTION                                             | <p>- During construction, teaching and learning of students will be disrupted. There will be no concentration</p> <p><u>mitigation:</u><br/>- We suggest a perimeter wall that will control the students.</p> | <br>HEAD TEACHER<br>PELELEZA PRIMARY SCHOOL<br>P.O. Box 96582, MOMBASA<br>Date: 14/2/2018 |
|                                         |                                                   | SECURITY OF<br>BOTH BOYS AND<br>GIRLS FROM<br>SEXUAL HARASS-<br>MENT AND CHILD<br>LABOUR. | <p>- Male workers may harass female students sexually. Girls may be exploited hence dropping out of school.<br/>- Both boys and girls may be forced to interact with the workers hence using bribery</p>      |                                                                                                                                                                            |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised | Comments made                                                                                                                                                                                                                                          | Signature/ date                                                                                                                                                                         |
|-------------|------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                  |               | <p>Miras, Miguks and elected<br/>bribees.</p> <p><u>Mitigation:-</u></p> <ul style="list-style-type: none"> <li>- Community should be sensitised.</li> <li>- The women should also be sensitised not to violate rules governing the school.</li> </ul> | <br><p>HEADTEACHER<br/>         BELEZA PRIMARY SCHOOL<br/>         P. O. Box 96582, Nairobi, Kenya</p> |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                                 | Name/Designation | Issues raised                                                                                                                        | Comments made                                                                                                                                                                                                                                                                                             | Signature/date                           |
|---------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <p>MOYA<br/>PARAPORTERS<br/>ASSOCIATION</p> |                  | <p>Traffic Movement<br/>Environmental Concerns</p>                                                                                   | <p>Make provisions for alternative routes where certain roads will be affected and consider capacity.<br/>Make proper mitigation measures for air pollution, dust, noise and vibrations</p>                                                                                                               | <p>MELI JIROU<br/><i>[Signature]</i></p> |
|                                             |                  | <p>Traffic<br/>- <del>Refuse</del> Access<br/>Borrowage<br/>to respective yards<br/>- Connectivity to road leading to the bridge</p> | <p>There are transport companies around King'orian and access provisions to their yards should be duly considered<br/>- From both sides, heed attention should be given on how vehicles from the other roads will connect with it particularly the trucks exiting the port and heading to south coast</p> |                                          |



# KENYA INTERNATIONAL FREIGHT & WAREHOUSING ASSOCIATION

## HEAD OFFICE - NAIROBI

K.P.A. ICD (EMBAKASI)  
Agent's Block, Ground Floor  
P. O. Box 57969-00200  
Nairobi, Kenya

Tel: 020-2026188 /  
Mob: +254 791 440879 / +254 738 271219  
Email: info@kifwa.co.ke

## MOMBASA BRANCH

Oshwal House, 3rd Floor, Moi Avenue  
P. O. Box 99708-80107  
Mombasa, Kenya  
Mobile: +254 706 217445  
Email: infomsa@kifwa.co.ke

2<sup>nd</sup> February 2018

The Managing Director,  
Kenya Ports Authority,  
P.O. Box 95009,  
**MOMBASA**

Dear Madam,

**RE: UN-NOMINATED LOCAL CONTAINERS FOR UPCOUNTRY  
IMPORTERS BEING RAILED TO ICD EMBAKASI BY  
SGR WITHOUT AUTHORITY FROM IMPORTERS CONCERNED**

We were shocked to be informed this morning at the Port Community Meeting that on government directive your Authority has stopped nominations of CFSs from Monday this week and that all un-nominated containers consigned to Importers upcountry have to be railed to ICD Embakasi by SGR for final clearance.

Whilst our Association is fully supportive of SGR becoming a success we would nevertheless, with due respect, point out that any business given to SGR should be on a voluntary basis i.e. "willing buyer willing seller" and not by force. It is rather illogical that your Authority has implemented this directive without prior consultations with the stakeholders.

Although our representatives present at this morning's meeting have made our Association's stand on this matter known to your Authority, we take this opportunity of requesting your Authority to put this directive "on hold" until a meeting takes place, hopefully on Wednesday next week as promised by your Representatives present at the meeting, to work out acceptable modalities thereon as cases have arisen where Clearing Agents have already documented some cargoes for clearance through your previously pre-nominated CFSs and they are now being informed that those cargoes have been railed to ICD Embakasi. These Clearing Agents are now in a dilemma how they are going to ahead the verification release processes on these containers in Nairobi where they have no offices.

If our request does not meet with your favourable reply we may be forced to look at alternative avenues to stop this "illegal" practice.

Yours faithfully,  
KENYA INTERNATIONAL FREIGHT &  
WAREHOUSING ASSOCIATION

  
**AHMED SHIMBWA**  
NATIONAL SECRETARY

Page 1 of 2



Member: FIATA  
International Federation of Freight  
Forwarders Associations

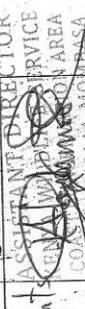


Member: FEAFFA  
Federation of East African Freight  
Forwarders Associations



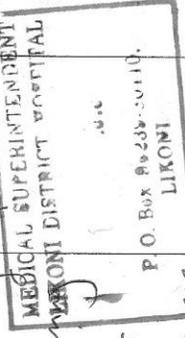
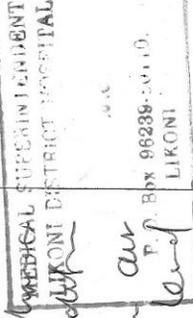
Member: KEPSA  
Kenya Private Sector Alliance  
The Voice of Private Sector in Kenya

Stakeholder consultation in the ESIA study for the Mombasa Gate Bridge Construction Project

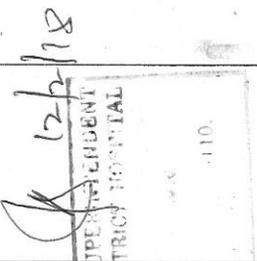
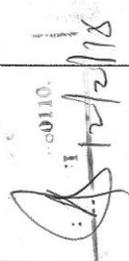
| Institution            | Name/Designation                          | Issues raised                                                                                                                                              | Comments made                                                                                                                                                                                                                                                                                | Signature/date                                                                              |
|------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Kenya Wildlife Service | Dr. Gamoe<br>Lorhan<br>Research Scientist | Generation of suspended substances (Soil fragments, silt sediments, etc) in the process of drilling or putting up support pillars for the proposed bridge. | Suspended substances are pollutants in themselves and have adverse effects on critical marine habitats e.g. Corals & Seagrass beds. Suspended substances caused smothering effect of Seagrass/Corals thereby <del>stressing</del> <sup>stressing</sup> them (Killing them). Their control is | <br>2/2/18 |
| "                      | Dr. Gamoe<br>Lorhan<br>Researcher         | Removal/modification of rocky shores to give way to proposed bridge. OR<br>Cutting of wildlife habitats (mangroves)                                        | Removal of rocky shores or mangroves implies destruction of wildlife homes (Antiparna → mangroves, Bernacies oysters → Rocky shore, Deliberate effort to preserve these habitats is a move towards supporting biodiversity consent.                                                          | <br>2/2/18 |
| "                      | Dr. Gamoe<br>Lorhan<br>Research Scientist | Ease of movement for Tourists to & from South Coast of Mombasa.                                                                                            | Ease of movement for tourists means efficiency in service delivery thus an important ingredient of Promoting tourism / foreign earnings.                                                                                                                                                     | <br>2/2/18 |

ASSISTANT DIRECTOR  
KENYA WILDLIFE SERVICE  
COAST CONSERVATION AREA  
P.O. Box 82144, MOMBASA

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                           | Name/Designation               | Issues raised                              | Comments made                                                                                                                                                                                                                                                                           | Signature/date                                                                                                                                                                     |
|---------------------------------------|--------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIKONI DISTRICT / SUB-COUNTY HOSPITAL | DR. ALI MEDICAL SUPERINTENDANT | DUST<br><br>Noise pollution/<br>vibrations | The construction is going to generate a lot of dust. Many residents will be suffering from respiratory tract diseases. Residents who are asthmatic or allergic to dust will be greatly affected.<br>- Residents may also complain of eye irritation etc.<br>- Will affect the residents | <br>12/2/18<br>  |
|                                       |                                | Air pollution                              | - Exhausts from the main dump excavator/demolition will have impact on air pollution which may lead to respiratory diseases                                                                                                                                                             | <br>12/2/18<br> |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised   | Comments made                                                                                                                    | Signature/date                                                                                    |
|-------------|------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|             |                  | Accidents       | <p>Accidents &amp; injuries will occur for the construction and we are expecting to receive these victims.</p>                   |  <p>12/2/18</p>  |
|             |                  | Lead poisoning  | <p>Some of the materials used in the construction may be emitting lead containing materials &amp; pass to the residents.</p>     |  <p>12/2/18</p>  |
|             |                  | Water pollution | <p>Some of the materials may find their way into the water sources, there may be long term health concerns to the residents.</p> |  <p>12/2/18</p> |

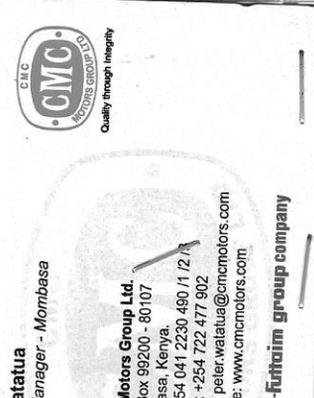


Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised                                                      | Comments made                                                           | Signature/date |
|-------------|------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------|----------------|
|             |                  | <p>Anticipated Tide Rise &amp; its effect on vehicle crossing.</p> | <p>- So this will be profitable as the bridge is not tide dependant</p> |                |



Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                                                                                                                                                                                                                                                                                                                                                                                                            | Name/Designation                                                | Issues raised                                                                                                        | Comments made                                                                                                                                                                                                                                                                                                                                                                                | Signature/date |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <p>CMC<br/>Motors<br/>Group<br/>Ltd</p>                                                                                                                                                                                                                                                                                                                                                                                | <p>Peter<br/>Wataatua<br/>- Service<br/>Manager<br/>Mombasa</p> | <p>1- Welcomes the project</p>                                                                                       | <p>- 1. Case of transport from Luoni to Mombasa for vehicles requiring service. Saves them the cost of setting up a dealership in South Coast.<br/>b) Saves them the value cost of 3 man hours spent waiting to board the ferry<br/>c) Saves clients who have commercial vehicles loss of business from taking vehicles off the road to take them for service clinic at CMC South Coast.</p> |                |
|  <p><b>Peter Wataatua</b><br/>Service Manager - Mombasa</p> <p><b>CMC Motors Group Ltd.</b><br/>P.O. Box 99200 - 80107<br/>Mombasa, Kenya.<br/>Tel: +254 041 2230 490 / 112 / 1<br/>Mobile: +254 722 477 902<br/>E-mail: peter.wataatua@cmcmotors.com<br/>Website: www.cmcmotors.com</p> <p><b>An Al-Futtaim group company</b></p> |                                                                 | <p>2- Concerned about the vertical elevation of the road as how it affects their show room. (30 metre elevation)</p> | <p>- The roads indentation may leave drivers unaware of the presence of CMC merchandise because of show room overhang - blockage</p>                                                                                                                                                                                                                                                         |                |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                     | Name/Designation | Issues raised | Comments made                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Signature/date                                                                                   |
|---------------------------------|------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Gabriel Origi, Regional Manager | Regional Manager | Compensation  | <p>They have a property on the A109 at Mwandani &amp; are considering moving there. The move will affect their business. They still don't have a budget for moving the shop. It is being formulated internally.</p> <p>The most realistic opportunity cost &amp; valuation.</p> <p>Feel that the duration of time between the construction &amp; now is not enough time to worry them as to the ample duration necessary for transition to the move to a new premises.</p> | <br>19/2/2018 |



**Gabriel Origi**  
Regional Manager - Coast

**CMC Motors Group Ltd.**  
P.O. Box 99200 - 80107, Mombasa (Kenya)  
Direct Tel: +254 41 2230490/3  
Mobile: +254 719 278 888  
E-mail: gabriel.origi@cmcmotors.com  
Website: www.cmcmotors.com

**An Al-Futtaim group company**

Stakeholder consultation in the ESIA Study for the Mombasa Galle Bridge Construction Project

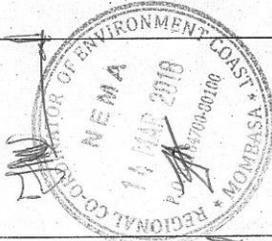
| Institution | Name/Designation | Issues raised                                                                                                                                                                  | Commitments made                                                                                             | Signature/date |
|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------|
|             |                  | <p><b>A</b></p> <p>1) Problems of Cargo plan like Roads at Departure - some sometimes cargo is late. do sometimes</p>                                                          |                                                                                                              |                |
|             |                  | <p>2) 120,000 \$ so if you fail late, the vessel spends an extra 120,000\$ to speed &amp; meet the goods</p> <p>3) Trucks overage before they are at the port of delivery.</p> | <p>Discussions &amp; meetings with</p> <p>KIFWA (Mr. Shah)</p> <p>KSA (Mr. Legua)</p> <p>CFS Association</p> |                |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                 | Name/Designation                                                              | Issues raised                                                                | Comments made                                                                                                                                                                                                                                                                                      | Signature/date                                                                    |
|-----------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Kenya Maritime Authority    | <p>Captain Eljahi A.<br/>0715203781</p> <p>Eng S. Gichochi<br/>0729403638</p> | <p>Height of the Bridge.</p> <p>Navigation ease of it Aids to Navigation</p> | <p>KMA were concerned about the height of the bridge vs the water tide which ranges between 0.1 &amp; 3.2 metres.</p> <p>It was noted that the bridge is 69 metres from the highest water height mark/tide.</p> <p>Will it be navigation friendly?<br/>Recommends it to have Radar reflection.</p> |  |
| William Sanga<br>0723889847 | <p>Mr. Ali Mubarak<br/>0772998312</p>                                         | <p>Closing of the channel for a period of hours.</p>                         | <p>The ships pay per hour of harbour fees &amp; man-hour.</p> <p>We will lose alot of money to Dar-es-salaam port. As well as loss of alot of man hours &amp; harbour dependability</p>                                                                                                            |                                                                                   |

This issue needs further discussion between the detailed design team & Kenya Maritime Authority.

Stakeholder consultation in the ESIA Study for the Mombasa Gwale Bridge Construction Project

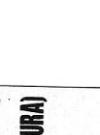
| Institution                                                                       | Name/Designation | Issues raised                        | Comments made                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Signature/date                                                                     |
|-----------------------------------------------------------------------------------|------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| National Environmental Management Authority Regional Coordination Office Mombasa. | James Kamula     | National Museums of Kenya concerns.  | Was concerned about the traverse & its potential displacement of NMK interests. They were advised updated on consultations between NMK & the ESCA team in which the latter requested for & facilitated a report on what they felt their interests in this project would be located & their suggested mitigation. The ESCA team shared the letter. They further suggested that NMK be allowed priority access on commencement of construction to allow them to recover any chance finds. |   |
|                                                                                   | Yinga Namache    | Compensation & economic re-alignment | It was agreed upon that there is an expected economic re-alignment.                                                                                                                                                                                                                                                                                                                                                                                                                     |  |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution | Name/Designation | Issues raised                                                                   | Comments made                                                                                                                                                                                                                                                                                                                            | Signature/date                                                                                                                                                         |
|-------------|------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                  | <p>Land Valuation prior to Compensation - Who determines the correct value?</p> | <p>It was advised that aside from the Japan guidelines informing the process, the domestic guidelines shall come second to those.</p> <p>The Japan guidelines shall inform the resettlement report. The resettlement matrix will be in the resettlement report.</p> <p>Any discrepancy in the resettlement report will be addressed.</p> | <br> |
|             |                  |                                                                                 | <p>NEMA Regional office requested a submission of the EIA &amp; RAP report together. But in the event of urgency NEMA - Regional stated that the EIA report 1st. There is only a statutory requirement for its provision in compensation of resettlement.</p>                                                                            |                                                                                      |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

| Institution                 | Name/Designation              | Issues raised                                                                                                                        | Comments made                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Signature/date                                                                                             |
|-----------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Kenya Urban Roads Authority | Eng. Mwai<br>Manager<br>Coast | <ul style="list-style-type: none"> <li>- Environmental concerns</li> <li>- Safety concerns</li> <li>- Relocation concerns</li> </ul> | <ul style="list-style-type: none"> <li>- Make mitigation for air pollution, dust, noise pollution</li> <li>- mitigation against accidents esp 3rd party.</li> <li>- In the process of relocation, the process should be well planned since they are many people.</li> <li>- ensure compensation for loss of livelihood (not forced evictions) for by address</li> <li>- Daga Kundu &amp; Gate bridge are trying to achieve the same goal.</li> <li>- They should be looked at from the same point of view.</li> </ul> | <p>ENG. A. M. MWAI</p>  |



**KENYA URBAN ROADS AUTHORITY (KURA)**  
 Eng. Antony M. Mwai  
 Manager Roads

P. O. Box 90663 - 80100 Mombasa  
 Cell: 0725 549 607  
 E-mail: coast@kura.go.ke | amwai@kura.go.ke  
 www.kura.go.ke

*Efficient and safe urban roads*

Kenya Urban Roads Authority  
**K U R A**  
 COAST REGION  
 P. O. Box 90663- 80100, MOMBASA

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

3

|                         |                                                                 |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                               |  |
|-------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| KENYA<br>PORT<br>HEALTH | DR. G. G. O<br>Calleb.<br>Acting Head<br>of Medical<br>Services | <ul style="list-style-type: none"> <li>- Dust</li> <li>- Noise Pollution</li> <li>- Accidents</li> </ul>                                                                                                                                                               | <p>Caused -</p> <ul style="list-style-type: none"> <li>- By lack of drainage, coral &amp; thus silicene laden dust with inorganic matter.</li> <li>- By a lack of allowance on the dual lanes to manoeuvre causing plunging of the bridge.</li> </ul>                                         |  |
|                         |                                                                 | <ul style="list-style-type: none"> <li>- Excessive wind</li> <li>- opportunistic diseases due to construction fumes</li> </ul>                                                                                                                                         | <ul style="list-style-type: none"> <li>- Caused by strong current from the ocean, suggesting blind Blockers on the Bridge walls</li> <li>- caused by construction &amp; fuel fumes . predisposition to chronic bronchitis/silicosis</li> <li>- chronic obstructive airway disease.</li> </ul> |  |
|                         |                                                                 | <p>Recommendations:</p> <ol style="list-style-type: none"> <li>1. Contractor should supplement hospital budget to enable them to create a programme to deal with this diseases &amp; their influx</li> <li>2. Have a joint meeting with Railway dispensary,</li> </ol> |                                                                                                                                                                                                                                                                                               |  |



Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

|                                     |                                                                      |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                      |
|-------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>KENYA<br/>FOREST<br/>SERVICE</p> | <p>NICHOLAS<br/>MUNYAO<br/>ASSISTANT<br/>HEAD OF<br/>CONSERVANCY</p> | <p>Environmental<br/>degradation<br/>eg loss of<br/>Mangroves</p> | <p>- loss of Mangroves due to development &amp; clearing them due to increase in population thus development of slums.<br/>- soil dumping - scooping soil &amp; dumping it in the mangrove area.<br/>- Dredging &amp; disposal of deposits that destroys the sea life. bumping should be done in the High seas.<br/>- Invitation of illiterate stakeholders who will not bring about the values of requiring environmental supervision of dredgers &amp; implementation of the requirement of dumping in the high seas.</p> | <p>KENYA<br/>FOREST SERVICE<br/>HEAD<br/>OF<br/>CONSERVANCY<br/><br/>0722-983188</p> |
|                                     |                                                                      | <p>- lack of Inclusivity of Stakeholders</p>                      | <p>Recommendations:<br/>1 Any damage to mangroves should be followed through by rehabilitation of an equivalent.<br/>2 Agrees that the government projects benefits although losses</p>                                                                                                                                                                                                                                                                                                                                     |                                                                                      |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

|             |                                                |                                                                                                                                       |                                                                                                                                                                                                                           |
|-------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>KATO</p> | <p>- Sham sheer Mawji<br/>- Nelson Mburugu</p> | <p>- Why this particular alignment that destroys alot of property?</p>                                                                | <p>- The 1st alignment at Mwangi njunga drive was rejected because National Museum stated the existence of historical tunnels at/under the above location.<br/>- The 2nd alignment over the Navy was a security risk.</p> |
| <p>KATO</p> | <p>- Nuke Mureithi</p>                         | <p>- What is the Bridge for?<br/>(asked by Mike Mureithi)<br/>% Why not develop the port to the other side of the island e likeni</p> | <p>- This is because the development happening with the port expansion, road construction cannot be sustainable with one bridge.</p>                                                                                      |
| <p>KATO</p> | <p>- Vice Mburugu Coast</p>                    | <p>- The delays between discussing Wango kundi % implementing are too many.<br/>- There is little awareness</p>                       | <p>- Recommending that there be civil education of the masses on such projects &amp; also a budget for low cadre/junior educated non-technical training</p>                                                               |

**KATO**  
 REPUBLIC OF KENYA  
 NATIONAL SOCIETY OF ENVIRONMENTAL DEFENDERS  
 P.O. Box 80317-80100  
 MOMBASA  
 TEL: 041-2315954-2227721  
 0720-080690, 0773-640606

*Shams Mawji*  
*0787865218*  
*KATO*

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*Nice*  
*10 FEB 2018*

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

7

|  |               |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                              |                                                                                                                 |
|--|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|  | Mike Mumbuthi | <p>Recommending use of the Tourism Technology Report, a strategic planning paper by the Kenya Tourism Board, currently at State House (in waiting) - get blue prints/ records of KATO from Nairobi office. Kaigwa Fred. 0722283684 Chief Executive KATO</p> |  <p><b>AFRICAN ROUTE SAFARIS</b></p> <p>Nelson K. Mburugu<br/>General Manager<br/>Old Cannon Towers, 2nd Floor<br/>Moi Avenue<br/>P. O. Box 41112 - 80100<br/>Mombasa - Kenya<br/>Tel: +254 41 2230 322<br/>Fax: +254 41 231 5883<br/>Mob: +254 728 226 718<br/>Email: nelsonk@afrikanroutesafaris.com<br/>www.afrikanroutesafaris.com<br/>Skype: nelson.afrikanroute</p> |  <p><b>KATO</b><br/>KENYA ASSOCIATION OF TOUR OPERATORS<br/>06 FEB 2018</p> | <p>COAST BRANCH P.O. Box 80317-80100<br/>MOMBASA<br/>Tel: 041-2315944, 2227721<br/>0720-086690, 0722-646666</p> |
|  |               |                                                                                                                                                                                                                                                             |  <p><b>FIDEX CAR HIRE LTD.</b></p> <p>Jennifer M. Wanzina<br/>Director</p> <p>+254 (0) 722 440269<br/>+254 (0) 788 153558<br/>@ jennifer@fidex.co.ke<br/>@ info@fidex.co.ke<br/>www.fidex.co.ke</p> <p>New Mombasa Mallindi Road<br/>Zayed Plaza,<br/>Bomboilulu Estate, Office A1,<br/>P. O. Box 88068 - 80100,<br/>Mombasa, Kenya.</p>                                  |                                                                                                                                                              |                                                                                                                 |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

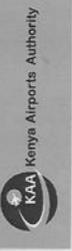
|                                     |                                    |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------|------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KENYA AIRPORTS AUTHORITY            | Danson Mwangi - AIRPORT GEOLOGICAL | ECONOMIC BENEFIT | <p>- The Bridge will open up the South Coast. Most of cargo is fish, vegetables &amp; green products &amp; since Kwale county is investing in a business park, the Bridge will open up the speed to Market.</p> <p>- Currenty Cargo handling is very minute. Very small amounts (meagre) the volume is more touristic. Hence the bridge will act as an incentive globally into tourists encouraging more tourists to come to mombasa &amp; hence benefit the airport.</p> |
| - MOI MOMBASA INTERNATIONAL AIRPORT |                                    |                  | <p>- Expansion of the industrial zones into Likoni. - Changamwe is an industrial zone so Likoni would be an option for expansion of this industrial zone after the construction of the bridge.</p>                                                                                                                                                                                                                                                                        |



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Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

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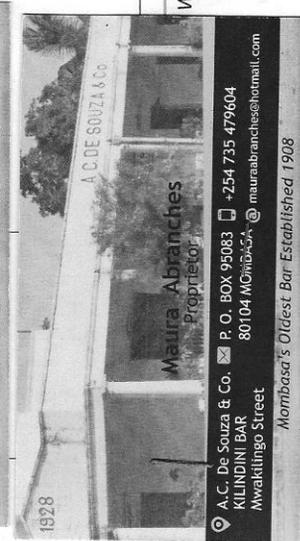
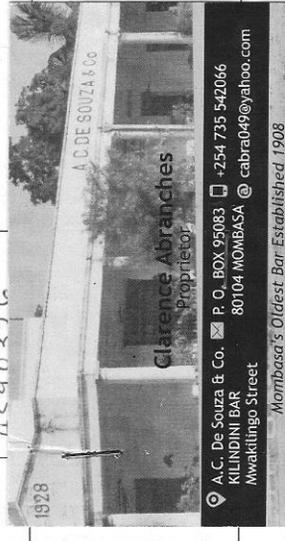
|  |                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                     |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>In terms of economic growth the projections need to be assessed to establish if the anticipated bridge can handle the anticipated cargo volumes coming into the airport from the special economic zone of the anticipated business parks in Kwale.</p> <p>- There is a technical report on the impact of the Lukoni Gate bridge on the activities of the Moi Intl-airport.</p> |   |
|  |  <p><b>Danson M. Mwangi</b><br/>Airport Engineer</p>                                                                                                                                                                                                                                            |                                                                                                                                                                     |
|  | <p>Moi International Airport<br/>P.O. Box 93904 - 80115 Mombasa, Kenya<br/>Tel: +254 41 34334020 ext 2538<br/>Mobile: +254 722 696867<br/>Email: <a href="mailto:danson.mwangi@kaa.go.ke">danson.mwangi@kaa.go.ke</a><br/>Website: <a href="http://www.kaa.go.ke">www.kaa.go.ke</a></p>                                                                                           |                                                                                                                                                                     |

Stakeholder consultation in the ESIA Study for the Mombasa Gate Bridge Construction Project

|                                                    |                                                      |                                                                      |                                                                                                                                                                                                                 |                                                                                                             |
|----------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <p>KILINDINI BAR</p>                               | <p>CLARENCE<br/>ABRANCHES<br/>ID NO:<br/>2265110</p> | <p>SECURITY</p>                                                      | <p>some argue people come to sell the verandah near the bar for prospective purposes of the bridges compensation plan. This is a security risk &amp; concern to the owners.</p>                                 | <p>A.C. DE SOUZA &amp; Co.<br/>KILINDINI BAR<br/>MOMBASA<br/>8/2/2018</p>                                   |
| <p>MARY MAURA ABRANCHES<br/>ID NO:<br/>4590326</p> | <p>compensation &amp; INCONVIENIENCE fee</p>         | <p>There is loss of</p>                                              | <p>i) Home - lived here since 1951<br/>ii) Business - business has existed since 1908 (110 years)<br/>iii) This is a brand -</p>                                                                                | <p>A.C. DE SOUZA &amp; Co.<br/>KILINDINI BAR<br/>MOMBASA<br/>M. Munches<br/>8/2/2018</p>                    |
| <p>Maura ABRANCHES<br/>Proprietor</p>              | <p>Allowance of time to move.</p>                    | <p>The property is owned by Mary M. A &amp; her deceased sisters</p> | <p>iv) Allowance of time to move.<br/>v) The property is the business are different. The business is owned by Clarence AA &amp; Mary M. A<br/>The property is owned by Mary M. A &amp; her deceased sisters</p> | <p>Michaela Priscilla De Souza (Nicholls)<br/>4628183 to MARY BEATRICE DE SOUZA (ABRANCHES)<br/>4590326</p> |

vi) Their stay compensation is 15% inconvenience fee

Wairagu-ESIA Team Leader on 0721274358



**APPENDIX 8.2.9: PROCEEDINGS OF ROUND TWO STAKEHOLDER  
ENGAGEMENT IN THE ESIA STUDY**

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**  
**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND**  
**RAP STUDIES**

**Stakeholder Consultation Meeting Held on 28<sup>th</sup>, 2018 at ACK Guest House Likoni.**

**Items of Agenda**

13. Introductions and opening speeches;
14. Presentations;
15. Questions and answers;
16. Any other business

**MIN 1 /5/2018: Introduction and opening remarks**

The meeting was started at 10.25 am by a word of prayer from Mr. Mwinyi. After the prayers Madam Patricia from KeNHA welcomed all stakeholders to the meeting. She further asked members to introduce themselves and the organizations they represent.

**Opening Remarks from Deputy County Commissioner DCC**

Opening remarks was given by Mr. Erick Mwalevi, Likoni Sub County DCC. The DCC officially opened the meeting. He appreciated the leadership of the project and acknowledges that several public consultations meetings had been done for the Mombasa Gate Bridge Project. The DCC pledged his support for the project and said that the project will create development for the people. The proposed project will benefit Likoni and Kenya at large. He requested the people and politicians to work together with the government in order to implement the Bridge Construction. He also called for planning standards to be upheld and encroachments to peoples' properties to be discouraged. He asked residents to construct their houses within the PDP as construction out of planning is causing a lot of troubles with the authority. Likoni area is targeted for much development therefore the process of land acquisition to provide way for this development will be done. The National government will ensure that all will be done to secure the construction of the bridge. The value of you land will go up with these developments. All the leaders are asked to be good will ambassadors for this project.

**MCA Shikadaabu Ward**

Demolishing of houses to pave way for development to be undertaken in a fair manner because the owners have been staying in this houses for long. Also finding alternative land for resettlement may not be an easy work. Most residents have suffered a lot during the recent KeNHA demolition of structures. Planning to be adequate not every time people are moved from their dwellings.

**MCA Likoni Ward**

No development that can be done without impact. Most developments must have some impacts. These impacts can always be softened through consultations. We welcome proposed development of the bridge construction but we want fairness.

### **Representative of MCA Mtongwe**

Likoni and Mtongwe had always asked for developments to be devolved from Mombasa Island. Construction of this Bridge is one of the developments that we are looking forward to. The construction of the Bridge should not result in severe impacts. Also provide adequate compensation to the affected persons.

### **Madam Mishi Mboko – Likoni Member of Parliament/MP**

The Area MP acknowledged the presence of National government, chief and their deputies and other political partners attending the meeting. She thanked the consultant for good public participation which is in line with the constitution. We have held several meetings including PAPs committees in order to develop common understanding of the project. The MP talked about earlier government precedents in which people are displaced and not compensated for loss of properties.

- Identification of PAPs to be proper and everybody who is affected to be included in the list to avoid development of supplementary budget which always takes long before approval.
- All occupants and ancestral land owners to be in the register and compensated fairly in good faith.
- At valuation, market rates to be adopted for both plots and structures.
- Compensation for houses alone is not adequate. Compensation to be made upfront before start of any work and in full cost not by installments.
- During valuation, consider family set up. Also include all family members in the list. Strategies to be put in place to safeguard vulnerable families.
- Cut-off dates are making most of people to stop their developments for so long period. Demolish houses when you are ready. Pulling down houses on roads and not starting constructions is unfair.
- Consult people in advance before doing extensions of roads, do not create panic on the people.
- Displacement is not easy PAPs need to be adequately consulted, trained and empowered on financial management to restore their lives to pre-project level.
- Employment opportunities to be given to local communities
- Consider also the fishing communities around Likoni area and provide compensation as well.

### **Madam Patricia - KeNHA**

KeNHA will continue to consult the community because this project is for the community not for KeNHA or the consultants. Projects of such magnitude cannot be 100% perfect. The Consultants (REPCON) is going to discuss with us the presentation and provide wayforward.

### **MIN 2 /5/2018: Presentations**

The Lead Environmental Expert Mr. Michael Wairugu thanked KeNHA, for giving him the opportunity to discuss Mombasa Gate Bridge Construction project. We have assessed the impact potential of Mombasa Gate Bridge Construction Project and we are going to discuss this today.

### **Objectives of todays meeting**

To disclose findings of ESIA and RAP studies

Before start of the two studies, community leaders were consulted and the leaders selected amongst themselves those to help as undertake the work. The leaders also took part in recruitment of field assistance and enumerators. We are thankful to the leaders for setting the pace for our work.

The lead expert then projected the copy of presentation to stakeholders where several slides were discussed with the people. Both the findings of ESIA and RAP processes were discussed in the slide.

### **Potential impact of the project**

The entire project covers 2 counties, 3 sub counties, 5 locations. The project will have impact on land, commercial business enterprises, community properties, assets/structures, government properties, cultural properties and biodiversity. Severe project impacts are in Likoni and Shikaadabu locations.

### **Strategic Impact of the project**

The development of Mombasa Gate Bridge is strategic to both Mombasa Southern Bypass and the development of Mombasa Special Economic Zone in Dongo Kundu. The SEZ is expected to create close to 20,000 job opportunities to the people, bring in many new investors that will need social services that include water, housing, etc. You are advised to protect you land from speculators because they will come to buy hence displacing you from the benefits you are poised to enjoy.

### **Local participation and employment opportunities**

40% opportunity to local community is an affirmative action that must be complied with at all levels of project implementation. The RAP has also recommended employment of youths for both skilled and unskilled labour. This project will be displacing more than 11,000 trees and shrubs that will need to be rehabilitated. This requires involvement of the youth during replanting. You are advised to form and register groups. These groups will be the entry points for negotiating local employments. Also, community to form elders committee that will be liaising with the contractor.

## **Environmental Social Management Plan**

The entire environmental and Social Management Plan was discussed. Issues emphasized included mitigation strategies before, during and after construction. Occupation and safety procedures were also discussed into details.

### **The entitlement Matrix**

An Entitlement Matrix based on the JICA Policy was then discussed.

Procedures for compensation will follow guidelines provided by the NLC. The National Land Commission will conduct public hearings and gazettment of the traverse. They will further negotiate the cost of land compensation with the landowner. No forceful eviction will be carried out and no one will be allowed to move or relocate before payments are fully made.

JICA who are the financiers of the project is generally concerned with social and compensation matters resulting from this bridge. When one is aggrieved, land and environment court has the final decision. However, conflict resolution mechanisms acknowledge by the constitution ought to be explored first before going to court for arbitration.

Once all these document are taken to National Land commission, the process will now be dictated by the NLC not the consultants or KeNHA.

### **Way forward**

- i. We are almost closing the register and registrations for PAPs. Therefore all bending cases must be concluded with speed;
- ii. The entire report will go to KeNHA for approval; KeNHA will send the reports to NEMA;
- iii. NEMA will approve the reports and wait for 60 days for public scrutiny and opinion;
- iv. NEMA to license the project; and
- v. NLC to provide guidelines on compensation.

### **Timelines**

- i. From January 2018; two years of doing feasibility studies;
- ii. Two years of doing detailed design; and
- iii. 4 years of construction of the Bridge.

However, it is important to note that no one has stopped anybody from continuing with their planned developments. Go on with your developments and always continue to seek for more accurate information every time you are in doubt. It is the mandate of the NLC to issue stopping orders. But be aware of speculators.

### **Land Acquisition process**

Once the report is tabled to NLC, the NLC will develop their own schedule of work. In this schedules the following shall be undertaken before final acquisition of land;

- i. Undertake 30 days gazette notice;
- ii. Conduct public hearing and enquiries;
- iii. Prepare report;
- iv. Issue 30 days' notice for another enquiry, documentation and valuation;
- v. Issue an award to individual persons- where one can either reject the award or accept;
- vi. Enter into contracts with the affected; and
- vii. Effect compensation.

It is advisable to solve land issues in advance and handle speculator's challenges. Also form small committees to help in conflict resolution. Solve all cases at community and local level using local leaders.

Finally, RAP is a public document that will be implemented. In the entitlement matrix, you are eligible for compensation; once you are paid do not go to another road reserve hoping to be compensated again. We prefer land to land compensation however due to scarcity of land, cash compensation will be provided.

### **MIN 3 /5/2018: Additional inputs, Questions and answers**

The process was coordinated by Madam Prisca from KeNHA.

| <b>Name</b> | <b>Organisation</b> | <b>Question/Inputs</b> | <b>Answer provided</b> |
|-------------|---------------------|------------------------|------------------------|
|-------------|---------------------|------------------------|------------------------|

|             |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |
|-------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Mishi Mboko | Likoni Member of Parliament – National Assembly | <ol style="list-style-type: none"> <li>1. Thanked the Consultant for the good presentation;</li> <li>2. Everything will depend on the reports that you are preparing today. I urge the consultants to avoid gaps in their reports. Incorporate all our inputs and if possible provide as with the draft reports before submissions;</li> <li>3. 40% local participation in employment opportunities to be enforced. Do not take it for public relations;</li> <li>4. The affected community will be sensitive to any malpractices;</li> <li>5. Avoid divide and rule during implementation;</li> <li>6. Form committees that are inclusive and have equal representation of gender;</li> </ol> | Concerns noted |
| Father Paul | Consalata Catholic Church and School            | <ol style="list-style-type: none"> <li>7. Failing to plan connotes planning to fail; Institutional integration and harmonization of projects should be embraced – (example is recent installed paved cabros are now damaged to provide way for water reticulation/network).</li> <li>8. Involve all stakeholders and review proposed plans from other institutions to avoid wasting tax payers money.</li> </ol>                                                                                                                                                                                                                                                                               | Noted          |

|               |                        |                                                                                                                                                                                                       |                                                                                                                                                                                                                                       |
|---------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Athmani       | Shikaadabu Farmer      | 9. I am doing intensive agriculture, what am I entitled to? I cannot receive the same compensation with those that just have land. My land has value.                                                 | You are entitled to Cash Compensation at market rate for your land and additional cash compensation for crops equivalent to 7 years period of nature. Still, you will be allowed to harvest all the produce from your irrigated farm. |
| Fatuma Hamisi | Assistant Chief Likoni | 10. Tenants will be compensated. The challenge is that most of them are migratory/they are temporary residents. What will happen at compensation if the listed tenant has moved outside project area? | Before compensation, an update of the entire register will be undertaken. This list of PAPs is only effective or valid for 24 months upon which it must be revalidated.                                                               |
|               |                        | 11. Besides plants that are near extinction (Vipingo), did you document any marine fish that is highly likely to be extinct as well?                                                                  |                                                                                                                                                                                                                                       |

**Closing remarks from DCC**

The DCC thanked leaders for coming to the meeting in large number. We really need assistance from the community especially the land owners. We sincerely welcome promises that you have given out on effective collaboration and partnership. On our part we are promising to engage with you all the times and to understand you as well. Thank you all.

**MIN 4 /5/2017: Any other business**

There being no any other business, the meeting was closed at 12.40 pm with a word of prayer from Father Paul of Consolata Catholic Church.





## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

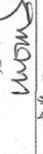
#### ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: ACK Guest House

Date of Meeting: 28<sup>TH</sup> May, 2018

Time of Meeting: 9.00 am

| Sr/No. | Name                       | Contact     | Designation                | Gender | Signature                                                                           |
|--------|----------------------------|-------------|----------------------------|--------|-------------------------------------------------------------------------------------|
| 1      | Henry Kiragu               | 0720666844  | Ferry                      | Male   |    |
| 2      | Abbas Chakaya              | 0700432286  | Ferry                      | Male   |    |
| 3      | Robert Mwangi              | 071972288   | Accountant                 | MALE   |    |
| 4      | SUBIRA HASSAN              | 0722316235  | Representative MCA         | MALÉ   |    |
| 5      | FATUMA YUSUF               | 072042453   | VIGIWENI                   | FEMALE |    |
| 6      | BINTIANI KIDA              | 0722537228  | MUSIFINI                   | FEMALE |    |
| 7      | ZULFA B. CHOKA             | 0791347474  | Kindunguni                 | Female |    |
| 8      | MUNO MARIKI                | 0721498712  | Bambani                    | M      |    |
| 9      | PSI Melkizadeh O. Arqumani | 0724117473  | Ward 200004                | M      |    |
| 10     | HAMISI BAGIE HASSAN        | 0705492769  | YOUTH LEADER SHATA KASABU  | M      |    |
| 11     | HANISI S. MURAMUWE         | 0720854962  | BONY CHIKWA                | M      |   |
| 12     | KHALIP H MWAMBYENZA        | 0718807385  | Village elder Mwakweche    | M      |  |
| 13     | Jeniffer Sparabus Njirus   | 0702133654  | Committee Member S. Sidihi | F      |  |
| 14     | FREDRICK OTHENO            | 07212221435 | Chairman TUKTUK            | M.     |  |
| 15     | LILWA -S. MUSIM            | 0790632517  | Committee m                | Female |  |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**  
**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting  
 Venue of Meeting: ACK Guest House  
 Date of Meeting: 28<sup>TH</sup> May, 2018  
 Time of Meeting: 9.00 am

| Sr/No. | Name                   | Contact    | Designation           | Gender | Signature |
|--------|------------------------|------------|-----------------------|--------|-----------|
| 16     | MOHAMMED SEIF MATHUD   | 0726002694 | MIGOMBANI             | MALE   |           |
| 17     | JAMES NG'ANG'A         | 0725716068 | Peace Comm Secre      | M      |           |
| 18     | RAHAB KEN STAROZI      | 0722935638 | SNR. MEMBER LKN       | M      |           |
| 19     | SHARAF SALIM MUNG'EBE  | 0712171718 | SNR. MEMBER SHKA      | M.     |           |
| 20     | Muhammad Hassan        | 0723298678 | SHIKA ADARU           | M      |           |
| 21     | Juma ABDULRAHIM KIZURI | 0727938265 | MIGOMBANI LEADER      | M      |           |
| 22     | Wolp - ksh.            | 0722723755 | Peace Comm - Chair    | m      |           |
| 23     | Juma BOMBA             | 0722485118 | SNR. MEMBER Migombani | m      |           |
| 24     | MWANAKAME HAMASI       | 0702133654 | Committee Member      | Female |           |
| 25     | Muhibatye Ramoya       | 0723967401 | TUJUK                 | M      |           |
| 26     | Mohamed JUMA           | 0771200372 | FISHERMAN/RMU         | M      |           |
| 27     | HAMISI MLINGO          | 0716731210 | P.A.P D. CHAIRMAN     | M      |           |
| 28     | FELIX MAIYA            | 0722591161 | ACC-LONGO             | M      |           |
| 29     | YUSUF A. MUHALA        | 0717600025 |                       | M      |           |
| 30     | JUDITH KIAEO           | 0723202554 | RAP SECRETARY         | FEMALE |           |
| 31     | MUNIRUZI JESSA         | 0711157402 | ASS. CHIEF            | MALE   |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

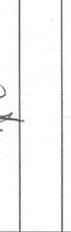
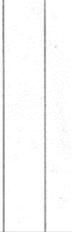
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| Sr/No. | Name                         | Contact    | Designation                        | Gender | Signature                                                                           |
|--------|------------------------------|------------|------------------------------------|--------|-------------------------------------------------------------------------------------|
| 63.    | <del>N. W. A. D. S. M.</del> |            |                                    |        |                                                                                     |
| 64     | Juma Kari                    | 0729966291 | Environmental Expert<br>ward Admin | Male   |    |
| 65     | AMIN, NGUCHA                 | 0726755089 | MEDIA                              | "      |    |
| 66     | DENKIS NAKAU                 | 0726143608 | Police - C.                        | MALE   |    |
| 67     | HUSEIN HASAN                 | 070549087  | P.A. Hon. Mwanjari                 | Male   |    |
| 68     | SAKINI ZADI                  | 0713886455 | MEDIA / Radio<br>saai an           | MALE   |    |
| 69     | Anthony Mungala              | 0716535025 | Media / shauri mwa                 | Male   |    |
| 70     | <del>ABDULAZIZ JUMA</del>    | 0711813514 | Hon. Mwanjari's Office             | MALE   |   |
| 71     | ERIC MUCEN                   | 0722508707 | D-r-c                              | Male   |  |
| 72     | Hon. Mushi Mwakio            | 072278382  | MP-Litari                          | F      |  |
|        |                              |            |                                    |        |                                                                                     |
|        |                              |            |                                    |        |                                                                                     |
|        |                              |            |                                    |        |                                                                                     |
|        |                              |            |                                    |        |                                                                                     |
|        |                              |            |                                    |        |                                                                                     |
|        |                              |            |                                    |        |                                                                                     |

## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

#### ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: ACK Guest House

Date of Meeting: 28<sup>th</sup> May, 2018

Time of Meeting: 9.00 am

| Sr/No. | Name                     | Contact    | Designation                | Gender | Signature |
|--------|--------------------------|------------|----------------------------|--------|-----------|
| 32     | SHK HANADI BAKARI MUGUWA | 0728102983 | SHIKAPABABU                | MALE   |           |
| 33     | SHK MWINYI AHI           | 0726782580 | LIKONI                     | MALE   |           |
| 34     | ANASTASIA SAUD CHAMBA    | 0797295201 | PROFESSOR VLEDER           | MALE   |           |
| 35     | Edwin Owino Obadha       | 0726154299 | Environmentalist/Repor     | MALE   |           |
| 36     | Eurice Kumbui Njunge     | 0727951185 | Environmentalist/Repor     | Female |           |
| 37     | JANE .F. NACHARA         | 0720949991 | ACC                        | FEMALE |           |
| 38     | STELLA HEREMIME BONATA   | 0726614517 | MTORQUE                    | FEMALE |           |
| 39     | RATHO K. JAR             | 0728816037 | LIKONI REMAND HOME         | MALES  |           |
| 40     | Hasiceo Asopola          | 0724664022 | ACHEF                      | MALE   |           |
| 41     | HOD. AITIMU MURUMU       | 0720787570 | MCA-LIKONI                 | M      |           |
| 42     | BAKARI SALIM             | 0724940816 | CNR V/EIDER MTONGWE        | M      |           |
| 43     | Abdullaas Kadl           | 0722303614 | AKVCON (DIVERS/COND)       | M      |           |
| 44     | Psi. Timothy Omesa       | 0723711543 | DR. PASTER                 | M      |           |
| 45     | SULEIMAN MUKINYI KIMUSWA | 0713089138 | INGENIER MTONGWE           | M      |           |
| 46     | BASHID SAUD DAMADARA     | 0727772733 | INTERNAL AUDITOR-LICH      | M      |           |
| 47     | Pedricia Agula           | 0728293844 | Asst. Sociologist<br>KEMHA | F      |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**  
**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**  
**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting  
 Venue of Meeting: ACK Guest House  
 Date of Meeting: 28<sup>TH</sup> May, 2018  
 Time of Meeting: 9.00 am

| Sr/No. | Name                     | Contact    | Designation     | Gender | Signature |
|--------|--------------------------|------------|-----------------|--------|-----------|
| 48     | MWINTI RASHID MWAKINYEZI | 0711353758 | KATA ELDER      | MALE   |           |
| 49     | HON MWALIMU HAMAD        | 0722491463 | MCA-SHEHARU     | MIRE   |           |
| 50     | MISHAM YASSOUD           | 0721899623 | YOUTH LEADER    | MALE   |           |
| 51     | HARRY HASSAN NGAO        | 072364042  | REP FOR MWAKA   | MALE   |           |
| 52     | SABU N-INDIGARIRIK       | 0724906833 | REP FOR MWAKA   | MALE   |           |
| 53     | NANASION MALIJI          | 0717517605 | D.A.P.C         | MALE   |           |
| 54     | ATHUMAN-S. MWALIMU       | 0722368877 | REP. P.W.I.A.   | MALE   |           |
| 55     | ATHUMAN M. MWALIMU       | 0722333937 | CHIEF SADRABU   | MALE   |           |
| 56     | SEMPA K. KIGALO          | 0721785077 | KENYA           | MALE   |           |
| 57     | Ahmed Salama             | 0755857222 | W O A           | M      |           |
| 58     | Francis J. Khamisi       | 0721646279 | SNR. CHIEF      | FEMALE |           |
| 59     | FR. PAUL MURITHI         | 0702730157 | PARISH PRIEST   | MALE   |           |
| 60     | CHARLES ONYANWO          | 0732796443 | DCI LILIONI     | MALE   |           |
| 61     | JUMADARI M'ENZI          | 0716105567 | BAUTITA YIGANA  | MALE   |           |
| 62     | SULEIMAN SHIBU           | 0735584048 | V/ELDER SIMBANI | M.     |           |



# **MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

## **SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**Stakeholder Consultation Meeting Held on 29<sup>th</sup> May, 2018 at Castle Royal Hotel, Mombasa.**

### **Items of Agenda**

17. Introductions and opening speeches;
18. Presentations;
19. Inputs, Questions and answers;
20. Any other business

### **MIN 1 /5/2018: Introduction and opening remarks**

The meeting was started at 10.00 am by a word of prayer. After the prayers Madam Patricia from KeNHA welcomed all stakeholders to the meeting. She further asked members to introduce themselves and the organizations they represent.

### **Opening Remarks from Deputy County Commissioner DCC**

Opening remarks was given by Mombasa Island Sub County DCC. The DCC officially opened the meeting at 10.00 am. He requested the people make open contributions without any fear to enable the consultants to know areas of concerns and gaps that need to be addressed in the reports. The DCC promised his support and that of National Government for the Gate Bridge project and said that the Bridge will remarkable reduce traffic congestion in Mombasa town and reduce incidences of insecurity around Mombasa. He requested the people and politicians to work together with the consultants in order to achieve success of the project. Public consultation is key to any success of any project and therefore it's the people's mandate to provide solutions to their problems through such forums.

### **Madam Patricia - KeNHA**

KeNHA will continue to consult the community because this project is for the community not for KeNHA or the consultants. Projects of such magnitude cannot be 100% perfect. The Consultants (REPCON) is going to discuss with us the presentation and provide way forward.

### **MIN 2 /5/2018: Presentations**

The Lead Environmental Expert Mr. Michael Wairugu thanked KeNHA, for giving him the opportunity to discuss Mombasa Gate Bridge Construction project. We have assessed the impact potential of Mombasa Gate Bridge Construction Project and we are going to discuss this today.

### **Objectives of today's meeting**

To disclose findings of ESIA and RAP studies and to validate assets register for Mombasa Island.

This is the second round of the stakeholders meeting under the auspices of EIA and resettlement action plan for the Mombasa gate bridge construction project. Many of you have met us during the inventory process and will continue meeting with us as we develop the entire process of ESIA and RAP. Besides discussion on environmental assessment findings, we have prepared an asset register which is here for all of the affected persons to confirm their names, plot and other affected assets.

During our inventory period we involved community leaders who assisted us to undertake the work. The leaders also took part in recruitment of field assistance and enumerators. We are thankful to the leaders for setting the pace for our work. During the study, field assistants help in both traffic surveys and inventory of assets. While studies on ecosystems, marine water quality and sediment test were done by experts and in laboratories. The team further procured the services of birds specialized who traversed the entire road corridor for purposes of providing baseline information on occurrences of bird in the area. The results of our findings are contained in the presentations that we are going to discuss shortly.

The lead expert then projected the copy of presentation to stakeholders where several slides were discussed with the people. Both the findings of ESIA and RAP processes were discussed in the slide.

### **Potential impact of the project**

The entire project covers 2 counties, 3 sub counties, 5 locations. The project will have impact on land, commercial business enterprises, community properties, assets/structures, government properties, cultural properties and biodiversity. Severe project impacts are in Likoni and Shikaadabu locations because of the high number of people displaced during project implementation. The RAP study has documented the all affected persons and categorized PAPs according to nature of impact. Loss of land and all developments in the affected land has been documented. Structures such as wall, gates, pavements, wells and boreholes have been recorded in our asset register which you will confirm with us today. Both business tenants and residential tenants have been identified. All commercial business enterprises have been identified and recorded in this asset register. However from our analysis, majority of affected structures are mainly gates and walls. But our asset register still contain some gaps that we must fill with information from you. Therefore take time and check for your details in the provided asset register.

### **Strategic Impact of the project**

The development of Mombasa Gate Bridge is strategic to both Mombasa Southern Bypass and the development of Mombasa Special Economic Zone in Dongo Kundu. The SEZ is expected to create close to 20,000 job opportunities to the people, bring in new investors that will need social

services that include water, housing, etc. You are advised to protect you land from speculators because they will come to buy hence displacing you from the benefits you are poised to enjoy.

### **Local participation and employment opportunities**

40% opportunity to local community is an affirmative action that must be complied with at all levels of project implementation. The RAP has also recommended employment of youths for both skilled and unskilled labour. This project will be displacing more than 11,000 trees and shrubs that will need to be rehabilitated. This requires involvement of the youth during replanting. You are advised to form and register groups. These groups will be the entry points for negotiating local employments. Also, community to form elders committee that will be liaising with the contractor.

### **Environmental Social Management Plan**

The entire environmental and Social Management Plan was discussed. Issues emphasized included mitigation strategies before, during and after construction. Occupation and safety procedures were also discussed into details.

### **The entitlement Matrix**

The following entitlement was discussed

| Category of Impact | Entitlement package                                                                                                                                                                                                                                                                                        |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of Land       | <ol style="list-style-type: none"> <li>1. 100% Compensation at market value as at the time of compensation. Market value to reflect the year of compensation;</li> <li>2. All transaction charges relating to loss of land will be paid; and</li> <li>3. 15% per cent top up for disturbance.</li> </ol>   |
| Loss of homestead  | <ol style="list-style-type: none"> <li>4. 100% Replacement cost at market rate/cash compensation;</li> <li>5. Adequate notice to vacate;</li> <li>6. Time to salvage all the materials</li> </ol>                                                                                                          |
| Loss of trees      | <ol style="list-style-type: none"> <li>7. Cash compensation equivalent to 7 years period of the tree life</li> </ol>                                                                                                                                                                                       |
| Loss of Crops      | <ol style="list-style-type: none"> <li>8. Cash Compensation</li> <li>9. Farmers will be allowed to harvest their crops</li> </ol>                                                                                                                                                                          |
| Fishermen          | <ol style="list-style-type: none"> <li>10. Proposal for cash compensation for fishing nets</li> <li>11. Loss of landing site to be compensated for the number of days a fisherman is not able to use the landing facility –</li> <li>12. Proposals for BMU to have deep sea fishing equipments.</li> </ol> |

|                    |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------|
| Tenants            | 13. Adequate notice to vacate<br>14. 6 months rental charges                          |
| Business Tenants   | 15. Income replacement for 6 months equivalent to average monthly income              |
| Workers            | 16. Income replacement for 60 days                                                    |
| Vulnerable Persons | 17. Additional assistance besides facilitation. KeNHA to assist in income restoration |

Procedures for compensation will follow guidelines provided by the NLC. The National Land Commission will conduct public hearings and gazettment of the traverse. They will further negotiate the cost of land compensation with the landowner. No forceful eviction will be carried out and no one will be allowed to move or relocate before payments are fully made.

JICA who are the financiers of the project is generally concerned with social and compensation matters resulting from this bridge. When one is aggrieved, land and environment court has the final decision. However, conflict resolution mechanisms acknowledge by the constitution ought to be explored first before going to court for arbitration.

Once all these document are taken to National Land commission, the process will now be dictated by the NLC not the consultants or KeNHA.

### **Way forward**

- vi. From here, you are expected to confirm you names in the asset register as true owners of the affected property.
- vii. We are almost closing the register and registrations for PAPs. Therefore all pending cases must be concluded with speed;
- viii. The entire report will go to KeNHA for approval; KeNHA will send the reports to NEMA;
- ix. NEMA will approve the reports and wait for 60 days for public scrutiny and opinion;
- x. NEMA to license the project; and
- xi. NLC to provide guidelines on compensation.

### **Timelines**

- iv. From January 2018; two years of doing feasibility studies;
- v. Two years of doing detailed design; and
- vi. 4 years of construction of the Bridge.

However, it is important to note that no one has stopped anybody from continuing with their planned developments. Go on with your developments and always continue to seek for more accurate information every time you are in doubt. It is the mandate of the NLC to issue stopping orders. But be aware of speculators.

## Land Acquisition process

Once the report is tabled to NLC, the NLC will develop their own schedule of work. In this schedules the following shall be undertaken before final acquisition of land;

- viii. Undertake 30 days gazette notice;
- ix. Conduct public hearing and enquiries;
- x. Prepare report;
- xi. Issue 30 days' notice for another enquiry, documentation and valuation;
- xii. Issue an award to individual persons- where one can either reject the award or accept;
- xiii. Enter into contracts with the affected; and
- xiv. Effect compensation.

It is advisable to solve land issues in advance and handle speculator's challenges. Also form small committees to help in conflict resolution. Solve all cases at community and local level using local leaders.

Finally, RAP is a public document that will be implemented. In the entitlement matrix, you are eligible for compensation; once you are paid do not go to another road reserve hoping to be compensated again. We prefer land to land compensation however due to scarcity of land, cash compensation will be provided.

### MIN 3 /5/2018: Additional inputs, Questions and answers

The process was coordinated by Madam Prisca from KeNHA.

| Name | Organisation | Question/Inputs                                                                                       | Answer provided                                                                                                                                                                                                       |
|------|--------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |              | 12. Do you have an online presence where one can get all this presented information for more details? | For now we don't have online presence because the reports have not been approved. However, KeNHA and NEMA will post the reports in their websites after approvals.                                                    |
|      |              | 13. Can the asset/PAPs register be shared on email?                                                   | Asset register is a public document and contain personal information about the PAPs. It cannot be shared by emails.                                                                                                   |
|      |              | 14. What was the outcome of EIA study on Mangrove biodiversity?                                       | During our flora and fauna studies we documented some mangrove located at the far end of the portreize/Mwena Creek. However the entire traverse sits on rock substrate that does not favour growth of the Mangrooves. |

|  |  |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--|--|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | 15. Are their provision for matatu terminus at the end of the Bridge in Jela Baridi                             | This was not considered but it worth exploring option along that path. However it is more on public transport policy.                                                                                                                                                                                                                                                                                                                                                                                                   |
|  |  | 16. How is the cultural diversity of Mombasa reflected in the architectural design of the Bridge                | A lot of cultural assessment has been done since the beginning of preparatory studies for the bridge. The custodians of cultural heritage and cultural research are the National Museums of Kenya. They have already conduct preliminary cultural assessment. Through their interventions, the alignment had to be moved from Mamangina to allow for the preservation of the rich archeological wealth of the area. Consultations are currently underway with NMK for full cultural assessment study when need will be. |
|  |  | 17. Valuation process. Who is going to do the valuation? Is it NLC, Government valuer, property owners or KeNHA | The team of consultants has a registered valuer who is responsible for conducting valuation according to valuer's Act. However, the NLC will further conduct their own valuation on land and negotiate with land owners on the best price or offer for their land.                                                                                                                                                                                                                                                      |
|  |  | 18. Mombasa has a Swahili Cultural Centre, consider consultation with the organisation                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  |  | 19. Are their provisions of light rail in the bridge?                                                           | This was proposed by County Government during our initial consultation. But it was ruled out because 600 meters span on a suspended bridge cannot tolerate the weight of a train.                                                                                                                                                                                                                                                                                                                                       |

|  |  |                                                                                                                                                                                               |                                                                                                                                                                                                                                                        |
|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | 20. Noise levels are already escalated based on the findings of your study; Liwatoni residents do not want further noise. This will cause people to relocate far from the area                |                                                                                                                                                                                                                                                        |
|  |  | 21. The bridge will attract more traffic creating even more noise                                                                                                                             | Yes. The bridge will attract more traffic meaning more noise to already saturated area.                                                                                                                                                                |
|  |  | 22. You talked of encountering some challenges during the inventory process, we as KAR A –Kenya Residents Association would want to know what challenges you faced in the cause of your work. | Some dissident politicians had refused the process to go through his property.                                                                                                                                                                         |
|  |  | 23. When is the construction/or ground breaking likely to start                                                                                                                               | I don't know. This issue had been mismanaged by the media in our earlier presentations. What I can comfortably tell is that feasibility study will take 2 years and detailed study will also take 2 years from January 2018.                           |
|  |  | 24. What is the fate of those that were not inventoried due to absence during the study period                                                                                                | We have one week to close the register. We are going to move once again to collect and validate the register to make sure that all affected persons are included in the list. Beyond the one week window period no one will be eligible for inclusion. |

|  |  |                                                                                        |                                                                                                                                                                                                                                                                                                 |
|--|--|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | 25. How are you going to approach compensation on impacted graves                      | Graves and other cultural assets will be fully compensated. However proposals are that in areas where the bridge will be elevated the graves and cemeteries to remain underneath the bridge. In Mombasa Island only a gate and a wall of a cemetery located in Archbishop Makarios is affected. |
|  |  | 26. Does your asset register have entries of affected plot numbers and affected areas? | Yes. The asset register also has list of all stakeholders that include business tenants' residential tenants' and CBEs.                                                                                                                                                                         |
|  |  | 27.                                                                                    |                                                                                                                                                                                                                                                                                                 |

**Closing remarks from DCC**

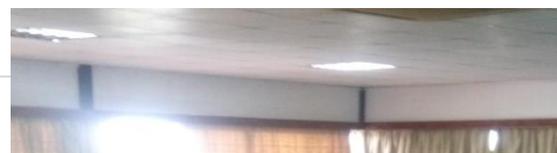
The DCC thanked leaders for coming to the meeting in large number. Let's build synergies to overcome challenges and spear head the development of this historic bridge.

**MIN 4 /5/2018: Any other business**

Copies of PAPs register are available for scrutiny you are requested to confirm your names, plot numbers and other details before leaving.

For more questions please write the issue on a piece of paper provided for further reference. Also indicate you Telephone contact after the question to help as answer you directly through telephone conversation.

There being no any other business, the meeting was closed at 12.00 pm with a word of prayer.





## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

#### ATTENDANCE SHEET

**Type of meeting:** Stakeholder Consultation Meeting  
**Venue of Meeting:** Sentrim Royal Castle - Mombasa Island  
**Date of Meeting:** 29<sup>TH</sup> May, 2018  
**Time of Meeting:** 9.30 am

| Sr/No. | Name                             | Contact     | Designation       | Gender  | Signature |
|--------|----------------------------------|-------------|-------------------|---------|-----------|
| 1      | ABDULLAHMAN.M. RIDHA             | 0721420011  |                   | MALE    |           |
| 2      | HABIB M. THABET                  | 0720660666  | REL-GENERAL       | MALE    |           |
| 3      | HAMMAN AHMAN FUND                | 072605284   | RESIDENT          | MALE    |           |
| 4      | HAMED AHMAN FUND                 | 0722228537  | RESIDENT          | MALE    |           |
| 5      | RAJU SURI                        | 0722411440  | LANDLORD          | MALE    |           |
| 6      | M.A. MAMUTARI                    | 6733601891  | LANDLORD          | M       |           |
| 7      | AMIN BAI SA                      | 07024447140 | LANDLORD          | MALE    |           |
| 8      | MAZANI SALEH SALIM               | 0736812369  | LANDLORD          | MALE    |           |
| 9      | 0.                               |             |                   |         |           |
| 10.    | YAHYA HEMED BATHAF               | 0720038338  | LANDLORD          | MALE    |           |
| 11.    | MARIAM YAHYA                     | 0722705288  | LANDLORD          | MALE    |           |
| 12     | Mohammad M A HADI                | 0722766224  | landlord.         | MALE    |           |
| 13     | Ahmed . N. Bashir                | 5722398482. | Resident          | Male    |           |
| 14     | HASHIM HASHAM MO RYCE ENSTAFANA. | 0733718552  | LANDLORD / TENANT | MALE    |           |
| 15     | KHADITA YAHMOHAMMED              | 0720583989  | RESIDENT          | FEMALE  |           |
| 16     | RUKIA NIZAM                      | 0725428023  | RESIDENT          | FEMALE. |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Sentrim Royal Castle - Mombasa Island

Date of Meeting: 29<sup>TH</sup> May, 2018

Time of Meeting: 9.30 am

| Sr/No. | Name                  | Contact     | Designation          | Gender | Signature |
|--------|-----------------------|-------------|----------------------|--------|-----------|
| 17     | AM SAKUM              | 0711763245  | -                    | MALE   |           |
| 18     | AHMED ALI MUKIJUMA    | 0728353245  |                      | MALE   |           |
| 19     | PETER MBEAU           | 0721374037  |                      | "      |           |
| 20     | KUMARMA, A. HASSANALI | 0722-952758 | -                    | "      |           |
| 21     | FADIRACH MARIKI       | 0722822782  |                      | "      |           |
| 22     | Amwar Sheikh          | 0706550599  |                      | MALE   |           |
| 23     | ABDULKALIM BRATHAN    | 0792487983  |                      | MALE   |           |
| 24     | MUHAMMED SAOIK        | 0726542256  | ADMINISTRATOR        | M      |           |
| 25     | Wenimo, Kenneth       | 0733914615  | FISHERIES RESEARCHER | M      |           |
| 26     | PETER KITHIA          | 0725469585  |                      | M      |           |
| 27     | ABDULRAHMAN ALI       | 0722406191  | OWNER                | M      |           |
| 28     | KIRTI ASHOK BHATIA    | 0738035775  | OWNER / MECHANIC     | F      |           |
| 29     | Anicudh Agas-fyagju   | 0701962615  |                      | M      |           |
| 30     | Joseph vdr malombe    | 0718757391  | Owner / mechanic     | M.     |           |
| 31     | Racheal Masud Katembe | 0711709811  | Business / hotel     | female |           |
| 32     | Moham Khan            | 074855725   | Blum / Paper         | Male   |           |

3.

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Sentrim Royal Castle - Mombasa Island

Date of Meeting: 29<sup>TH</sup> May, 2018

Time of Meeting: 9.30 am

| Sr/No. | Name                            | Contact                  | Designation                   | Gender | Signature |
|--------|---------------------------------|--------------------------|-------------------------------|--------|-----------|
| 1      | MOHAMMED SHAFI                  | 0703666777               | QUORUM CLERK / CHIEF          | M      |           |
| 2      | "                               | 0703666777               | MARSHALS                      | M      |           |
| 3      | SALIM RASHID                    | 0715519967               | OPPOSITE PLOT # 201 GRANDINIA | M      |           |
| 4      | FRANCOIS D. PATEL               | 0722393722               | GRAND FLOOR BRIDGE PA         | M      |           |
| 5      | LADIAN BENEDECT <del>SABO</del> | 0722708131               | PLOT # BLOCK XENI/22          | M      |           |
| 6      | MAURA ABRANCHES                 | 07352779604              | KILINDINI BAR                 | F      |           |
| 7      | MICHAELA NICHOLLS               | 0733760468               | KILINDINI BAR                 | F      |           |
| 8      | CLARENCE ABRANCHES              | 0735542066               | "                             | M      |           |
| 9      | TARIQ HUSSEIN                   | 0714831133               | SEASIDE HOSPITAL              | M      |           |
| 10     | Aydat Siman                     | 0780600949               | "                             | M      |           |
| 11     | Islem mohammed FADAF            | 078023699                | NEAR LIWATONI                 | M      |           |
| 12     | AMSID HUSSEIN GULAHY            | 0721454188               | OWNER / RESIDENT              | M      |           |
| 13     | ISHFAQ NABREEN                  | 0721454188               | "                             | F      |           |
| 14     | 'ANIL TRIVEDI                   | 0733730140<br>0713160211 | OWNER                         | M      |           |
| 15     | STEPHEN MATHUONYO               | 0718499844               | MERIC ANNEX HOTEL             | M      |           |
| 16     | Mohamed Kosham July             | 0791782571               | OPP: Gangan Primary           | M      |           |

# MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

## SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

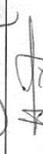
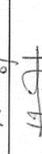
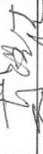
### ATTENDANCE SHEET

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Sentrim Royal Castle – Mombasa Island

**Date of Meeting:** 29<sup>TH</sup> May, 2018

**Time of Meeting:** 9.30 am

| Sr/No. | Name                    | Contact      | Designation         | Gender | Signature                                                                           |
|--------|-------------------------|--------------|---------------------|--------|-------------------------------------------------------------------------------------|
| 1      | TERESIA N. AMINGA       | 0721920796   | Offie Administrator | FEMALE |    |
| 2      | CASSID O. J. J. J. J.   | 0733728982   | MANAGER             | MALE   |    |
| 3      | HENRY MANGI             | 0722 985504  | CONTRACTOR          | MALE   |    |
| 4      | NAZIR HUSSEIN           | 0726 713938  | CONTRACTOR          | MALE   |    |
| 5      | MANPREET S. PANESAR     | 0720 448 999 | PROJECT MANAGER     | MALE   |    |
| 6      | STEPHEN K. MBITI        | 0723 472578  | BUSINESS (MECHANIC) | MALE   |    |
| 7      | Douglas Muniro Kitema   | 0720 268 333 | BUSINESS (MECHANIC) | MALE   |    |
| 8      | Gideon M Matuva         | 0795 718 770 | BUSINESS (MECHANIC) | MALE   |    |
| 9      | Ali Chakera             | 0707655680   | Owner               | MALE   |    |
| 10     | AGEEL AHMED             | 0714-818131  | Car (Business)      | Male   |    |
| 11     | Frank Star              | 0766593333   | Director            | Male   |   |
| 12     | M. FARAT                | 0766-570240  | DIRECTOR            | MALE   |  |
| 13     | EMNICE LOAN             | 0726 769285  | ADMINISTRATOR       | FEMALE |  |
| 14     | Hussaini m-J. Khaki     | 072-5060224  | Owner               | Male   |  |
| 15     | Derrick M Lufah         | 0725896944   | Business            | Male   |  |
| 16     | AHMED NATHAN (BUSINESS) | 072401837    | ACE-ISLAND          | MALE   |  |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Castle Royal Hotel- Mombasa

**Date of Meeting:** 29<sup>TH</sup> May, 2018

**Time of Meeting:** 9.00 am

| Sr/No. | Name                  | Contact     | Designation            | Gender | Signature |
|--------|-----------------------|-------------|------------------------|--------|-----------|
| 1      | V SOU                 | 0722514909  | DIRECTOR               | M      |           |
| 2      | A ESMAIL              | 0722628888  | DIRECTOR               | M      |           |
| 3      | MUKLEPA VENI          | 0733873441  | DIRECTOR               | M      |           |
| 4      | Abdulhameem           | 0727777760  | DIRECTOR               | M      |           |
| 5      | JOHNSON MOICAYA       | 0721345199  | Director               | M      |           |
| 6      | HANIFA NURY           | 0733797184  | DIRECTOR               | M      |           |
| 7      | M GACHERU             | 0722753687  | DIRECTOR               | M      |           |
| 8      | Abdulmajid salim      | 0723535388  | Manager                | M      |           |
| 9      | Simon BWERICHU        | 0724884400  | Ag. EDF                | M      |           |
| 10     | Lucy Wanyonyi         | 07224006006 | 3. Coordinator         | M      |           |
| 11     | STANLEY PATIKATI      | 0723112211  | DIRECTOR               | M      |           |
| 12     | MARY AMINO DEIMA      | 0722755752  | SECRETARY              | F      |           |
| 13     | TOMMY OLUCHAL         | 0723909421  | NETS PERSONNEL         | M      |           |
| 14     | MORRIS ABRUWADIR      | 0780216404  | (COORDINATOR (KAMATI)) | M      |           |
| 15     | JAVED IBBAL           | 0723157818  | DIRECTOR               | M      |           |
| 16     | ENG. FAROUK CHIRAGDIN | 0711190577  | CONSULTANT             | M      |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Castle Royal Hotel- Mombasa

Date of Meeting: 29<sup>TH</sup> May, 2018

Time of Meeting: 9.00 am

| Sr/No. | Name                | Contact     | Designation           | Gender | Signature   |
|--------|---------------------|-------------|-----------------------|--------|-------------|
| 1.     | JOHN ORINA NYANNWA  | 072710359   | COORDINATOR           | M      | [Signature] |
| 2.     | PHILIP WANYAMA      | 0713308618  | ARCHITECT/EST. MK.    | M      | [Signature] |
| 3.     | RASHID SUKSESANA    | 0727103416  | EST. EST. - BAKI 50-1 | M      | [Signature] |
| 4.     | ADN. M. A. AMUR     | 0722895745  | M. C. A. (MSEA)       | M.     | [Signature] |
| 5.     | BALKE M. KHANIS     | 0721683637  | EST. - GANJONI        | F      | [Signature] |
| 6.     | THURAYA TIRO        | 0722372750  | EST. - GANJONI        | F      | [Signature] |
| 7.     | ALI GITHAMZI        | 0715080000  | GANJONI               | F      | [Signature] |
| 8.     | LEMBEKA GITHAMZI    | 0722-816360 | GM (JIPAN PREVIOUS)   | M      | [Signature] |
| 9.     | George N. Macego    | 0715094444  | DG KMA                | M      | [Signature] |
| 10.    | Capit Dave W. Muli  | 0729403588  | KMA - HUS             | M      | [Signature] |
| 11.    | ZAFAR AHMED         | 0722706234  | B/MAN                 | M      | [Signature] |
| 12.    | MUSC A. A. A. A.    | 0722508230  | 0725040390            |        |             |
| 13.    | STARUF- MOAD SHEIKH | 0726026444  | SELF EMPLOYED         | M      | [Signature] |
| 14.    | MOSES WAMBUI NSTEMA | 0708542632  | SELF                  | M      | [Signature] |
| 15.    | SUFIL AH            | 0727836715  | SELF                  | TA     | [Signature] |
| 16.    | Douglas Nandwa      | 0728166393  | MCA - Bwindini CFA    | M      | [Signature] |

# MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

## SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

### ATTENDANCE SHEET

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Castle Royal Hotel- Mombasa

**Date of Meeting:** 29<sup>TH</sup> May, 2018

**Time of Meeting:** 9.00 am

| Sr/No. | Name                 | Contact    | Designation | Gender    | Signature |
|--------|----------------------|------------|-------------|-----------|-----------|
| 1      | COLEMAN CHENOL       | 0722258690 | ACSS        | Male      |           |
| 2      | VINEY SHUM           | 0733786486 | F.C.C       | Male      |           |
| 3      | ZUBEDEY              | 072779429  | Director    | Female    |           |
| 4      | Philip Kavise Kaindi | 0720088950 |             | Male      |           |
| 5      | Margaret C. Mweu     | 0783901881 | Director    | Female    |           |
| 6      | Mweu Mochiri         | 0788616431 | "           | Male      |           |
| 7      | MUHAMMAD SAUD        | 0728906796 | Attul       | Male      |           |
| 8      | Hadija Rashid Said   | 0727366797 | "           | FEMALE    |           |
| 9      | ABDUL A. CHARABAN    | 0724937992 | Envir.      | MARO      |           |
| 10     | FRANKS MUSILI        | 0733705510 | Official    | Male      |           |
| 11     | MUHAMMAD KATERBINA   | 0735687786 |             | Male      |           |
| 12     | GUSTAVO O. OPIYO     | 0725626128 | Director    | Male      |           |
| 13     | PHILIP MAMMANASI     | 0717503040 | Director    | Male      |           |
| 14     | ZAKAYO MICHIBU       | 0716667357 | Director    | 20 INVOLT |           |
| 15     | DANIEL KIMOTO        | 0728338503 | Official    | Male      |           |
| 16     | Maurine Ng'ici       | 0723673732 | Official    | FEMALE    |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Castle Royal Hotel- Mombasa

Date of Meeting: 29<sup>TH</sup> May, 2018

Time of Meeting: 9.00 am

| Sr/No. | Name                   | Contact     | Designation            | Gender | Signature |
|--------|------------------------|-------------|------------------------|--------|-----------|
| 1      | SUPAMIM JUMA           | 0717763942  | CSP - Programs Officer | F      |           |
| 2      | Nathan Nyegayo         | 0728288019  | OC USA Renew           | M      |           |
| 3      | Seaside hospital       | 0727500254  | Director               | M      |           |
| 4      | SHARIE TAPININ         | 0722410182  | Director               | M      |           |
| 5      | Samuel Nyagaka         | 0715837332  | Coordinate             | M      |           |
| 6      | DAVID JOHI             | 078516353   | Director               | M      |           |
| 7      | MUHAMMAD AHMED AGAD    | 0721588886  | LUCKY STAR             | M      |           |
| 8      | Omar Awy               | 0722588818  | BUSINESS PARTNER       | M      |           |
| 9      |                        |             |                        | M      |           |
| 10     | M. IORAK SUNDEJI       | 0731354012  | BARAZI DIST            |        |           |
| 11     | Maurine                |             |                        |        |           |
| 12     | HORGH MURUGAMBE        | 0728489524  | Business               | F      |           |
| 13     | NIPHER KHA SAMBI       | 0720660019  | OPS MNG                | F      |           |
| 14     | SALUH SAID OUMAR       | 0771298144  | Social Worker          | M      |           |
| 15     | NESFOOD INDUSTRIES LTD |             | DIRECTOR               | M      |           |
| 16     | J.R. K.J & V.S SUWAH   | 0722-848090 | DIRECTOR               | M      |           |

# MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

## SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

### ATTENDANCE SHEET

**Type of meeting:** Stakeholder Consultation Meeting  
**Venue of Meeting:** Castle Royal Hotel- Mombasa  
**Date of Meeting:** 29<sup>TH</sup> May, 2018  
**Time of Meeting:** 9.00 am

| Sr/No. | Name                 | Contact    | Designation                | Gender | Signature |
|--------|----------------------|------------|----------------------------|--------|-----------|
| 1      | Suleiman Rashid      | 072275552  | Director                   | M      |           |
| 2      | Peter M. Gumbo       | 0733640171 | Business manager           | M      |           |
| 3      | Lucas Ogutu          | 0726758107 | Sales Support              | M      |           |
| 4      | Zuno Properties/Shop | 0722126766 | Representative And         | M      |           |
| 5      | Twecha Hussein       | 0712113710 | Managers                   | F      |           |
| 6      | ABUBAKAR MOHAMMED    | 0722348820 | Businessman                | M      |           |
| 7      | Neguba Harriet       | 0705439724 |                            | M      |           |
| 8      | FARIM FARAF          | 0722338863 | BUSINESSMAN                | M      |           |
| 9      | Mishaal John         | 073318876  | of members of organization | M      |           |
| 10     | MISHAAL AL-KHATIB    | 0733399979 | BUSINESSMAN                | M      |           |
| 11     | SUTHAIL AL-KHATIB    | 0714466444 | Businessman                | M      |           |
| 12     | MOHAMED R. SOOD      | 0725833165 | Businessman                | M      |           |
| 13     | JAMES MOCAMMA        | 0724495258 | WACHANGAMBE C.E.R          | M      |           |
| 14     | KAZUNGA Philip       | 070246572  | SOLE                       | M      |           |
| 15     | MOSVIE Kennedy       | 072258803  | Repre                      | M      |           |
| 16     |                      |            | Chairman / Convener        | M      |           |

**MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Castle Royal Hotel- Mombasa

Date of Meeting: 29TH May, 2018

Time of Meeting: 9.00 am

| Sr/No. | Name                        | Contact     | Designation                                    | Gender | Signature |
|--------|-----------------------------|-------------|------------------------------------------------|--------|-----------|
| 1      | Rahma Salim Athi            | 0723205434  | owner                                          | Female |           |
| 2      | Mohamed Athman              | 0722887186  | owner                                          | Male   |           |
| 3      | DOHNGON MURAMING            | 07445900    | Resident<br>MURAMING ENTERPRISES<br>4 DEC 10/2 | Male   |           |
| 4      | William Mazon               | 072360170   | Resident                                       | Female |           |
| 5      | Mwaka zero Ndazawa          | 0726456683  | Resident                                       | male   |           |
| 6      | Aick JAFFAR S. MASHI        | 0720760456  | CHIEF OFFICER PLANNING                         | Male   |           |
| 7      | Gambey Souy                 | 078677962   | Director - Petige                              | Male   |           |
| 8      | Juma Rambahwai Simba        | 072885241   | owner                                          | Male   |           |
| 9      | SIMON MUCHIRI               | 0733-788970 | DIRECTOR<br>SIPESUM MOTORS                     | Male   |           |
| 10     | MONGO NGUMBI                | 0728646530  | OWNER                                          | Male   |           |
| 11     | LOUISA MARY MUTHONI NAMBULU | 0723676563  | OWNER KISUMU                                   | FEMALE |           |
| 12     | Esther Keloudu              | 0719132476  | Klard Administrator                            | female |           |
| 13     | Irene Muraguri              | 0721879453  | Ward Administrator                             | female |           |
| 14     | Zankaria Aadi               | 0711133000  | Ruman chipping                                 | male   |           |
| 15     | ERICK KAMATA MFOROAT        | 072199927   | Owner P3 courts                                | Male   |           |
| 16     |                             |             |                                                |        |           |

← necessary

# MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

## SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES

### ATTENDANCE SHEET

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Sentrim Royal Castle - Mombasa Island

**Date of Meeting:** 29<sup>TH</sup> May, 2018

**Time of Meeting:** 9.30 am

| Sr/No. | Name                     | Contact     | Designation   | Gender | Signature |
|--------|--------------------------|-------------|---------------|--------|-----------|
| 1      | SHAMMUR M.T              | 0726693017  | Business      | MALE   |           |
| 2      | VICTAL                   | 0731216994  | Business      | MALE   |           |
| 3      | Mary Gathaga             | 0713096368  | Business      | Female |           |
| 4      | WILSON HODOLO            | 071537883   | Business      | MALE   |           |
| 5      | SALUSSO ABUADJALE        | 0722730160  | Business      | MALE   |           |
| 6      | WILHELMINE WETANJILI ULA | 0722716675  | BUSINESSMAN   | MALE   |           |
| 7      | TEDDY MALOBA             | 0922-601354 | BUSINESS      | M      |           |
| 8      | ABDULKARIM ISMAIL        | 0700710411  | BUSINESS      | M      |           |
| 9      | SAMUEL OBAYLA            | 0700332599  | BUSINESS      | M      |           |
| 10     | ALI ABULLAH              | 0722597980  | BUSINESS      | M      |           |
| 11     | ABDUL HAFIM AH           | 0721909786  | BUSINESS      | M      |           |
| 12     | MOHAMMED KASSIM          | 0721572546  | Business      | M      |           |
| 13     | Faizine Owis             | 0796944070  | Business      | F      |           |
| 14     | NASSET RASHID            | 0720692992  | Business      | M      |           |
| 15     | NASSET SAID              | 0722512190  | Nobel Trading | M      |           |
| 16     |                          |             |               |        |           |







## **Minutes of Stakeholders Consultation Meeting Held on 22<sup>nd</sup> May 2018 at Kibaki Estate for Environmental and Social Impact Assessment (ESIA) in the Feasibility Study for Mombasa Gate Bridge Construction Project**

**Agenda:** Disclosure of finding from the environmental and social assessments and also the RAP studies.

### **Introduction and opening remarks**

The meeting was called to order at 2; 30 by the chief and was opened with a word of prayer.

The chief also urged the parents to be vigilant about the whereabouts of their children as in the recent past the area has seen a rise in insecurity and also youth involving themselves in criminal activities.

### **Project Disclosure and Presentations- Edwin Obadha**

**Description of the project:** The Mombasa Gate Bridge Construction Project entails construction of a bridge starting all the way from Jela Baridi in Lumumba Rd to Siwani in in Kwale County. The bridge will be connecting Mombasa Island/town and Mainland South. The Bridge will pass through Limumba road, Moi Avenue next to Cannon Towers, Mwakilingo Street, Puma Primary School, Peleleza School, Mwenza Creek opposite Kenya Navy, Mtongwe Posta, and finally joining the Mombasa Southern road at Zawani in Kwele County. The bridge will be high enough to allow for normal operations of ships below and will be about 70 meters high from ocean level. The width of the bridge will be 60 meters wide while its length across the channel will be about 1.5 Kms.

### **Acquisitions**

He mentioned that the whole project was acquiring 52.57 Ha of land along the whole traverse, with Likoni location having the largest Percentage of acquisition of 28.2 Ha which is 45% of the total acquisition. Mombasa Island will have acquisitions amounting to 5.4 Ha, Mtongwe will have 2.78 Ha of acquisitions, Shika Adabu will have acquisitions amounting to 22.9 Ha while Ngombeni will have acquisitions amounting to 5.5 Ha of land.

A total number of 163 plot owners would be impacted in the whole traverse, with Likoni still having the largest number of owners to be impacted. Likoni will have a

total number of 280 plot owners to be impacted while Mombasa with 150 plot owners, Mtongwe with 49 plot owners, Shika adabu with 25 plot owners and Ngombeni with 9 plot owners.

The house holds to be impacted also leaves Likoni with the highest number of 298 households, Shika Adabu second highest with 221 households to be impacted; Mombasa Island has 47 households to be impacted while Mtongwe has 48 households to be impacted with a total number of 214 households to be impacted along the whole traverse.

The total number of structures to be impacted along the whole traverse is 231.

He also mentioned about the survey done on the air quality, traffic levels, water and soil sediments for the same project but the details were too technical to be discussed in the forum.

He also stated that studies done had showed that people were willing to pay up to 1.5 times of what they pay now to use the bridge.

### **Impacts**

The impacts expected from the development will be both positive and negative (irreversible).

The positive ones include;-

- Timely crossing from mainland
- Reduce congestion at the ferry
- Facilitate development of the mainland south economically.

The irreversible ones on the other hand include;-

- permanent change in land use
- Increased number of accidents which can be controlled with appropriate mitigation measures to be put in place.

### **Entitlements**

Land owners are entitled to a total compensation of the impacted land at 100% replacement cost plus 15% as disturbance fee. Also an additional 10% will be included in the compensation as good will, making the total compensation 125% of the current market value of land

Structure owners: They are entitled to 100% replacement value compensation and the 15% as the disturbance fee.

Structure owners are also entitled to adequate notice to vacate before implementation begins and also salvaging of the materials they have used to construct such structures.

Land lords: Entitled to up to three months of rent that was being received from the tenants.

Tenants: they are entitled to receive adequate notice to vacate before implementation commences, they are also entitled to a one time shift allowances to facilitate the moving to their new locations.

Business persons; entitled to get up to three times of their average six monthly earnings.

| Plenary session                                                                                                                                                              |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| After discussions, the local community was allowed to voice their concerns and seek for clarification of facts about the proposed route. The following questions were asked. |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                         |
| Name                                                                                                                                                                         | Question/Comment                                                                                                                                                                                                                                                               | Answer                                                                                                                                                                                                                                                                                                                                                                  |
| Ali Ringi                                                                                                                                                                    | A problem had arose while conducting the Rap process around Mheshimiwa mwahima surroundings, what is the progress so far?                                                                                                                                                      | Negotiations are still underway and hopefully soon enough a solution will be arrived at.                                                                                                                                                                                                                                                                                |
| Hamisi Bagu                                                                                                                                                                  | What was the criterion used to arrive at the 115% as amount for compensation as it is a small figure? The three months' rent to be offered to landlords is a very small amount considering all the time it takes to construct new rentals and start collecting rent from them. | The 15% offered as a disturbance is a provision in the Kenyan constitution under involuntary resettlement, it was seen that the 15% was too small hence the additional 10% as good will on land. The monthly allowance is borrowed from the world bank provisions in the OP 4.12, which the implementing body , JICA, borrows from and thus not a government provision. |
| Ali Mwakasi                                                                                                                                                                  | All the houses along the traverse have been constructed differently; will the compensation amounts be the same ie those constructed in old models and the self-contained ones?                                                                                                 | All modification done to the house was recorded and compensation will be done differently according to the type of the houses.                                                                                                                                                                                                                                          |
| Hamisi Mwinyi                                                                                                                                                                | He commends the government for the good thoughts. He also hopes that during implementation, first employment considerations will be given to the locals.                                                                                                                       | It's a requirement that at least 40% of both skilled and unskilled labour in every project to be sourced from the local communities.                                                                                                                                                                                                                                    |
| Ronald Kitutu                                                                                                                                                                | The recorded tenants might not be the once around during compensation as they keep changing every now and then, what will happen then?                                                                                                                                         | The register will be reviewed and updated at least four months to compensation and with such; those that will be occupying the houses by then are the ones that will be paid.                                                                                                                                                                                           |
| Hidaya Musa                                                                                                                                                                  | The current developments on the A14 road have led to destruction of property that had initially been amounted in the rap for the                                                                                                                                               | The said development on A14 is only being done on the existing road reserves; Mombasa Gate Bridge will compensate the planned acquisition of 5 meters in                                                                                                                                                                                                                |

|                 |                                                                                                                                                                             |                                                                                                                                                          |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Mombasa Gate bridge project, how will compensation of such take place?                                                                                                      | excess of the existing road reserve between Ujamaa and the old Mtongwe road, a distance of 800 meters.                                                   |
| Judith charo    | The government has promised to pay any loans attached to any of the impacted property, will the amount be deducted from the compensation amount or is it a different kitty? | The government will not deduct it from the amounts to be compensated, thus the owner will receive full amounts.                                          |
| Shabani Hussein | Will the compensation be done in cash, cheque or through accounts?                                                                                                          | It is required that couples should open a joint account with their respective spouses and during compensation; they will be paid through those accounts. |

### Final remarks

After the question and answer session, the register was read out aloud with everyone being urged to be keen so as to hear if they are listed in the register and if not raise their complaint later.

The meeting came to a close at 5:10 pm.

Photographs with caption notes



Mr. Athuman Mwkashi, the Area Chief addressing the members in the meeting.



Mr. Edwin Obadha, the consultant addressing the meeting.



Mr Hamisi Mlingo Assisting in reading out the Asset Register.



A section of the present members of the public.

## Attendance Sheets

**UWINDABA VALE BRIDGE CONSTRUCTION PROJECT**  
**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting  
 Venue of Meeting: Kibaki Estate - Shikaadabu  
 Date of Meeting: 22<sup>ND</sup> May, 2018  
 Time of Meeting: 2.00 pm

| Sr/No. | Name                    | Contact    | Designation/Sub location | Gender | Signature |
|--------|-------------------------|------------|--------------------------|--------|-----------|
| 1.     | BIASHA SAIDI MKONGO     | 0724713786 | MWANE CHE                | FEMALE |           |
| 2.     | MWASHA MWINGI           | 07         | BULLS                    | FEMALE |           |
| 3.     | SAMU KHEI               | 0796077061 | BULLS                    | FEMALE | S.K       |
| 4.     | VERONICA KELOLO         | 0722814018 | vyemani                  | FEMALE |           |
| 5.     | RACHEL K. NJAYA         | 0722371735 | VYEMANI                  | FEMALE |           |
| 6.     | HIDATA MUSA             | 0721636274 | KONA MBAYA               | FEMALE |           |
| 7.     | HARISI SALIM MWAJIBI    | 0720998020 | BULLS                    | MALE   |           |
| 8.     | MOHAMMED KASSIM MAHISHA | 0726644395 | MWANE CHE                | MALE   |           |
| 9.     | KASSIM ALI MWAJIBI      | 0724160365 | MWANE CHE                | MALE   |           |
| 10.    | SAIDI MUMBA GUZO        | 0718229361 | MWANE CHE                | MALE   |           |
| 11.    | SULEIMAN MOHD KUSEYA    | 0711366432 | MWANE CHE                | MALE   |           |
| 12.    | SALIM JUMAT MWAJIBI     | 0729346704 | VYEMANI                  | MALE   |           |
| 13.    | ALI JUMAT MWAJIBI       | 071136589  | BULLS                    | MALE   |           |
| 14.    | ALBERT CHEGE GATWIKU    | 0724950223 | VYEMANI                  | MALE   |           |
| 15.    | MWAMANI KUMBA MWAJIBI   | 0713717033 | VYEMANI                  | MALE   |           |
| 16.    | MWAMANI FURIO MWAJIBI   | 0726072157 | MWANE CHE                | MALE   |           |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Kibaki Estate - Shikaadabu

**Date of Meeting:** 22ND May, 2018

**Time of Meeting:** 2.00 pm

| Sr/No. | Name                     | Contact    | Designation/Sub location  | Gender | Signature |
|--------|--------------------------|------------|---------------------------|--------|-----------|
| 1.     | Abdulla Kando Mungu      | 0733603262 | Vyemani / Shikaadabu      | MALE   |           |
| 2.     | STEPHEN M MWASUMBA       | 0725429219 | VYEMANI                   | MALE   |           |
| 3.     | ALI R. MWALINGI          | 0725382329 | SHIKAADABU                | MALE   |           |
| 4.     | LIKOTI J. MASFINDO       | 0707399294 | VYEMANI                   | MALE   |           |
| 5.     | BAKARI MWASUMBA          | 070062059  | SHIKAADABU                | MALE   |           |
| 6.     | BAKARI ADI               | 0714995133 | SHIKAADABU                | MALE   |           |
| 7.     | JUMA KASSIM MWAKAMPYA    | 070296081  | VYEMANI                   | MALE   |           |
| 8.     | Mohammed K. Mwakampya    | 0720745909 | Vyemani                   | MALE   |           |
| 9.     | James Kuria Kariuki      | 0723896784 | Shikaadabu / Cornet bogia | MALE   |           |
| 10.    | MICHELLI MUTEUNDI MURRAY | 0718386887 | VYEMANI                   | FEMALE |           |
| 11.    | MURRAY ALI BUNGO         | 0722884658 | VYEMANI                   | FEMALE |           |
| 12.    | AMINA MOTO HASSAN        | 0704860726 | VYEMANI                   | FEMALE |           |
| 13.    | MUHAMMAD AHMED ATTEI     | 0722444662 | VYEMANI                   | MALE   |           |
| 14.    | JENIFFER NJUA            | 0702133654 | SHIKAADABU                | FEMALE |           |
| 15.    | Jeniffer kimole          | 0704972395 | SHIKAADABU                | FEMALE |           |
| 16.    | Jickline Kerempu         | 0724394925 | SHIKAADABU                | FEMALE |           |

## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES

#### ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                       | Contact              | Designation/Sub location | Gender | Signature                                                                           |
|--------|----------------------------|----------------------|--------------------------|--------|-------------------------------------------------------------------------------------|
| 1      | NDOZUNGU NYAE BENYAE       | 0743736342           | PAR VYEMANI              | F      |    |
| 2      | BAKALI AITHUMANI           | 0702609276           | PAR VYEMANI              | M      |    |
| 3      | MUSA ABDALLA MUSA          | 075591067            | PAR VYEMANI              | M      |    |
| 4      | FATUMA MUNJAKA             | 0782440269           | VYEMANI                  | F      |    |
| 5      | MWANGATHA O. SULEMAN       | 070249137            | VYEMANI                  | F      |   |
| 6      | NDOBO RAI                  | 0732910804           | MUEZA                    | RAI    |  |
| 7      | FATUMA ALI ALALI           | 07XXX                | VYEMANI                  | F      |  |
| 8      | MWANGATHA JUMA JAP         | 072817748            | MWANGATHA                | F      |  |
| 9      | MWANGATHA AITHUMANI        | 0729148880           | VYEMANI                  | F      |  |
| 10     | FATUMA OTHARI MUNDULO      | 072925953            | VYEMANI                  | F      |  |
| 11     | MIDHAMED BAHAR MUMAMCILI   | 07072550789          | VYEMANI                  | M      |  |
| 12     | MUSAMAMISI SALUM MWAMANDA  | 0716305114           | VYEMANI                  | F      |  |
| 13     | SHABAN JUMARA MWAKICEO     | 0700287456           | VYEMANI                  | M      |  |
| 14     | MUSAMAMISI MUMISTI MUMANDA | 07184531             | VYEMANI                  | F      |  |
| 15     | MEALI KHAMISI NKAROTO      | 071677156            | VYEMANI                  | F      |  |
| 16     | NIORAH KUYANGO OYUGI       | 0725430358<br>777929 | VYEMANI                  | F      |  |

## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES

#### ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate – Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                           | Contact              | Designation/Sub location | Gender | Signature |
|--------|--------------------------------|----------------------|--------------------------|--------|-----------|
| 1.     | NADZONGU NYAE BENYAE           | 0743736342           | RAP VYEMANI              | F      |           |
| 2.     | BAKACI ATHUMANI                | 0702609270           | RAP VYEMANI              | M      |           |
| 3.     | MUSA ABDALLA MUSA              | 075591061            | RAP VYEMANI              | M      |           |
| 4.     | FATUMA MUMJAKA                 | 0782440269           | VYEMANI                  | F      |           |
| 5.     | MWAKARA O. SULEMAN             | 070249137            | VYEMANI                  | F      |           |
| 6.     | NDORO RAI                      | 0726910804           | MWAKARA                  | M      |           |
| 7.     | FATUMA ALI ALALI               | 07XXX                | VYEMANI                  | F      |           |
| 8.     | MWAKARA JUMA JAP               | 072817748            | MWAKARA                  | F      |           |
| 9.     | MWAKARA ATHUMAN                | 0729148980           | VYEMANI                  | F      |           |
| 10.    | FATUMA OMAR, MUMJULO           | 072925953            | VYEMANI                  | F      |           |
| 11.    | MIDHAMED BAMA MUMAMC           | 07407250239          | VYEMANI                  | M      |           |
| 12.    | MUSAMAMISI SALUM MWAJA-MWAKARA | 0716305114           | VYEMANI                  | F      |           |
| 13.    | SHABAN JUMAA MWAKICED          | 0700287656           | VYEMANI                  | M      |           |
| 14.    | MUSAMAMISI MUMJUTI MUMJULO     | 072954453            | VYEMANI                  | F      |           |
| 15.    | MEALI KHAMISI MKAROTO          | 071677156            | VYEMANI                  | F      |           |
| 16.    | NIORAH ANYANGO OYUGI           | 0725430358<br>747929 | VYEMANI                  | F      |           |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                            | Contact    | Designation/Sub location | Gender | Signature |
|--------|---------------------------------|------------|--------------------------|--------|-----------|
| 1      | DOMING N. NGURE                 | 0722886826 | Vyemom                   | MALE   |           |
| 2      | BENSON K. KIBAKI                | 07270442   | Vyemom                   | MALE   |           |
| 3      | OMARI SALIM BOKO                | 0792249932 | VYEMOM                   | MALE   |           |
| 4      | ANNE KAUKE                      | 0718682142 | KIBAKI ESTATE            | FEMALE |           |
| 5      | ROMAL KUTUJA                    | 0727732781 | KIBAKI ESTATE            | MALE   |           |
| 6      | ASHA MOHAMMED MWAHUMU           | 0700549345 | VYEMOM                   | FEMALE |           |
| 7      | FATUMA SWALEH JEGA              | 0713241640 | KIBAKI ESTATE            | MALE   |           |
| 8      | MWINIHAJI MOHAMED AZAMBO        | 0704918360 | MWAWECHE                 | M      |           |
| 9      | HUSSEIN KISHIHIRI RONGO         | 0775685947 | MWAWECHE                 | M      |           |
| 10     | MASUKU SWALEH JUMA              | 072808112  | MWAWECHE                 | M      |           |
| 11     | SULEIMAN HAMADI AZA<br>MWAWECHE | 0719329466 | MWAWECHE                 | MA     |           |
| 12     | KHAMIS OMARI                    | 0720107663 | MWAWECHE                 | M      |           |
| 13     | MWAHAJISHA SWALEHE              | 0701337308 | MWAWECHE                 | FEMALE | M.S       |
| 14     | MUBARASITI SELEMA               |            | MWAWECHE                 |        |           |
| 15     | SALIM PLY MWAWECHE              | 0724634568 | MWAWECHE                 |        |           |
| 16     | MOMO JUMA KISSATI               |            | Vyemom                   |        |           |

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                               | Contact     | Designation/Sub location | Gender | Signature   |
|--------|------------------------------------|-------------|--------------------------|--------|-------------|
| 1.     | Muhammad Hussein <sup>Murad</sup>  | 0710-859223 | YEMAN                    | MALE   | [Signature] |
| 2.     | JETO MUGIRANI BUNDA                | 0732-89081  | YEMAN                    | MALE   | [Signature] |
| 3.     | SARUWA RANJITHAN MURKIRUKA         | 0723-41058  | YEMAN                    | MALE   | [Signature] |
| 4.     | Aki Salwa Malau                    | 0724-86582  | YEMAN                    | MALE   | [Signature] |
| 5.     | RUTH WAWUDA NJAI                   | 0725439355  | MWAWUECHE                | FEMALE | [Signature] |
| 6.     | Fahingy Faizal Awadhi              | 071410214   | MWAWUECHE                | female | Fahing      |
| 7.     | Abdulla Mohamed Hema               | 0724227053  | MWAWUECHE                | Male   |             |
| 8.     | Khadija Hassan Nzai                | 0701314369  | MWAWUECHE                | Female | Khadija     |
| 9.     | GRACE MWASAGIWA CUTO               | 0726920892  | YEMAN                    | Female | Gyp         |
| 10.    | MARIAMU KHAMISI                    | -           | MWAWUECHE                | FEMALE |             |
| 11.    | MUNADIRI JWINA                     | 0700682531  | YEMAN                    | FEMALE | [Signature] |
| 12.    | MGEPI BAYALI                       | 077167061   | YEMAN                    | FEMALE | [Signature] |
| 13.    | FELICIA OMARI SEMU                 | 0732993533  | YEMAN                    | FEMALE | [Signature] |
| 14.    | <del>SAMANZA</del> SIKHEMWA CHENGA | 0733967833  | MWAWUECHE                | FEMALE | [Signature] |
| 15.    | ZACHARIA MUMANGOSANI               | 074485334   | YEMAN                    | FEMALE | [Signature] |
| 16.    | MUMUNASHA KASSIM ALI               | -           | YEMAN                    | FEMALE | [Signature] |

MZU

FESTUS BETA RAI

**MUWIDADA GALE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Kibaki Estate – Shikaadabu

**Date of Meeting:** 22<sup>ND</sup> May, 2018

**Time of Meeting:** 2.00 pm

| Sr/No. | Name                     | Contact    | Designation/Sub location | Gender | Signature |
|--------|--------------------------|------------|--------------------------|--------|-----------|
| 1      | MWANASHI, HAMADI MOHAMED | 0738858722 | SHIKADABU                | F      |           |
|        | <del>MWANA</del>         |            |                          |        |           |
| 2      | MWANANIKASI SALIM VEJI   | 0720052556 | " "                      | F      |           |
| 3      | REHEMA ATHMAN SAIN       | 0722558678 | " "                      | F      |           |
| 4      | MEALI S. MNALUZUMA       | 0726449759 | " "                      | F      |           |
| 5      | KOMBORA ABDALLA KIMATI   | 073225669  | " "                      | M      |           |
| 6      | MARIAMU NUMAMU HO        | 0702309698 | " "                      | F      |           |
| 7      | MWANALISHA MOHAMED       |            | " "                      | F      |           |
| 8      | SALIM RASHID MRAFI       | 0722600298 |                          | M      |           |
| 9      | MARIAM MBOGTO            | 0723074362 | " "                      | F      |           |
| 10     | AMINA ABDALLA AMIB       | 0707803121 | " "                      | F      |           |
| 11     | OUCTO ABURAJOH           | 0716069239 | " "                      | M      |           |
| 12     | Caleb Maina              | 071249355  | " "                      | M      |           |
| 13     | Rashid Athuman           | 0724654419 | " "                      | M      |           |
| 14     | Saumu mawdi TURMO        | 0716534116 | " "                      | F      |           |
| 15     | MESALIMU BAKARI KIZAMBO  | 0759087523 | " "                      | M      |           |

**MUMBADA GALE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Kibaki Estate - Shikaadabu

**Date of Meeting:** 22ND May, 2018

**Time of Meeting:** 2.00 pm

| Sr/No. | Name                       | Contact    | Designation/Sub location | Gender | Signature                                                                           |
|--------|----------------------------|------------|--------------------------|--------|-------------------------------------------------------------------------------------|
| 1      | MWANASITI, HAMADI MOHAMMED | 0788857722 | SHIKAADABU               | F      |    |
|        | MUHAMMAD                   |            |                          |        |                                                                                     |
| 2      | MWANAMKASI SALIM VEJI      | 0720052556 | " "                      | F      |    |
| 3      | REHEMA ATHMAN SAINI        | 0722558678 | " "                      | F      |   |
| 4      | MEALI S. MWALUZUMA         | 0726449759 | " "                      | F      |  |
| 5      | KOMBORA ABDALLA KIMATU     | 0713245669 | " "                      | M      |  |
| 6      | MARIAMU MUMAMU HO          | 0702309698 | " "                      | F      |  |
| 7      | MWANRISHA MOHAMMED         |            | " "                      | F      |  |
| 8      | SALIM RASHID MRAFI         | 0722600298 |                          | M      |  |
| 9      | MARIAM MBOGHO              | 0723074869 | " "                      | F      |  |
| 10     | AMINA ABDALLA AMIB         | 0707803121 | " "                      | F      |  |
| 11     | OUCTO ABURA JOTH           | 0716069239 | " "                      | M      |  |
| 12     | Caleb Maina                | 0721249355 | " "                      | M      |  |
| 13     | Rashid Athuman             | 0724654419 | " "                      | M      |  |
| 14     | Saumu Mawot Tumo           | 0716534116 | " "                      | F      |  |
| 15     | MUSA LINA BAKARI KIZIMBO   | 0730087623 | " "                      | F      |  |

**SHIKAA DABU VALE BRIDGE CONSTRUCTION PROJECT**

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting  
**Venue of Meeting:** Kibaki Estate – Shikaadabu  
**Date of Meeting:** 22<sup>ND</sup> May, 2018  
**Time of Meeting:** 2.00 pm

| Sr/No. | Name                  | Contact    | Designation/Sub location | Gender | Signature |
|--------|-----------------------|------------|--------------------------|--------|-----------|
| 1.     | ATHUMANI BAKARI       | 0714558456 | SHIKAADABU               | M      | A         |
| 2.     | ICE MAHA GACHURI      | 0721116295 | SHIKAADABU               | M      | Ice       |
| 3.     | KORIRI OGOTI          | 0728025269 | -/-                      | M      |           |
| 4.     | BENARD OMBACHIP       | 0720329081 | -/-                      | M      | B         |
| 5.     | JUKISI DONGE          | 074172080  | -/-                      | F      |           |
| 6.     | ALFANI NDAYI LOJA     | 0799543382 | MAAKHECHE                | M      | A         |
| 7.     | MT KOMB SADI          | 071292670  | KATAJAA                  | M      |           |
| 8.     | MOHAMED JUMA AZAWARA  | 0719845098 | MAAKHECHE                | M      | M.T.A.    |
| 9.     | MOHAMED SALIM MANINGI | 0727714584 | MUWAJESHE                | M      | M         |
| 10.    | MUSUDI MIFIANO        | 072241407  | MUNONGE                  | M      | M         |
| 11.    | GUYOM K. MURUMU       | 0728854850 | VYEMANI                  | M      |           |
| 12.    | ANNE WAMBUI KHUGI     | 0723693634 | Vyemani                  | F      | A         |
| 13.    | JOHN O. ATITO         | 0714748800 | SHONDA                   | M      |           |
| 14.    | Jimmy Aduro           | 0715363883 | SHONDA                   | M      |           |
| 15.    | SWALEH OMBORI KIZOZI  | 0701671307 | SHIKAADABU               | M      |           |
| 16.    | SHEE SAID MURUMU      | 0739087525 | -/-                      | M      |           |

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                    | Contact     | Designation/Sub location | Gender | Signature          |
|--------|-------------------------|-------------|--------------------------|--------|--------------------|
| 1      | RANJAB OMAR NYOKA       | 0795808528  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 2      | NASSORO ABDULLA BAHAMBA | 0721695647  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 3      | RAJAB KATSINYE MUNGA    | 0722-275902 | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 4      | ABDALLA SHAFI KYAMISI   | 0705767342  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 5      | LAWRENCE KASUKU MANGIRA | 0711708488  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 6      | SIMON NUSUGUNA          | 4582393     | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 7      | ABDULLA MKULLU          | 0724886401  | VYEMANI                  | M      | <i>[Signature]</i> |
| 8      | <i>[Signature]</i>      | 0700871911  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 9      | HAMIS/ANWASENETI        | 0724468800  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 10     | KIBIRWA ALEXANDER       | 0720297759  | MWANGI                   | M      | <i>[Signature]</i> |
| 11     | BERNARD RUTICA          | 0722433294  | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 12     | Salemah Shugri          | 0720666324  | VYEMANI                  | M      | <i>[Signature]</i> |
| 13     | Tama Senjo mwambara     | 0741260281  | VYEMANI                  | M      | <i>[Signature]</i> |
| 14     | ASHA JUMA SULIMAN       | 0741372974  | VYEMANI                  | F      | <i>[Signature]</i> |
| 15     | Shaban Hennis           | 0706358016  | Bambani                  | Male   | <i>[Signature]</i> |
| 16     | MESAIWA MUSA            | 0725666403  | MWANGI                   | FEMALE | <i>[Signature]</i> |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                     | Contact     | Designation/Sub location | Gender | Signature |
|--------|--------------------------|-------------|--------------------------|--------|-----------|
| 1      | HAMISI BAGU HASSAN       | 0705492769  | SHIKA ADABU              | M      | HAMISI    |
| 2      | RASHID HAMISI MURUGUMBI  | 0746422110  | SHIKA ADABU              | M      | RASHID    |
| 3      | Muhammad Mohammed Juma   | 0729887779  | SHIKA ADABU              | M      | Muhammad  |
| 4      | Swaleh Boshid Mwakabwira | 0720748992  | SHIKAADABU               | M      | Swaleh    |
| 5      | Said Mwangi Juma         | 0722899115  | "                        | M      | Said      |
| 6      | MURAJ SALIM KOKA         | 0792057103  | SHIKAADABU               | F      | MURAJ     |
| 7      | BINTI ALI JUMA           | 0710843431  | "                        | F      | BINTI     |
| 8      | BELAQ NZUKI              | 0727290771  | Shikaadabu               | F      | BELAQ     |
| 9      | MWANAMISI HUMMAN         | 0720257862  | "                        | F      | MWANAMISI |
| 10     | SEIF ABUKHALA            | 0747299821  | "                        | M      | SEIF      |
| 11     | AMINA MOHAMMED           | 0746236528  | "                        | F      | AMINA     |
| 12     | DOLA ALI KIPINGO         | 0722800548  | "                        | F      | DOLA      |
| 13     | SHAFIQI SHAFIQI MUKENDI  | 0716151232  | "                        | F      | SHAFIQI   |
| 14     | BINTI MOHAMMED MUSTAFA   | 07022273079 | "                        | F      | BINTI     |
| 15     | MADARAKA SAID KOKA       | 0734087523  | "                        | M      | MADARAKA  |
| 16     | KASSIM OMARI DUNDI       | 0702390822  | "                        | M      | KASSIM    |

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Kibaki Estate - Shikaadabu

**Date of Meeting:** 22<sup>ND</sup> May, 2018

**Time of Meeting:** 2.00 pm

| Sr/No. | Name                  | Contact    | Designation/Sub location | Gender | Signature   |
|--------|-----------------------|------------|--------------------------|--------|-------------|
| 1      | HAMISI RAGW HASSAN    | 0705492769 | SHIKAADABU               | M      | [Signature] |
| 2      | SHEBANI HAMISI RASHID | 070277381  | SHIKAADABU               | F      | [Signature] |
| 3      | James ARDARI          | 07467833   | UNWINT                   | M      | [Signature] |
| 4      | ROBERT GUDU           | 0728665371 | SHIKAADABU               | M      | [Signature] |
| 5      | Muhammed HASAN        | 073298618  | "                        | M      | [Signature] |
| 6      | TOB SALTERI OBUKDAI   | 0721354593 | SHIKAADABU               | M      | [Signature] |
| 7      | Joseph Kainda         | 0721836480 | "                        | F      | [Signature] |
| 8      | Ali Omer              | 0711636965 | "                        | M      | [Signature] |
| 9      | Juma Mohamed Gogo     | 0700781586 | "                        | M      | [Signature] |
| 10     | Said H. Mwakasa       | 0700407166 | "                        | M      | [Signature] |
| 11     | ESTHA M. TJUMIA       | 0723648301 | MWANGATHI                | F      | [Signature] |
| 12     | MASIKA RAMADHAN       | —          | MWANGATHI                | F      | [Signature] |
| 13     | Mohamed N. Mwangi     | 0721955263 | "                        | M      | [Signature] |
| 14     | FARUKA FANJA          | 0708427133 | VHEMAN                   | F      | [Signature] |
| 15     | MURUGEMI N. STEPHAN   | 0728427464 | VHEMAN                   | F      | [Signature] |
| 16     | SIDA JUMA             | 0729436979 | VHEMAN                   | F      | [Signature] |

**ATTENDANCE SHEET**

**Type of meeting:** Stakeholder Consultation Meeting

**Venue of Meeting:** Kibaki Estate - Shikaadabu

**Date of Meeting:** 22<sup>ND</sup> May, 2018

**Time of Meeting:** 2.00 pm

| Sr/No. | Name                   | Contact       | Designation/Sub location | Gender | Signature |
|--------|------------------------|---------------|--------------------------|--------|-----------|
| 1      | MICHAEL M. SIMBA       | 0722346354    | VIJWENI-MTENGWE          | MALE   |           |
| 2      | SWANBIT J. MWATENG     | 0719414128    | VYEMANI                  | MALE   |           |
| 3      | TOMMY MBOJUKU          | 0728716007    | VYEMANI                  | MALE   |           |
| 4      | ELSA ALI MWAZICHYA     | 0713570866    | BUBUBU                   | MALE   |           |
| 5      | ALI SAID MWAAMAKASI    | 0720822881    | VYEMANI MWESA            | MALE   |           |
| 6      | SIMON MACHARIA GICHUHI | 0705285144    | CORNER MBATA             | MALE   |           |
| 7      | MOSES NJELITY NGATHA   | 0762713089    | CORNER MBATA             | MALE   |           |
| 8      | ROBERT NGATHA NJETU    | 0722713089    | CORNER MBATA             | MALE   |           |
| 9      | CHARLES OPIRE          | 0712115361    | VYEMANI                  | MALE   |           |
| 10     | Mzee Haimani           | 070854871     | SHIKAADABU               | M      |           |
| 11     | SALIS BAGARI           | 0744907187024 | SHIKAADABU               | M      |           |
| 12     | ABDULLAH A. KIMERGI    | 0715602146    | VYEMANI                  | M      |           |
| 13     | BIBI A. NDANACHE       | 0700891701    | VYEMANI                  | F      |           |
| 14     | Jamali A. Chumosi      | 0713190056    | VYEMANI                  | M      |           |
| 15     | LINDA K. NAWERU        | 0703094581    | VYEMANI                  | F      |           |
| 16     | CHAI RONYELA           | 0715347704    | VYEMANI                  | M      |           |

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22ND May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                     | Contact    | Designation/Sub location | Gender | Signature          |
|--------|--------------------------|------------|--------------------------|--------|--------------------|
| 1      | ALI A BEGE               | 0725200757 | Vyemani                  | MALE   | <i>[Signature]</i> |
| 2      | MANGAM HARSANI           | 0712972156 | Vyemani                  | FEMALE | M.H.               |
| 3      | SILVIA Ndungu            | 0722876284 | corner mpya              | FEMALE | Sue.               |
| 4      | SANU HIJI wangu          | 0705462078 | CORNER mpya              | FEMALE | JNW                |
| 5      | RAHAB MUKAMI HATIJA      | 0705844241 | CORNER mpya              | FEMALE | RH                 |
| 6      | ESTHER GACOKI MWAJI      | 0726630558 | CORNER Mbagya            | FEMALE | <i>[Signature]</i> |
| 7      | MARASHA KUITI            | 0710302107 | CORNER Mbagya            | MALE   | Kuiti              |
| 8      | MESSARO SUGUMAY KOSA     | 0718372752 | RURURU SHIRANANI         | MALE   | <i>[Signature]</i> |
| 9      | MUNYI MWAJI HANISI MWAJI | 0756746051 | VYEMANI                  | MALE   | M.H.               |
| 10     | AHMAD MOKHAMMED          | 0722766444 | VYEMANI                  | MALE   | MOKHAMMED          |
| 11     | SHIRAZI ABU BAKR         | 0722977277 | Vyemani                  | MALE   | <i>[Signature]</i> |
| 12     | RASHID HASSAN KUREAWA    | 0748482206 | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 13     | HANISI MWAJI JUMA        | 0710541553 | SHIRANANI                | MALE   | <i>[Signature]</i> |
| 14     | SIMON MWAI KUIRA         | 0718946898 | KONAMBAWA                | MALE   | SIMON              |
| 15     | GOODLUCK MWAJI           | 0729355864 | VYEMANI                  | MALE   | <i>[Signature]</i> |
| 16     | AM NAIAND BOSSO          | 0722849435 | VYEMANI                  | MALE   | <i>[Signature]</i> |

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22ND May, 2018

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| Sr/No. | Name                    | Contact    | Designation/Sub location | Gender | Signature |
|--------|-------------------------|------------|--------------------------|--------|-----------|
| 1      | ALI JUMA MWAGONDA       | 0726217790 | MWAWECHE                 | MALE   |           |
| 2      | MWINYI HAJI MWAMUKUNDI  | 0724070993 | VIEMANI                  | MALE   |           |
| 3      | AYITHAN S. MWAMUYENI    | 0722368047 | MWAWECHE                 | MALE   |           |
| 4      | Mwatinim Harisi DUBALLA | 0725527580 | VIEMANI/MWAWECHE         | MALE   |           |
| 5      | ZACHARY M. CHABI        | 0725520824 | MWAWECHE                 | MALE   |           |
| 6      | HAMAD MOHAMMED          | 0728452698 | VIEMANI                  | MALE   |           |
| 7      | HELEN WATUKU MUDANGI    | 0725858338 | VIEMANI                  | FEMALE |           |
| 8      | STEPHEN MAINA NNEGWA    | 0722245838 | VIEMANI                  | MALE   |           |
| 9      | MUNA SALIM MUSAIR       | 0790632517 | VIEMANI                  | FEMALE |           |
| 10     | SU KUMAR MWARISABA      | 0716246557 | MWAWECHE                 | MALE   |           |
| 11     | MUHAMMED KASSIM         | 0727418754 | MWAWECHE                 | MALE   |           |
| 12     | MUHAMMED ALI MWADWIYO   | 0702381997 | MWAWECHE                 | MEL    |           |
| 13     | JOHARI SALIM JOHARI     | 0751216290 | RED BUI                  | MALE   |           |
| 14     | STEPHEN MATHIA WAMUGHY  | 0722680223 | VIEMANI                  | MALE   |           |
| 15     | Paul Ochieng            | 0721341283 | VIEMANI                  | MALE   |           |
| 16     | ALI BAKARI MABOKO       | 0792295315 | VIEMANI                  | MALE   |           |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

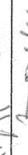
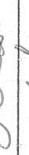
**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                  | Contact      | Designation/Sub location | Gender | Signature                                                                           |
|--------|-----------------------|--------------|--------------------------|--------|-------------------------------------------------------------------------------------|
| 1.     | MuHAMMED ALI MUKAMBA  | 0722494552   | MUHAMMACHHE              | M      |    |
| 2      | BERNARD MOI           | 0710 580 661 | Scout                    | M      |    |
| 3.     | James K. KICURU       | 0727938265   | YEMANI                   | M      |    |
| 4.     | JOSAPHINE CHILUBA     | 0726605866   | MUMMANI                  | F      |    |
| 5      | YUSUF P. MUHAMMAD     | 0717600075   | C.M                      | M      |    |
| 6.     | SEIF MUHAMMAD MUMUNGO | 0726102694   | C.M                      | M      |    |
| 7.     | YUSUFU ALI TESSA      | 0711571442   | ASST. CHIEF              | M      |    |
| 8      | AGHAMANI M. MUHAMMAD  | 0722335257   | CHIEF S/AD HBU           | M      |    |
| 9      | MUHAMMADIS, BILALI    | 0729439185   | YEMANI                   | F      |    |
| 10     | HAMISI M. MLINGO      | 071673210    | BOFU                     | M      |    |
| 11     | MWINYI ALI MWINDAGU   | 0727404001   | YEMANI                   | M      |    |
| 12     | MADARAKA SAID KOKA    | 0717763960   | SHIKAPAPA                | M      |   |
| 13     | PASHADI AIDOPAO       | 0710436873   | SHIKADABU                | M      |  |
| 14     | KASHIMU ALI MWAMBURU  | 072088886    | SHIKADABU                | M      |  |
| 14     | Mwauaisha Mwasicha    | -            | Yemani                   | F      |  |
| 15     | FAMU LAMWA            | 0726972518   | SHIKAADABU               | M      |  |

## MOMBASA GATE BRIDGE CONSTRUCTION PROJECT

### SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES

#### ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Kibaki Estate - Shikaadabu

Date of Meeting: 22<sup>ND</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                    | Contact    | Designation/Sub location | Gender | Signature |
|--------|-------------------------|------------|--------------------------|--------|-----------|
| 1      | REHEMA AHMED NUSA       | 0724736767 | SHIKA ADABU              | FEMALE | Rhema     |
| 2      | LINET MAITHA THOTA      | 0710832539 | NYEMANI                  | FEMALE | LINET     |
| 3      | SALAMA KATHAMA          | 0705819247 | NYEMANI                  | FEMALE | SALAMA    |
| 4      | MARGARET MOSE LEWA      | 0720837610 | NYEMANI                  | FEMALE | MARGARET  |
| 5      | Eshiq Salim             | 0719826446 | nyemmani                 | Female | Eshiq     |
| 6      | Kasim Mwangi            | 0729469034 | nyemmani                 | Male   | Kasim     |
| 7      | ALI JUMWA KADZEE        | 0722707313 | NYEMANI                  | MALE   | ALI JUMWA |
| 8      | RASHID MWINI KAMZA      | 0725328229 | NYEMANI                  | MALE   | RASHID    |
| 9      | SAMU ADURAHANI NIMWENZI | 07225285   | nyemmani                 | Female | SAMU      |
| 10     | SAMSON KIRIMI MURUNDI   | 0711410861 | CORNER NYEMANI           | MALE   | SAMSON    |
| 11     | HUSSEIN MATHANEA        | 0727680208 | nyemmani                 | MALE   | HUSSEIN   |
| 12     | MUSABANE Mwangi         | 072197089  | nyemmani                 | MALE   | MUSABANE  |
|        |                         |            |                          |        |           |
|        |                         |            |                          |        |           |
|        |                         |            |                          |        |           |
|        |                         |            |                          |        |           |



## **Minutes of Stakeholders Consultation Meeting Held on 20<sup>TH</sup> May 2018 at Bofu Maskan for Environmental and Social Impact Assessment (ESIA) in the Feasibility Study for Mombasa Gate Bridge Construction Project**

**Agenda:** Disclosure of finding from the environmental and social assessments and also the RAP studies.

### **Introduction and opening remarks**

The meeting was called to order at 2; 15 pm with a word of prayer led by Bishop Patrick Opembe and was officially opened by the Likoni chief Mr. Said kingi. He welcomed all the attendees and asked them to be attentive and raise many matters they felt needed to be addressed.

The meeting was coordinated by Mr Mahamed matungo, the chairman of a community committee that was formed in regards to the project to assist the locals in matters that may not be conversant with. He then went ahead to introduce the committee members who are as follows

1. Mahamed matungo-Chairman
2. Hamisi Mlingi- Assistant chairman
3. Bishop Patrick Opembe- treasurer
4. Judith namayi- Secretary
5. Mohamed Bakari- Assistant secretary
6. Yusuf Mwala- Organiser

He then went ahead to Invite Mr Edwin Obadha from the environment office to continue with his presentation.

### **Project Disclosure and Presentations- Edwin Obadha**

**Description of the project:** The Mombasa Gate Bridge Construction Project entails construction of a bridge starting all the way from Jela Baridi in Lumumba Rd to Siwani in in Kwale County. The bridge will be connecting Mombasa Island/town and Mainland South. The Bridge will pass through Limumba road, Moi Avenue next to Cannon Towers, Mwakilingo Street, Puma Primary School, Peleleza School, Mwenza Creek opposite Kenya Navy, Mtongwe Posta, and finally joining the Mombasa Southern road at Zawani in Kwele County. The bridge will be high enough to allow for normal operations of ships below and will be about 70 meters high from ocean level. The width of the bridge will be 60 meters wide while its length across the channel will be about 1.5 Kms.

### **Acquisitions**

He mentioned that the whole project was acquiring 52.57 Ha of land along the whole traverse, with Likoni location having the largest Percentage of acquisition of 28.2 Ha which is 45% of the total acquisition. Mombasa Island will have acquisitions amounting to 5.4 Ha, Mtongwe will have 2.78 Ha of acquisitions, Shika Adabu will have acquisitions amounting to 22.9 Ha while Ngombeni will have acquisitions amounting to 5.5 Ha of land.

A total number of 163 plot owners would be impacted in the whole traverse, with Likoni still having the largest number of owners to be impacted. Likoni will have a total number of 280 plot owners to be impacted while Mombasa with 150 plot owners, Mtongwe with 49 plot owners, Shika adabu with 25 plot owners and Ngombeni with 9 plot owners.

The house holds to be impacted also leaves Likoni with the highest number of 298 households, Shika Adabu second highest with 221 households to be impacted, Mombasa island has 47 households to be impacted while Mtongwe has 48 households to be impacted with a total number of 214 households to be impacted along the whole traverse.

The total number of structures to be impacted along the whole traverse is 231.

He also mentioned about the survey done on the air quality, traffic levels, water and soil sediments for the same project but the details were too technical to be discussed in the forum.

He also stated that studies done had showed that people were willing to pay up to 1.5 times of what they pay now to use the bridge.

## **Impacts**

The impacts expected from the development will be both positive and negative (irreversible).

The positive ones include;-

- Timely crossing from mainland
- Reduce congestion at the ferry
- Facilitate development of the mainland south economically.

The irreversible ones on the other hand include;-

- permanent change in land use
- increased number of accidents

## **Entitlements**

Land owners are entitled to a total compensation of the impacted land at 100% replacement cost plus 15% as disturbance fee. Also an additional 10% will be included in the compensation as good will, making the total compensation 125% of the current market value of land

Structure owners: They are entitled to 100% replacement value compensation and the 15% as the disturbance fee.

Structure owners are also entitled to adequate notice to vacate before implementation begins and also salvaging of the materials they have used to construct such structures.

Land lords: Entitled to up to three months of rent that was being received from thee tenants.

Tenants: they are entitled to receive adequate notice to vacate before implementation commences, they are also entitled to a one time shift allowances to facilitate the moving to their new locations.

Business persons; entitled to get up to three times of their average three months earnings.

### **Plenary session**

After discussions, the local community was allowed to voice their concerns and seek for clarification of facts about the proposed route. The following questions were asked.

| <b>s/no</b> | <b>Name</b>          | <b>Question</b>                                                                                                                                  | <b>Answer</b>                                                                                                          |
|-------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1           | Ashura Orunga Otieno | <ul style="list-style-type: none"><li>• Who will pay the tenants the one time shift allowance, is it the land lord or the government ?</li></ul> | <ul style="list-style-type: none"><li>• The government will pay the one time shift allowance to the tenants.</li></ul> |

|   |                                                    |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Millicent Atieno-<br>Manager,<br>Bridge<br>Academy | <ul style="list-style-type: none"> <li>• What will be the fate of the teachers teaching at the Bridge school?</li> </ul>                                                                                                                     | <ul style="list-style-type: none"> <li>• The school is not being impacted in a way that they will have to move the school.</li> <li>• There will also be a special package for relocating the affected classrooms to reduce interference of learning.</li> </ul>                                                                                                                                                                                                                                   |
| 3 | Nzai Benard                                        | <ul style="list-style-type: none"> <li>• Will the compensation be done in cash, cheque or through accounts?</li> </ul>                                                                                                                       | <ul style="list-style-type: none"> <li>• It is required that couples should open a joint account with their respective spouses and during compensation; they will be paid through those accounts.</li> </ul>                                                                                                                                                                                                                                                                                       |
| 4 | Pastor James Kuria                                 | <ul style="list-style-type: none"> <li>• He commented that nothing had been mentioned about compensation of mosques or churches.</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>• The project has tried to avoid all the mosques as for churches, top of the land and structure compensation, a special compensation is done to relocate the church to another location.</li> </ul>                                                                                                                                                                                                                                                         |
| 5 | Suleiman Mwakitsanga                               | <ul style="list-style-type: none"> <li>• Some people are the land owners but do not have the papers, title deeds to show ownership, what is to stop other people from claiming ownership of such lands for compensation purposes?</li> </ul> | <ul style="list-style-type: none"> <li>• Once the RAP report is completely compiled, it is submitted to the National land commission for verification of land ownership and as such it would be difficult for someone to claim ownership for land they do not own.</li> <li>• Also priority is given to those that have been residing on the said plot the longest – Adverse possession in which the government considers the person who has been living on the said plot as the owner.</li> </ul> |

|   |               |                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                       |
|---|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | Hamisi Mwinyi | <ul style="list-style-type: none"> <li>• He thanked the government for such a considerable project.</li> <li>• He also expressed his wishes of all the general works during implementation to be made available to the locals.</li> </ul> | <ul style="list-style-type: none"> <li>• It is a requirement by the government that 40% of all skilled and unskilled labour be sourced from the local communities.</li> <li>• Everyone was urged to acquire skills that would enable them to stand a chance for employment during implementation either as a skilled or unskilled laborer.</li> </ul> |
|---|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Final Remarks

After the question and answer session, the asset register was read out aloud. Those with complaints we asked to raise the same with the expert and that they would be addressed promptly.

Mr. Edwin promised to visit the homes with issues raised like no photographs taken the following day.

There being no other business, the meeting ended at 4:45 pm.

Photographs with caption notes



Mr. Edwin Obadha, Consultant During the meeting.



Members of the public who attended the meeting.



Mr Juma Kizuri, a member of a locally formed committee assisting in reading out the asset Register.

Attendance Sheets

SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES

ATTENDANCE SHEET

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20th May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                              | Contact                    | Designation/Sub location      | Gender       | Signature |
|--------|-----------------------------------|----------------------------|-------------------------------|--------------|-----------|
| 17     | RASHTO ADINAN                     | 0725947782                 | MWERZA                        | MALE         |           |
| 18     | MUHAMMAD M. KASINKA               | 0718674917                 | DIMBWINI                      | MALE         |           |
| 19     | MARIAM M. MWAMUKOBA               | 0791607840                 | MWERZA                        | FEMALE       |           |
| 20     | MWANA JUMA HAMISI                 | 0710677280                 | JAMU LA WAGENI                | FEMALE       |           |
| 21     | MALIKA ZAINABU SAID               | 0710572283                 | JAMU LA WAGENI                | FEMALE       |           |
| 22     | AMINA M. HADIDA BARI              | 0702876007                 | JAMU LA WAGENI                | FEMALE       |           |
| 23     | MWANASITA MSHAMBO                 | 0705944820                 | MWERZA 'B'                    | FEMALE       |           |
| 24     | JUMA KOMBO MALEVI                 | 074489483                  | MWERZA 'B'                    | MALE         |           |
| 25     | JUMA M. MWAMUKOBA                 | 0700246876                 | MWERZA                        | MALE         |           |
| 26     | MARGRET MAKHTHA                   | 0729354727                 | DIMBWINI                      | FEMALE       |           |
| 27     | SITI R. MSHAMBO                   | 0710677889                 | JAMU LA WAGENI                | FEMALE       |           |
| 28     | RAWADI RANDY LINDA                | 0711546121                 | JAMU LA WAGENI                | MALE         |           |
| 29     | ALBERT CHEGE GATUUKI              | 0724960223                 | VENYANI                       | MALE         |           |
| 30     | MSHAMBO H. MSHAMBO                | 0725471890                 | DIMBWINI                      | MALE         |           |
| 31     | MWANAHITJA MWABIZO                | 0743388548                 | MWERZA                        | MALE         |           |
| 32     | ATDALLAH HAMISI                   | 0728127433                 | JAMU LA WAGENI                | MALE         |           |
| 33     | OMAR - M. SHAMBO<br>JUMA A. KUMBA | 0706829724 /<br>0727938265 | JAMU LA WAGENI /<br>MIGOMBANI | MALE<br>MALE |           |

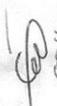
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| Sr/No. | Name                        | Contact    | Designation/Sub location | Gender | Signature |
|--------|-----------------------------|------------|--------------------------|--------|-----------|
|        | RAMA HASSAN GUTSI           | 0720758068 | PELELEZA                 | MALE   |           |
| 2      | SULEMAN AMARO BASHID        | 072396108  | PELELEZA                 | MALE   |           |
|        | HADYA BATA KAEUGE           | 0719505288 | Peleleza                 | Male   |           |
|        | AMANI JUMA                  | 0728669060 | Peleleza                 | Male   |           |
|        | HEMEDI HAMIS MUWANGA        | 0788290110 | Peleleza                 | Male   |           |
|        | NORARO MUIWANGKA CHINKUA    | 0720597358 | Peleleza                 | Male   |           |
|        | JUMA ALI MUIWINKI           | 0796343225 | MUCEZA                   | Male   |           |
|        | MUHAMMED CH. WIPPI          | 0714156922 | Jamwi                    | Male   |           |
|        | MWIMBI AZI MAKOKO           | 0723967439 | MUEZA                    | Male   |           |
|        | MWARAMISI AZI MNYORJE       | 0728972019 | IXWEZA                   | Female |           |
|        | MWANASITI, MUWALIM MATHONDA | 0726393040 | NYEMANI                  | Female |           |
|        | MWANASITI MUIWINTI NIHIMA   | 0725455171 | NYEMANI                  | Female |           |
|        | SAMU HAMIS, KALUME          | 0713958105 | NYEMANI                  | Female |           |
|        | MUWANGENI, MOHAMMED FIROON  | 0728424464 | NYEMANI                  | Female |           |
|        | MUNUZI HANUSI-A KUBIRA      | 0722810782 | Jamwi                    | Male   |           |
|        | JUBITH NAMCETI              | 0723202554 | DIMBWI NI                | Female |           |

| S.NO | NAME                               | CONTACT INFO | GENDER | LOCALITY        | SIGN.                                                                               |
|------|------------------------------------|--------------|--------|-----------------|-------------------------------------------------------------------------------------|
|      | MASOUD MATANO KOGIB                | 0722570281   | MALE   | UJIGWENI        |    |
|      | RAMA MUYE NYAJE                    | 0727365739   | MALF   | MWERA           |    |
|      | HASJI MUSAJAKA MWAJUMWA            | 0724227254   | MALE   | MWERA           |    |
|      | OMARI DAHID KUMBWEKA               | 0703116719   | MALF   | MWERA           |    |
|      | SALIM MATARO MWAACHA               | 070869       | MALF   | MWERA           |    |
|      | HAMADI SALIM BASHA                 | 0708691600   | MALF   | MWERA           |    |
|      | JUMA HAMADI SALIM<br>SUAUETH DAKWA | 0726685730   | MALF   | JAMVI LA WAGENI |    |
|      | Deboru Nwungu Mwabesi              | 072428751    | FEMALE | UJIGWENI        |    |
|      | BAKARI OMARI SHIBE                 | 0722322478   | MALF   | JAMVI LA WAGENI |    |
|      | SANO HASSANO TAMUHI                | 0721953237   | MALF   | JAMVI LA WAGENI |    |
|      | JUMA AFHAMAN CHAZIRO               | 0712281357   | MALF   | UJIGWENI        |    |
|      | MWINJAKA HADI MWIMBI               | 0729368026   | MALF   | UJIGWENI        |   |
|      | HALIMA BELEM                       | 0708854157   | FEMALE | UJIGWENI        |  |
|      | RASHID ADINANI MIKABINDO           | 0726947782   | MALF   | MWERA           |  |
|      | ALI ALI MWAJUMWA                   | 07225708200  | MALF   | MWERA           |  |
|      | NIWIHI NGWISA AKIDA                | 0792820440   | MALF   | MWERA           |  |
|      | SULEIMAN SALIM MWAACHA             | 0719439509   | MALF   | MWERA           |  |
|      | MOHAMMED SALIM MWAJUMWA            | 0725424653   | MALF   | MWERA           |  |
|      | MOHAMMED H. MWAJUMWA               | 0725607020   | MALF   | UJIGWENI        |  |

| S.N | NAME                | CONTACT    | LOCALITY | Gender | Sign                                                                                |
|-----|---------------------|------------|----------|--------|-------------------------------------------------------------------------------------|
|     | OMAR JUMA Mwakondo  | 0717194956 | PELELEZA | M      |    |
|     | Mohamed Juma        | 0771200372 | PELELEZA | M      |    |
|     | HAMUS. S. Mwangambo | 0710533108 | PELELEZA | M      |    |
|     | RASHID A. RASHID    | 0728381551 | BOFA     | M      |    |
|     | HAMU J. MIBWANI     | 0732890817 | PELELEZA | M      |    |
|     | PAFFER MW/X         |            |          | M      |   |
|     | RAMADHAN SALIM FUJO | 0714968137 | JAMU     | M      |  |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                       | Contact    | Designation/Sub location | Gender | Signature |
|--------|----------------------------|------------|--------------------------|--------|-----------|
|        | RUTH NJERI                 | 072346270  | MWANECHU                 | Female |           |
|        | WALTER JUMA MWAMBINGO      | 0716344639 | <del>MWAMBINGO</del>     |        |           |
|        | Rosemary Muliciri          | 0791035746 | Vyemani                  | Female |           |
|        | Mwafine Abdalla Mwalogo    | 0716344639 | Jamiri                   | Female | Mwalogo   |
|        | Kashi Athumani             | 2090861653 | Mweza                    | Female | Kashi     |
|        | KUTHUM NGOMBO              | 0722372896 | Mweza                    | Female |           |
|        | Mwambombo popo masudi      | 0726324668 | Mwambombo                | Female |           |
|        | Mwambombo Suleet mwambombo | 0701333338 | Mwambombo                | Female | M/S       |
|        | Mwambombo Bai              | 0702067006 | Mweza                    | Female |           |
|        | Saimu Abulqahmani          | 0782780664 | Vyemani                  | Female | SAIMU     |
|        | Mohamed Baqeri Mwambombo   | 0734704009 | MWEZA                    | MALE   |           |
|        | ALFARO KUBO MWANGA         | 0733603968 | MWEZA C                  | MALE   |           |
|        | MWAZITA MWANZAKA NGUZU     | 0727684914 | MWEZA B                  | MALE   |           |
|        | JOSEPHINE NJOKI NANGARE    | 0716409921 | MWEZA                    | Female |           |
|        | Ashije Mwa Mwadama         | 0713498905 | Jamiri la wageni         | Female |           |
|        | Said Mwambombo             | 0790799490 | Jamiri la wageni         | Male   |           |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                 | Contact     | Designation/Sub location | Gender | Signature |
|--------|----------------------|-------------|--------------------------|--------|-----------|
|        | Juma Seba Mwanuche   | 0741260269  | Mwanuche                 | M      |           |
|        | SACIM S Mwachoo      | 0723926903  | MWEZA                    | M      |           |
|        | MICHAEL NYAE RAI     | 0718-961784 | VYEMANI                  | M      |           |
|        | KASSIM MCHAMBI SINGO | 0725972178  | VYEMANI                  | M      |           |
|        | SALIM ALI MINABEKA   | 0720606314  | VJIWENI                  | M      |           |
|        | VERONICA N. KEGOLOI  | 0772814018  | VYUMENI                  | F      |           |
|        | LAWRENCE KASUKU      | 0711708488  | VYEMANI                  | M      |           |
|        | RHEMA ATHMAN         | 0722558678  | VYEMANI                  | F      |           |
|        | RACHEL K. NYAYA      | 0722371735  | VYEMANI                  | F      |           |
|        | JULIUS ANITA CASIRO  | 0724678182  | VJIWENI                  | M      |           |
|        | SADI KINANGI SHIKEL  | 0710919820  | VJIWENI                  | M      |           |
|        | FESTUS MWANVENYOLA   | 0703045124  | VJIWENI                  | M      |           |
|        | SHARACK KYALO MULWA  | 0731023463  | VJIWENI                  | M      |           |
|        | MOTAMED YUSUF        | 0711627051  | MIGOMBANI                | M      |           |
|        | MZEE AHUMIONI        | 0708548171  | SHIKADABU                | M      |           |
|        | BAKAR ALI            | 0714995135  | SHIKADABU                | M      |           |
|        | HASSAN SAID          | 0792600758  | SHIKADABU                | M      |           |
|        | SACIMINI ASIDI       | 0727604321  | SHIKADABU                | M      |           |

| S/N | Name                | Contact    | LOCATION       | Gender | Signature    |
|-----|---------------------|------------|----------------|--------|--------------|
| 33  | HANISI MOHAMMED     | 0724552261 | BOFU MASHANI   | MALE   |              |
| 34  | RIZIKI MIZE AFHAMU  | 0755042614 | JAMU LA WAGENI | FEMALE |              |
| 35  | FATUMA ARDUAH       | 0751319037 | MICOMIRANI     | FEMALE |              |
| 36  | MWANASHA BAKADI     | 0752603657 | JAMU LA WAGENI | FEMALE |              |
| 37  | SALAMU ATIBU ALI    | 071900184  | VYEMANI        | FEMALE | 07480454<br> |
| 38  | MSEMBI JUNA         | 6716953256 | MICOMIRANI     | MALE   |              |
| 39  | DOMINIC N. NGURE    | 0722586826 | VYEMANI        | MALE   |              |
| 40  | JOB S. OBUKOLI      | 0721254593 | VYEMANI        | MALE   |              |
| 41  | MWAZARU MATANO      | 0797071602 | MWERZA         | FEMALE |              |
| 42  | MWANAMU ALI         | 0797071602 | MWERZA         | FEMALE |              |
| 43  | FATUMA RUWA         | 0757071602 | MWERZA         | FEMALE |              |
| 44  | ABDULATH A. MWAKAGA | 0710926854 | DIMBIMBI       | MALE   |              |
| 45  | SAMUE KITONYO       | 070826385  | MWERZA         | MALE   |              |
| 46  | NZAI RENARD         | 0720678967 | JAMU LA WAGENI | FEMALE | REN<br>      |
| 47  | MWANUSU MOHAMMED    | 0726362933 | JAMU LA WAGENI | FEMALE | MUS<br>      |
| 48  | STEPHEN MATIMU      | 0722680233 | VYEMANI        | MALE   |              |
| 49  | MATAMA JACO BABU    | 0718185385 | MICOMIRANI     | FEMALE |              |
| 50  | JACO M. MWAMKUBA    | 0713185040 | MWERZA         | MALE   |              |
| 51  | ALICE MAKUMICHA     | 0727294945 | MWERZA         | FEMALE | Alice<br>    |
| 52  | MATANO SUCIMAN      | 0797270521 | VYEMANI        | MALE   | Mato<br>     |

| S.N | NAME               | CONTACT INFO | LOCALITY         | GENDER | SIGN                |
|-----|--------------------|--------------|------------------|--------|---------------------|
|     | AM MOHD SADIH      | 0917819954   | VITRENI          | M      | <del>AM</del>       |
|     | WILLIAM OBUVA      | 0923336894   | VITRENI          | M      | <del>WILLIAM</del>  |
|     | MUHAMMAD MUHAMMAD  | 0926608440   | VITRENI          | M      | <del>MUHAMMAD</del> |
|     | MHERI BILAL        | 0924029905   | Jambi la wangan. | M      | <del>MHERI</del>    |
|     | KIBWICHA           | 0924702919   | Jambi la wangan. | F      | <del>KIBWICHA</del> |
|     | KUTENDA            | 07864509221  | Jambi la wangan. | M      | <del>KUTENDA</del>  |
|     | SILIMAN            | 0714792245   | DIMBWINI         | M      | <del>SILIMAN</del>  |
|     | HAMISI HASAN       | 0728496679   | DIMBWINI         | M      | <del>HAMISI</del>   |
|     | MUHAMMAD SABORI    | 0764292265   | DIMBWINI         | M      | <del>MUHAMMAD</del> |
|     | MUSHAQ HASAN       | 0710972156   | DIMBWINI         | M      | <del>MUSHAQ</del>   |
|     | MWIMILAT H. MWIDAY | 0735907042   | VITRENI          | M      | <del>MWIMILAT</del> |
|     | MIKHALI MUHAMMAD   | 0720205131   | BOFU             | M      | <del>MIKHALI</del>  |
|     | A THUKAN KITU      | 0722757820   | BOFU             | M      | <del>A THUKAN</del> |
|     | HASAN KARAN        | 0712792573   | VITRENI          | FEMALE | <del>HASAN</del>    |
|     | FATUMA OMARI SALIM | 0712792573   | VITRENI          | FEMALE | <del>FATUMA</del>   |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                        | Contact      | Designation/Sub location | Gender | Signature          |
|--------|-----------------------------|--------------|--------------------------|--------|--------------------|
| 1.     | Mwinyi Hamisi Rashid        | 0711 853 758 | Bofu                     | Male   | <i>[Signature]</i> |
| 2      | Ronald Kututa               | 0727 738781  | VTEMANI                  | MALE   | <i>[Signature]</i> |
| 3.     | ANNE KAVERE KIROZO          | 0718682142   | VYEMANI                  | FEMALE | <i>[Signature]</i> |
| 4.     | MWANADI HAMISI NGOMBO       | 07206678148  | MIGOMBANI                | FEMALE | <i>[Signature]</i> |
| 5      | HANSON KASTI                | 0716 058819  | JAMVILA WAGENI           | MALE   | <i>[Signature]</i> |
| 6      | Fahad Abdulla Heluco        | 0711525181   | VIJUVENI                 | MALE   | <i>[Signature]</i> |
| 7      | HUMPHREY AMANI GONA         | 0728559052   | VIJUVENI                 | MALE   | <i>[Signature]</i> |
| 8      | PROFFENGE NZI GHO           | 0725 297811  | NIJUVENI                 | male   | <i>[Signature]</i> |
| 9      | Dorothy Kombo               |              | Nijuvoni                 | female | <i>[Signature]</i> |
| 10     | Mariam Tsuna                |              | Nijuvoni                 | female | <i>[Signature]</i> |
| 11     | MWANAHAWA MOHAMED BAKI      | 0702822865   | DIBWINI                  | FEMALE | <i>[Signature]</i> |
| 12     | MASUKA RAYWA DHAN           | 0792674259   | JAMVILA WAGENI           | FEMALE | MASUKA             |
| 13     | FATUMA ALI MWABUMBA         | 0761740870   | JAMVILA WAGENI           | FEMALE | <i>[Signature]</i> |
| 14     | HALIMA SALIM ALI            | 0723465797   | JAMVILA WAGENI           | FEMALE | HALIMA             |
| 15     | ASHURA DRUNGA ATIENO        | 0746774831   | JAMVILA WAGENI           | FEMALE | ASHURA             |
| 16     | MWANALISHA NASORO NIIMAGULU | 0718964227   | JAMVILA WAGENI           | FEMALE | <i>[Signature]</i> |
| 17     | MWANALISHA AZI MOHAMED      | 0790079172   | JAMVILA WAGENI           | FEMALE | <i>[Signature]</i> |
| 18     | MOHAMED ALI MOHAMED KHAYR   | 0780141551   | JAMVILA WAGENI           | MALE   | MOHAMED            |
| 19     | NTINYI KIBWANA              | 0724702919   | JAMVILA WAGENI           | FEMALE | <i>[Signature]</i> |

P.T.O

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                  | Contact     | Designation/Sub location | Gender | Signature |
|--------|-----------------------|-------------|--------------------------|--------|-----------|
| 01     | Edwin O. Shalhe       | 0726134299  | Project Associate        | Male   |           |
| 02     | Michael Wanyaga       |             | Project Associate        | Male   |           |
| 03     | David Kise            | 072669930   | Project Associate        | Male   |           |
| 04     | AAMSI MLINGO          | 0716731210  | JAMU LUWANGI             | M      |           |
| 05     | SEIF MOHAMED MATUNGU  | 07226102629 | PELELEZA                 | M      |           |
| 06     | ABAYA JUSUA SULTAN    | 0724657299  | MWAWESHA                 | F      |           |
| 07     | ABDULAH ATIMU KIMESI  | 071662146   | YEMANI                   | M      |           |
|        | KIRANDA ABUKIMU       | 0720297259  | YEMANI                   | M      |           |
|        | SAYA MWARASO          | 0700407166  | YEMANI                   | M      |           |
|        | Shoo J. Juma          | 071350058   | DIMPWINI                 | M      |           |
|        | KIPWANA KIWALIMU      | 0718841314  | DIMPWINI                 | M      |           |
|        | BAKAR B. MAKAME       | 0743134567  | DIMPWINI                 | M      |           |
|        | NGENIA ALI NYEMBURGE  | 0715120687  | PELELEZA                 | M      |           |
|        | ABDULLA MOHAMED HEMED | 0724227053  | MWIANEHE                 | M      |           |
|        | FAHIMA FAIZAL AMADH   | 0714102114  | MWIANEHE                 | F      |           |
|        | AHMED FAHAJ MOHAMED   | 0728061761  | YEMANI                   | M      |           |
|        | LEONARD OCHINGO O.    | 0726683218  | MWERA                    | M      |           |
|        | HENRY N. MAAIYANI     | 0720960081  | MWERA                    | M      |           |



**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                    | Contact    | Designation/Sub location | Gender | Signature |
|--------|-------------------------|------------|--------------------------|--------|-----------|
|        | SALIM MARIJAH           | 0722502190 | MWEZA                    | MALE   |           |
|        | MWJUNAT FOFKA           | 90-5387238 | MWEZA                    | MALE   |           |
|        | MWERO CERRO BATA        | 0748370148 | MWEZA                    | MALE   |           |
|        | RAJAB OMARI MUTHAMBI    | 0714968120 | MWEZA                    | MALE   |           |
|        | KATUNISI MUTHAMBI MINDA | 0711330433 | PELELEZA                 | MALE   |           |
|        | ABDARAH MUBARUKA SALIM  | 0727483915 | PELELEZA                 | MALE   |           |
|        | ALIM SOFI YASIKA        | 0795132482 | MIGOMBANI                | MALE   |           |
|        | THOMAS TANTUS MOKUA     | 0721608968 | Mijuuani                 | MALE   |           |
|        | SIKUKU KHANINI NOTO     | 072210532  | MIGOMBANI                | FEMALE |           |
|        | MOTAMBO JUMA DEANARA    | 0719805098 | NYEMANI                  | MALE   |           |
|        | MOTAMBO ABARAT MINDANI  | ---        | ---                      | MALE   |           |
|        | MOTAMBO ABDARAH         | 0710477036 | MWEZA                    | MALE   |           |
|        | NELSON ODHAMBO SEDU     | 0713958279 | MWEZA                    | MALE   |           |
|        | ALI MASHALI SALIM       | 071566030  | KONAMPAHA                | MALE   |           |
|        | MOTAMBO KASSIM MATSITA  | 0726644395 | MWAWECHI                 | MALE   |           |
|        | RAJABY DEANARA Mwendu   | 0710219152 | NYEMANI                  | MALE   | <br>RAIMU |



**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

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Date of Meeting: 20th May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                            | Contact     | Designation/Sub location     | Gender | Signature |
|--------|---------------------------------|-------------|------------------------------|--------|-----------|
| 1      | Mohammed K. Muwakanya           | 0720745909  | Vyemani                      | male   |           |
| 2      | Mohammed Ali Bungo              | 0728846380  | Vyemani                      | male   |           |
| 3      | Mwali Kulum Mwayogwe            | 0718388887  | Vyemani                      | Female |           |
| 4      | Mwaminakombo Au Sualiche        | 0702311770  | Vyemani                      | Female |           |
| 5      | KHADJA HUSSEIN                  | 0720160865  | JAMVI LA WAGATI              | FEMALE |           |
| 6      | FLORENCE ROBERT MUYE            | 07233882160 | VYEMANI                      | FEMALE |           |
| 7      | MONICAH NIBULU KAKUSU           | 0799497146  | VIJUSENI                     | FEMALE |           |
| 8      | EFHAFITHA OKARI MAULA           | 0729272594  | NDIKIBIKINI                  | FEMALE |           |
| 9      | Margaret Wakesho Chica          | 0702897771  | Mwaweche                     | Female |           |
| 10     | RUTH WAWUDA <del>MWAWACHE</del> | 0725439355  | <del>Mwaweche</del> Mwaweche | Female |           |
| 11     | ZACHARY MWANGI CHABI            | 0725520824  | Mwaweche                     | Male   |           |
| 12     | STEPHEN MBARUKU MWANGALLAH      | 0725492219  | VYEMANI                      | Male   |           |
| 13     | SIXION MACHARIA GICAHU          | 0705235144  | COORER MABATA                | MALE   |           |
| 14     | ALI JUMA NWARON DA              | 0726217790  | MWAWECHE                     | MALE   |           |
| 15     | MOHAMED SALIM MANINGI           | 0727714584  | MWAWECHE                     | MALE   |           |
| 16     | Reuben Mbatia Katoro            | 0728055960  | UHWENI                       | MALE   |           |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

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Venue of Meeting: Bofu Maskan

Date of Meeting: 20th May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                  | Contact    | Designation/Sub location | Gender | Signature |
|--------|-----------------------|------------|--------------------------|--------|-----------|
| 1      | HAMISI B. KANDI       | 0725595722 | DIMBWINI                 | MALE   |           |
| 2      | SADIKI ADAN           | 0717443425 | MWEZA                    | MALE   |           |
| 3      | MOHAMED ATIMAN        | 0722254120 | MIGOMBANI                | MALE   |           |
| 4      | MWAZITA M. NGRIZO     | 0722684214 | MWEZA 'B'                | MALE   |           |
| 5      | JUMA MOHAMED          | 0729291525 | MWEZA                    | MALE   |           |
| 6      | JUMA ALI MWINI        | 0776340325 | MWEZA 'B'                | MALE   |           |
| 7      | YUSUFU MWALA          | 0717600025 | BOFU MASKANI             | MALE   |           |
| 8      | ABDULLAH DASHID       | 0723930556 | BOFU MASKANI             | MALE   |           |
| 9      | MOHAMED LIPPI         | 0714156922 | JAMVI LAWAZEN            | MALE   |           |
| 10     | IODI JUMA KANOI       | 0729450799 | MIGOMBANI                | MALE   |           |
| 11     | EDWIN ISANDA ONDIEKI  | 0724295897 | WEMANI                   | MALE   |           |
| 12     | PETER KENYANI         | 0711440064 | WEMANI                   | MALE   |           |
| 13     | FALIMI SAID SAGAR     | 0752574534 | MIGOMBANI                | MALE   |           |
| 14     | ESTHER GACOKI MAMBO   | 0726634258 | KONA MBARA               | FEMALE |           |
| 15     | HAMISI HASSAN JAMBSIA | 0724361541 | DIMBWINI                 | MALE   |           |
| 16     | ANNE W. NLANGI        | 0723693634 | WEMANI                   | FEMALE |           |

| S.no | NAME                   | CONTACT    | LOCALITY  | SEX | Gender | Sign               |
|------|------------------------|------------|-----------|-----|--------|--------------------|
|      | Lydia Katana mkala     | 0712421095 | MWENZU    |     | FEMALE | <del>Lydia</del>   |
|      | BINT MOHAMMED M BUKHA  | 0728999764 | VIGIWIENI |     | FEMALE | M                  |
|      | MWANITE ISSA KOMBO     | 0715132603 | MWENZA    |     | FEMALE | <del>Mwanite</del> |
|      | Khadja Mohamed         | 0703994498 | MWENZA    |     | female | <del>Khadja</del>  |
|      | EMMANUEL SELEZA BOMA   | 0717804107 | VIGIWIENI |     | MALE   | A                  |
|      | KASSIM ALI NIWAKUSINZA | 0724160365 | MWANKICHE |     | MALE   | <del>KASSIM</del>  |

## **MOMBASA GATE BRIDGE CONSTRUCTION PROJECT**

### **SECOND ROUND OF STAKEHOLDER CONSULTATION IN THE ESIA AND RAP STUDIES**

**Meeting with Likoni Beach Management Unit on 30<sup>th</sup> May, 2018**

#### **Items of Agenda**

1. Introductions and opening speeches;
2. Progress in ESIA and RAP Studies
3. Inputs, Questions and answers;
4. Any other business

#### **MIN 1 /5/2018: Introduction and opening remarks**

The meeting was official open and chaired by Mr. Erustus Sanga Mwatime, from Ministry of Agriculture, Livestock and Fisheries, Likoni Sub County. In his opening remarks, Mr. Sanga thanked the fishermen for coming in the meeting to contribute towards the development of Mombasa gate bridge construction. He noted that the construction of the bridge is going to affect many fishermen but Likoni BMU will face the severest impacts particularly on its landing sites. He then welcomed the consultant to brief fishermen on the progress made on the development of the bridge.

#### **MIN 2 /5/2018: Progress in ESIA and RAP Studies**

The consultant thanked the fishermen for their time and patience. For now you are all aware that the Kenya Government in partnership with JICA are conducting several studies that will lead to construction of a bridge joining Mombasa town and Mainland South. Some of these studies require public participation with the people to be affected in order to collect their views and concern prior to project implementation. Public participation with the affected BMUs is critically important because it will provide the much needed information on how well potential project impact on fishing industry on which the fishermen are the primary player can be mitigated.

This is not the first meeting but a follow up meeting from the previous once. ESIA and RAP studies have been done for the proposed bridge alignment and the results are out.

Among other impacts identified, is loss of livelihoods by fishermen during the construction of the Bridge. The bridge construction will start in Mombasa Island at Kingorani Prison and end in Pungu Kwale County. The bridge is 69 meters high to allow for vessels to pass underneath. As a mitigation measure for loss of livelihoods to the fisherfolks community, the ESIA and RAP studies have proposed several options including compensations, provisions of deep sea fishing equipments among others. The objective of the meeting with you today is aimed at collecting more information and additional inputs from actual fishermen particularly from Likoni area and also to provide away forward on how the list of beneficiaries can be approached and documented. This is therefore your (fishermen's) meeting and the floor is open for contributions.

**MIN 3 /5/2018: Inputs, Questions and answers**

| <b>Name of Fisherman</b> | <b>Inputs, Concerns and questions</b>                                                                                                                                                                                                                                                                                                                     | <b>Answers</b>                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Abdalla Hamisi           | It is true that the construction is going to affect us and our operations at the sea. My suggestion is that all fishermen to be compensated and given a boat for fishing. Also the names of beneficiaries to include fishermen's wife and children because they are going to be affected too.                                                             | Noted                                                                                                                                                                                                                                                                                                                                                     |
| Ali Salim                | I am the First fisherman of Likoni BMU even by registration and age. The people to be documented as actual beneficiaries should be the fishermen not their wife. I have never seen any fisherman accompanied by his wife and children in the ocean.                                                                                                       | That is true; the list will only contain registered BMU members for Likoni BMU.                                                                                                                                                                                                                                                                           |
| Mohammed Juma            | It will be good if you tell us how much we are going to get so that we can start planning for it.<br>We all know each other, we know genuine fishermen. We have categories of fishermen. Every category to produce its genuine members.<br>Also compensation must not be the same or equal across categories of fishermen. It must be ranked by category. | Unfortunately I am not allowed to discuss how much each fisherman is entitled to. It is beyond my mandate but what I can confidently confirm to the fishermen is that several compensation packages have been fronted. The most important issue is that the compensation to be adequate, fair and able to restore lost livelihoods to pre project levels. |
| Ahmed Salim              | I have a contrary opinion to that of Juma. We are operating in the same area. Be it fish sellers, traders boat owners, net owners etc. I am proposing fair compensation for all at                                                                                                                                                                        | Noted. However, do not dwell so much on compensation think of other area that can be                                                                                                                                                                                                                                                                      |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                              |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | equal costs regardless of category. We have to be treated alike.                                                                                                                                                                                                                                                                                                                                                                                                    | improved to enable fishermen to improve their living conditions. Example are improvement of unaffected landing sites within likoni, marketing improvements etc.                                                                                                              |
| Mrimi Kamanda | Fishermen to be compensated following their categories, landing sites to be improved and if possible let the affected fishermen to be given employment during construction of the bridge as an alternative means of raising livelihood.                                                                                                                                                                                                                             | That is a valid suggestion that worth consideration. I am sure that during construction of the bridge, priority is going to be given to local community because this is their constitutional right. 40% local participation in any project is enshrined in the constitution. |
| Athman        | We don't want fishing equipments to be taken to county fisheries because even the boats that were procured by county government is not helping us. Even if another one is procured it won't help us. My suggestion is pay as what is due to us and we take charge of ourselves.                                                                                                                                                                                     | Noted                                                                                                                                                                                                                                                                        |
| Shaban Matano | Likoni BMU have six landing sites, from you explanation on where the bridge will pass, two key landing sites will be completely closed. My suggestion is; improve the remaining 4 with capacity to handle all our docking needs. At least every landing sites must have a vessel for fishing if compensation is fair.<br>Do not include Mwangala BMU in our compensation package. Also, the list of fisherforks to include only those who buy fish from Likoni BMU. | Noted.                                                                                                                                                                                                                                                                       |
| Sudi          | I would want to know if this compensation package will be discharged on daily basis, weekly, monthly or yearly or is it a lump sum amount given once and for all. Because if possible let it be on monthly instalments.                                                                                                                                                                                                                                             | Noted.                                                                                                                                                                                                                                                                       |
| Sula          | If you give a fisherman onetime compensation you are most likely to fail. Let us think of post project period as well. Let us not concentrate on monetary aspect of the project because this is not be sustainable.                                                                                                                                                                                                                                                 | Noted                                                                                                                                                                                                                                                                        |

|                |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | Every category to be given at least two fishing vessels to sustain their income.                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Bakari Hamisi  | We need adequate time to sort out ourselves and come up with strategies that will guide the compensation process.                                                                                                                                                                                                   | Noted, but the issue of time is crucial. Currently we as the consultant we are operating behind schedule and we may not have enough time to wait for your proposals                                                                                                                                                                                                                                                                |
| Abedi Hassan   | Will we be given pension as part of the fair compensation package?                                                                                                                                                                                                                                                  | No. Pension is normally given to retirees and is regulated by the Government. The Government operates a social pension scheme (NSSF) which is open to all Kenyans regardless of your income sources. It is advisable that one finds time and makes a monthly commitment of his own money during his active working years. This will then be paid back at old age. Even me I do contribute part of my little income to this scheme. |
| Mohamed Rashid | I don't support every fisherman to be given its own boat. However I am suggesting that fishermen to practice mariculture and aquaculture and even apiculture as an alternative to going to the ocean. If only people can be sensitized enough to leave fishing this will provide lasting solutions to our problems. | Noted.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Juma           | We cannot abandon fishing for those culture things you are talking about. Even the Japanese are well sensitized than as but they are still fishing. Fish farming is only possible in maji baridi- cold water. If you don't want to fish just revoke you license.                                                    | Let us not take it as personal and be emotional on his suggestions. This is just a proposal that he has made pls. I understand that leaving fishing in the ocean may not be an easy thing. I am sorry that his contribution has caused some ripples to the fishermen. Whoever we need all your comments to help us know how best to                                                                                                |

|              |                                                                                                                                                                                                                                                                                                                                                   |                    |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|              |                                                                                                                                                                                                                                                                                                                                                   | handle all of you. |
| Abdulla      | We request that the list of beneficiary to be generated here in the meeting because all fishermen are here. List generated by fisheries cannot be trusted. We had experienced this during dredging of the channel by KPA recently. List from the fisheries was populated by non-fishermen particularly motorbike owners who have nothing to loss. | Noted.             |
| Hassan Salim | I suggest that instead of giving fishermen boats, Likoni BMU to have a boat manufacturing factory. This will enable fishermen to buy their own boats at a reduced cost.                                                                                                                                                                           | Noted              |
| Amani Salim  | The fishermen need to be trained and capacity build.<br>Provide compensation for 6 years advance payments before start of construction.<br>We need to make a legal agreement with the government on when to get our fair compensation. We must sign an MOU with the contractor on employment of fishermen during project construction.            | Noted              |

### Way forward.

We have listened to your proposals; they are valid issues that must be addressed before construction. I can promise you that we will still convene more meetings with you in near future. We are going to analyze the proposals that you have given us today and provide a feedback to you soon.

List of beneficiary that you have given out will be compared with what the fisheries will provide but the final list will be read out in a public meeting for you to confirm your names by category or unit as indicated in the BMU by laws. Thank you very much. You are wonderful people and I must admit that I am privileged to serve you people with honesty and diligence.

### MIN 4 /5/2018: Any other Business

There being no other business. The meeting was closed by a ward of prayer at 13.00 pm.

BMU MEETING IN BOFU MASKAN ON 30<sup>TH</sup> MAY 2018



**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting  
 Venue of Meeting: Bofu Maskan  
 Date of Meeting: 20th May, 2018  
 Time of Meeting: 2:00 pm

| Sr/No. | Name                             | Contact                  | Designation/Sub location     | Gender       | Signature        |
|--------|----------------------------------|--------------------------|------------------------------|--------------|------------------|
| 17     | RASABO ADINAN                    | 0725947782               | MWERZA                       | MALE         |                  |
| 18     | MATHAMUD M. KASINKA              | 0718674817               | DIMBWINI                     | MALE         |                  |
| 19     | MADJARI M. MWAMUKOBA             | 0791607840               | MWERZA                       | FEMALE       |                  |
| 20     | MWANAJUMA HAMISI                 | 0710677280               | JAMVI LA WAGENI              | FEMALE       |                  |
| 21     | MALIKA ZAINABU SAID              | 0710572233               | JAMVI LA WAGENI              | FEMALE       |                  |
| 22     | AMINA M. HADIDA BARI             | 0702876007               | JAMVI LA WAGENI              | FEMALE       |                  |
| 23     | MWANAZSATA MOTHAMED              | 0705944830               | MWERZA 'B'                   | FEMALE       | Mwanazsata M<br> |
| 24     | JUMA KOMBO MALEVI                | 0744489483               | MWERZA 'B'                   | MALE         |                  |
| 25     | JUMA M. MWAMUKOBA                | 0700246876               | MWERZA                       | MALE         | J.M.<br>         |
| 26     | MARGRET MAKTOHA                  | 0729354727               | DIMBWINI                     | FEMALE       | MUR<br>          |
| 27     | SITI B. MOTHAMED                 | 0710677889               | JAMVI LA WAGENI              | FEMALE       | Sita<br>         |
| 28     | RAWADI DANDU UNDA                | 0713546121               | JAMVI LA WAGENI              | MALE         | Bandi<br>        |
| 29     | ALBERT CHEGE GATUIKH             | 0724960223               | VIONANI                      | MALE         | Geard<br>        |
| 30     | MOTHAMED H. MSHAMU               | 0725491890               | DIMBWINI                     | MALE         |                  |
| 31     | MWANAHATJA MWABIZO               | 0743385548               | MWERZA                       | MALE         | AM<br>           |
| 32     | ABDALLAH HAMISI                  | 0728127433               | JAMVI LA WAGENI              | MALE         |                  |
| 33     | OMAR - M. SHABE<br>JUMA A. KIMWA | 0706829724<br>0727938265 | JAMVI LA WAGENI<br>MIGOMBANI | MALE<br>MALE | <br>             |

Type of meeting: Stakeholder Consultation Meeting

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| Sr/No. | Name                         | Contact    | Designation/Sub location | Gender | Signature |
|--------|------------------------------|------------|--------------------------|--------|-----------|
|        | RAMA HASSAN GUTSI            | 0720758068 | PELELEZA                 | MALE   |           |
| 2      | SULEMAN ABU BAKH             | 072396108  | PELELEZA                 | MALE   |           |
|        | HAYA BAYA KAEUGE             | 071950528  | Peleleza                 | Male   |           |
|        | AMANI JUMA                   | 0728669060 | Peleleza                 | Male   |           |
|        | HEMEDI HAMISI MWANGA         | 0788290110 | Peleleza                 | Male   |           |
|        | NORRO MWANGEKA CHINKUA       | 0720597358 | Peleleza                 | Male   |           |
|        | JUMA ALI MWINYI              | 0796349325 | MUCEZA                   | Male   |           |
|        | MWITAMBE CH. WIPPI           | 0714156922 | Jamvi                    | Male   |           |
|        | MWINYI ALI MAKOKO            | 0723967439 | MWEZA                    | Male   |           |
|        | MWATAMISI ALI MNYOKE         | 0728972019 | PAWEZA                   | Female |           |
|        | MWANASITI, MUSAUM MWAHONGA   | 0726393040 | NYEMANI                  | Female |           |
|        | MWANASITI, MWINYI MHIIMA     | 0725453171 | NYEMANI                  | Female |           |
|        | SALUMU HAMISI KALUME         | 0713953805 | NYEMANI                  | Female |           |
|        | Mwanamgeni, MOHAMMED FITHRAH | 0728424464 | NYEMANI                  | Female |           |
|        | MWANGI HANUJICA KUBIRA       | 0722810782 | Jamvi                    | Male   |           |
|        | JUDITH NAMEGI                | 0723202534 | DIMBWI NI                | Female |           |

| NAME                     | Contact Info | GENDER | LOCALITY        | Sign. |
|--------------------------|--------------|--------|-----------------|-------|
| MASOUB MATANO KOGIB      | 0722570281   | MALE   | UJIMWENI        |       |
| Rama Mnyage Nyenje       | 0727365739   | MALE   | MWERA           |       |
| HASSI MESTIKA MUSAHUNUWA | 0724227254   | MALE   | MWERA           |       |
| OMARI DAETHUS KUMBWEKA   | 0703116719   | MALE   | MWERA           |       |
| SALIM MATARO MWACHIRO    | 070869       | MALE   | MWERA           |       |
| HAMUDI SALIM BASHA       | 0708691600   | MALE   | MWERA           |       |
| Juma HAMADI SALIM        | 0726685730   | MALE   | JAMVI LAWAGEN   |       |
| SWALEH ZAKIA             | 079332956    | MALE   | JAMVI LAWAGEN   |       |
| Deborah Nuelanga Mwabesi | 072422751    | FEMALE | UJIMWENI        |       |
| ISAKARI OMARI SHABE      | 0722322478   | MALE   | MWERA           |       |
| SAUD HASSANO TAMATI      | 0722953237   | MALE   | JAMVI LA WAGENI |       |
| Juma Athman Chazoo       | 0712261357   | MALE   | JAMVI LA WAGENI |       |
| MWINJAKA HASSI MWINYI    | 0729363026   | MALE   | UJIMWENI        |       |
| HALIMTA ABILEM           | 0708854157   | FEMALE | UJIMWENI        |       |
| RASHID ADINANI MIHABINDO | 0726947782   | MALE   | UJIMWENI        |       |
| ALI ALI MWANUZA          | 0725708200   | MALE   | MWIFZA          |       |
| MWINI NGWISA AFIDA       | 0792820440   | MALE   | MWANESERE       |       |
| Suleiman Salim Mwacaba   | 0719439509   | MALE   | MWANESERE       |       |
| Mohamed SALIM MADZUMBA   | 0725421653   | MALE   | MWIFZA          |       |
| Moffatwe H. Mwanabazayya | 0725607020   | MALE   | UJIMWENI        |       |



**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

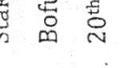
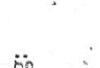
**ATTENDANCE SHEET**

Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20<sup>th</sup> May, 2018

Time of Meeting: 2.00 pm

| Sr/No. | Name                       | Contact    | Designation/Sub location | Gender | Signature                                                                           |
|--------|----------------------------|------------|--------------------------|--------|-------------------------------------------------------------------------------------|
|        | RUTH HJERI                 | 0712346270 | MWAWICHE                 | Female |    |
|        | WAJAH JUMA MWABINDO        | 0716344659 | <del>MWAWICHE</del>      |        |                                                                                     |
|        | Rosemary Mulciri           | 0791035746 | Vyemani                  | Female |    |
|        | Mwafine Abdulla Mwalago    | 0716344639 | Jamvi                    | Female |    |
|        | Keshi Athmani              | 2090561653 | Mweza                    | Female |   |
|        | KULTUM NGOMBO              | 0722372896 | Mweza                    | Female |  |
|        | Mwamakombo popo MASUDI     | 0726324668 | MULUMBANI                | FEMALE |  |
|        | Mwamatista Samset Mwabundo | 0701337358 | MWAWICHE                 | FEMALE | M/S                                                                                 |
|        | Mwangujuma Bai             | 0702067006 | Mweza                    | Female |  |
|        | Saumy Adulqamani           | 0732780664 | Vyemani                  | Female | SAUMU                                                                               |
|        | Mohamed BAERI MWABINDO     | 0734704009 | MWEZA                    | MATE   |  |
|        | A-FARID KUBO MWANGA        | 0733603262 | MWEZA C                  | MATE   |  |
|        | MWAZITA MWANZIKI NGUZU     | 0727684214 | MWEZA B                  | MATE   |  |
|        | JOSEPHINE NJOKI NANGARE    | 0716409921 | MWEZA                    | Female |  |
|        | Ashye Miza Mwadama         | 0713498905 | Jamvi la uageni          | Female |  |
|        | Said Mwakusonda            | 0790799490 | Jamvi la uageni          | Male   |  |

**SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES**

**ATTENDANCE SHEET**

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Venue of Meeting: Bofu Maskan

Date of Meeting: 20th May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                 | Contact     | Designation/Sub location | Gender | Signature |
|--------|----------------------|-------------|--------------------------|--------|-----------|
|        | Tuna Seta Mwanima    | 0741260269  | MWAWECHE                 | M      |           |
|        | SALIM S MWACHOO      | 07223926903 | MWEZA                    | M      |           |
|        | MICHAEL NYARÉ RAM    | 0718-961784 | VYEMANI                  | M      |           |
|        | KASSIM MCHAMBI SINGO | 0725972778  | VYEMANI                  | M.     |           |
|        | SALIM ALI. MWABEKA   | 0720606314  | VJIWENI                  | M.     |           |
|        | VERONICA N. KETKOFI  | 0722814018  | VYEMANI                  | F      |           |
|        | LAWRENCE KASUKU      | 0711708488  | VYEMANI                  | M      |           |
|        | RACHEMA ATHMAN       | 0722-558678 | VYEMANI                  | F      |           |
|        | RACHEL K. NLTAYA     | 0722-371735 | VYEMANI                  | F      |           |
|        | JULIUS ANJIRA CASIRE | 0724678132  | VJIWENI                  | M      |           |
|        | SAIDI KUNANDA SHIKEL | 0710919825  | VJIWENI                  | M      |           |
|        | FESTUS MWANYENYOLA   | 0713045124  | VJIWENI                  | M      |           |
|        | SHARACK UYALO MULWA  | 0731023463  | VJIWENI                  | M      |           |
|        | MOTAMED YUSUF        | 0711627051  | MIGOMBANI                | M.     |           |
|        | MZEE AHUMORANI       | 0708548171  | SHIKADABU                | M      |           |
|        | BAKAR ALI            | 0714995135  | SHIKADABU                | M      |           |
|        | HASSAN SAID          | 0722600758  | SHIKADABU                | M      |           |
|        | SACMINI AISO         | 0727604327  | SHIKADABU                | M      |           |

| NO | Name                | Contact    | LOCATION       | Gender | Signature |
|----|---------------------|------------|----------------|--------|-----------|
| 33 | HANUSI MOHAMAD      | 0724552261 | BOTU MASRANI   | MALE   |           |
| 34 | DIZIKI MZE AFHAM    | 0725042614 | JAMU LA WAGENI | FEMALE |           |
| 35 | FATUMA ABDALLAH     | 0731319037 | MI GOMURAU     | FEMALE |           |
| 36 | MWANASHA BAKADI     | 0722603657 | JAMU LA WAGENI | FEMALE |           |
| 37 | SALAMU ATIRU ALI    | 071900184  | VYEMANI        | FEMALE |           |
| 38 | MSEMBI JUMA         | 0716953286 | MI GOMBRANI    | MALE   |           |
| 39 | DOMINIC N. NGURE    | 0722586826 | VYEMANI        | MALE   |           |
| 40 | JOE S. OBUKOLI      | 0721254593 | VYEMANI        | MALE   |           |
| 41 | MWARARU MATANO      | 0727071602 | MWEZA          | FEMALE |           |
| 42 | MWANAMISI ALI       | 0727071602 | MWEZA          | FEMALE |           |
| 43 | FATUMA RUWA         | 0757071602 | MWEZA          | FEMALE |           |
| 44 | ABDARATH A. MWAKAGA | 0710826854 | DIMBWIWI       | MALE   |           |
| 45 | SAMUE KITONYO       | 0708268385 | MWEZA          | MALE   |           |
| 46 | NZAI RENARD         | 0720678967 | JAMU LA WAGENI | FEMALE |           |
| 47 | MWANUSU MOHAMAD     | 0726362933 | JAMU LA WAGENI | FEMALE |           |
| 48 | STEPHEN MATIMU      | 0722680233 | VYEMANI        | MALE   |           |
| 49 | MATAMA JACO BABU    | 0718188388 | MIGOMDANI      | FEMALE |           |
| 50 | JACO M. MWAMKUBA    | 0713185040 | MWEZA          | MALE   |           |
| 51 | ALICE MAKUMICHA     | 0727294945 | MWEZA          | FEMALE |           |
| 52 | MATANO SUCHEIMAN    | 0727270521 | VYEMANI        | MALE   |           |



SECOND ROUND OF STAKEHOLDER CONSULTATIONS IN THE ESIA AND RAP STUDIES

ATTENDANCE SHEET

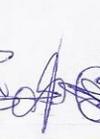
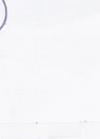
Type of meeting: Stakeholder Consultation Meeting

Venue of Meeting: Bofu Maskan

Date of Meeting: 20th May, 2018

Time of Meeting: 2:00 pm

| Sr/No. | Name                             | Contact                    | Designation/Sub location       | Gender         | Signature |
|--------|----------------------------------|----------------------------|--------------------------------|----------------|-----------|
| 17     | RASATD ADINAN                    | 0726947752                 | MWERA                          | MALE           |           |
| 18     | MATHAMUD M. KASINKA              | 0718674917                 | DIMBUWINI                      | MALE           |           |
| 19     | MALIAM M. MWAMUKOBA              | 0791607840                 | MWERA                          | FEMALE         |           |
| 20     | MWANA JUMA HAMISI                | 0710677280                 | JAMVI LA WAGENI                | FEMALE         |           |
| 21     | MALIKA ZAINABU SAID              | 0710572933                 | JAMVI LA WAGENI                | FEMALE         |           |
| 22     | AMINA M. HADIDA BAZA             | 0702576007                 | JAMVI LA WAGENI                | FEMALE         |           |
| 23     | MWANAZISA MOTHAMED               | 0705944830                 | MWERA 'B'                      | FEMALE         | Mwanuzisa |
| 24     | JUMA KOMBO MALEVI                | 0714489483                 | MWERA 'B'                      | MALE           |           |
| 25     | JUMA M. MWAMUKOBA                | 0700246876                 | MWERA                          | MALE           | J.M.      |
| 26     | MAGREY MAKTOHA                   | 0729354727                 | DIMBUWINI                      | FEMALE         | MUR       |
| 27     | SITI B. MOTHAMED                 | 0710677889                 | JAMVI LA WAGENI                | FEMALE         |           |
| 28     | RAWADI DANDU UNDA                | 0713546121                 | JAMVI LA WAGENI                | MALE           | Bandi     |
| 29     | ALBERT CHEGE GATUIKI             | 0724960223                 | VITENANI                       | MALE           |           |
| 30     | MOTHAMED H. MSHAMU               | 07285491890                | DIMBUWINI                      | MALE           |           |
| 31     | MWANAHATIJA MWABIZO              | 0743385549                 | MWERA                          | MALE           |           |
| 32     | ABDALLAH HAMISI                  | 07281237473                | JAMVI LA WAGENI                | MALE           |           |
| 33     | OMAR - M. SHABE<br>JUMA A. KIMBA | 0700829724 /<br>0727938265 | JAMVI LA WAGENI /<br>MIGOMBANI | MALE /<br>MALE |           |

| SNO | NAME                | contact    | locality | gender | sign                                                                              |
|-----|---------------------|------------|----------|--------|-----------------------------------------------------------------------------------|
|     | OMAR JUMA Mwakondo  | 0717194956 | Peleleza | M      |  |
|     | MHAMMED JUMA        | 0771200372 | PELELEZA | M      |  |
|     | HAMUS S. MWAJUMIRO  | 0710503408 | PELELEZA | M      |  |
|     | RASHID A. RAHID     | 0728338261 | BOFA     | M      |  |
|     | HAMU J. MIBWANJA    | 0732890817 | PELELEZA | M      |  |
|     | PAIFFR MW/XI        |            |          | M      |  |
|     | RAMADHAN SAKIM FUSO | 0714968137 | JAMVI    | M      |  |



## **Appendix 9.1: Documentation of the Analysis of Alternatives**



## **Agenda**

1. Review of the previous meeting MoD;
2. Answers/clarifications received by the Survey Team;
3. Objectives of the Project;
4. Traffic survey result;
5. Preliminary traffic demand forecasts for alternative routes;
6. Improvement/widening of the Bridge approach roads;
7. Comparison of structure types for the main bridge;
8. Main bridge structure layout for alternative routes;
9. Structure types for approach bridges and their application;
10. Method of alternative route comparison;
11. Alternative route comparison in each evaluation field;
12. Summary of alternative route comparison;
13. Selection of the Project Bridge Route;
14. Necessity to retain Likoni Ferry Service;
15. Harbor crossing means for light transport and MNT;
16. Toll for bridge maintenance and Likoni ferry operation costs;
17. Miscellaneous facilities to be furnished in the Project;
18. Questions and clarifications;
19. Updated survey schedule; and
20. Others

### ○ **Review of Previous Meeting MoD**

#### ○ **Answers / Clarification Received by the Survey Team**

- Kenya Defence Force does not accept the bridge along Route Bs because of security reason. The acceptance of Route C and D are under inquiry to KDF.
- KRC accepted construction of a viaduct over Mombasa Station to connect Lumumba Rd and Mwakilingo St. The construction limit of railway is 7.01m high and 11.25m wide.
- National Museum of Kenya objected to Route A1 because of cultural reason.
- KCAA has inspected the proposed bridge site. The Height limit 200m requested by the Survey Team will be clarified by KCAA.

## Location of Alternative Bridge Routes

- Route A1 was objected by National Museum of Kenya because of cultural reason
- Route Bs were not accepted by Navy because of security reasons

Route C and D are subject to confirmation of acceptance of Navy



**Alternative Bridge Routes for Comparison**



### **3. Objectives of the Project**

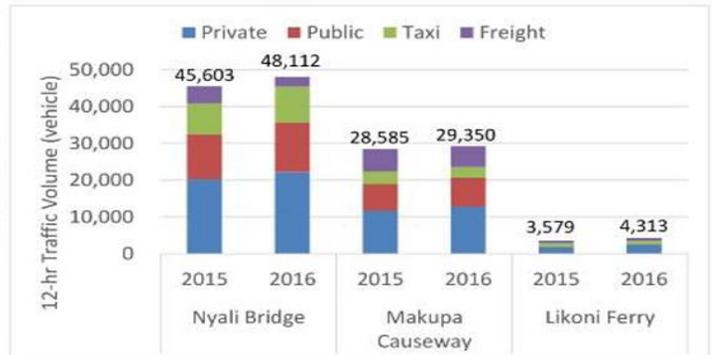
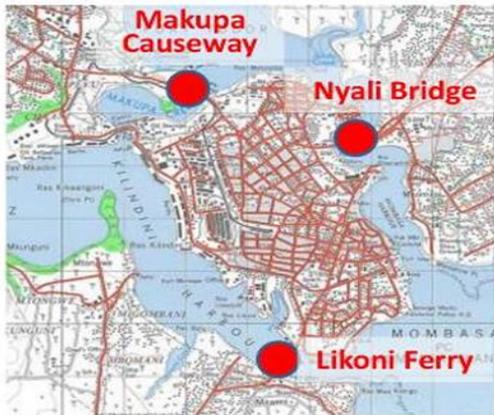
The main objective is to provide road connection between Mombasa Island and Mainland South. Sub objectives of the Project are:-

- i. To provide harbor crossing bridge since Likoni ferry is too crowded.
- ii. To decongest Mombasa island by providing a bridge connection with Mainland South without worsening congestion in the CBD.
- iii. To provide a southern route to reduce congestion in the island by cargo trucks leaving Kilindini Port for Nairobi.
- iv. To support development in the southern area through provision of a direct road connection with the island.



○ **Traffic Survey Result -Roadside Traffic Count-**

- Vehicles traffic volume has been increasing at all station.
- Growth rates were 5.5% at Nyali Bridge, 2.7% at Makupa Causeway and 20.5% on Likoni Ferry.



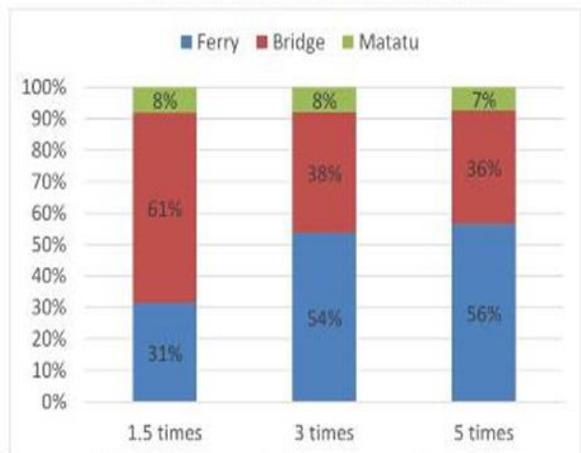
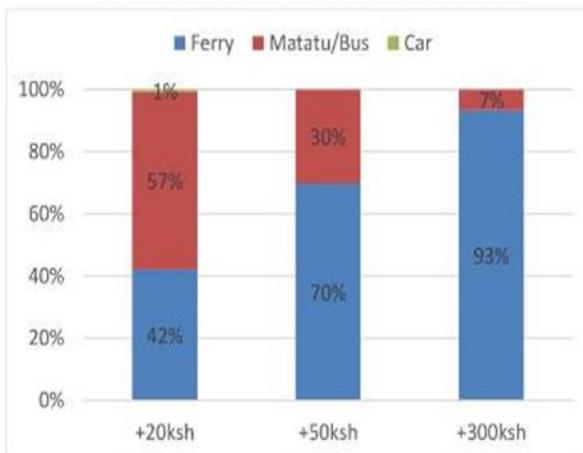
|                         | Nyali  | Makupa | Likoni Ferry |
|-------------------------|--------|--------|--------------|
| Growth Rate (2016/2015) | + 5.5% | + 2.7% | + 20.5%      |

○ **Traffic Survey Result -Passenger/Driver Interview-**

- **Ferry passengers** who would divert to the bridge (by using Matatu)
  - 57% would use Matatu if fare is 20 Ksh;
  - 7% would use Matatu if fare is 300 Ksh.
- **Drivers of vehicle** crossing the ferry who would divert to the bridge
  - 61% of respondents - if toll rate is 1.5 times higher than ferry fare;
  - 36% of respondents - if toll rate is 5.0 times higher than ferry fare.

Passenger Interview Result (Route A)

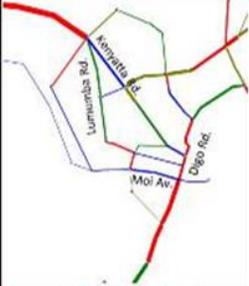
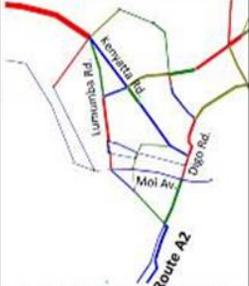
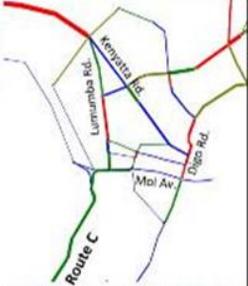
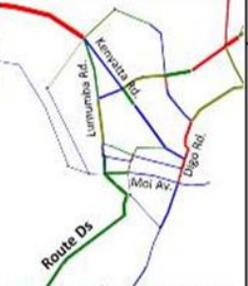
Driver Interview Result (Route A)



|        |          |           |           |
|--------|----------|-----------|-----------|
| Car    | + 50 ksh | + 100 ksh | + 600 ksh |
| Matatu | + 20 ksh | + 50 ksh  | + 300 ksh |
| Ferry  | Existing | Existing  | Existing  |

|        |                  |                  |                |
|--------|------------------|------------------|----------------|
| Matatu | Existing         | 1.5 times higher | 2 times higher |
| Bridge | 1.5 times higher | 3 times higher   | 5 times higher |
| Ferry  | Existing         | Existing         | Existing       |

## 5. Preliminary Traffic Demand Forecast for Alternative Routes

| Base Case                                                                                                                                                                                                                                                                                                                                                                                              | A2                                                                                                                                                                                                                                                                                                                                                            | C                                                                                 | Ds                                                                                 | Comments                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                              |  |  | <b>2025</b><br>- Route A2 causes traffic through CBD;<br>- Route C & D are superior to A2. |
| *VCR 0.53, *Speed 35.9kph                                                                                                                                                                                                                                                                                                                                                                              | *VCR 0.52, *Speed 36.8kph                                                                                                                                                                                                                                                                                                                                     | *VCR 0.50, *Speed 37.2kph                                                         | *VCR 0.50, *Speed 37.2kph                                                          |                                                                                            |
|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                              |  |  | <b>2040</b><br>- Route C & D are superior to A2.                                           |
| *VCR 1.05, *Speed 22.2kph                                                                                                                                                                                                                                                                                                                                                                              | *VCR 1.02, *Speed 22.5kph                                                                                                                                                                                                                                                                                                                                     | *VCR 0.99, *Speed 23.0kph                                                         | *VCR 0.99, *Speed 23.0kph                                                          |                                                                                            |
| <b>LEGEND:</b><br> VCR<0.80<br> VCR<1.00<br> VCR<1.20<br> 1.20<VCR | <b>NOTE:</b><br><ul style="list-style-type: none"> <li>VCR=Volume/Capacity Ratio; * indicates the average value for the whole network</li> <li>Future network and ODs were prepared based on data obtained from MGC M/P team.</li> <li>Mode choice behavior of ferry users is not explicitly considered in this preliminary results (future work).</li> </ul> |                                                                                   |                                                                                    |                                                                                            |

## 6. Improvement/Widening of the Bridge Approach Roads

The bridge approach road sections with red color are proposed to be improved / widened in this Project in order to attain the targeted effects of the Project.

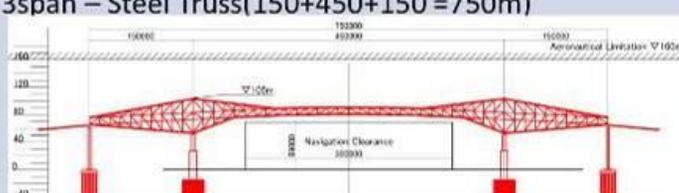
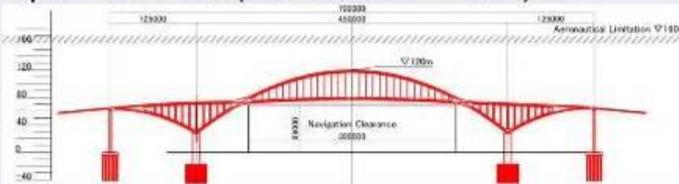
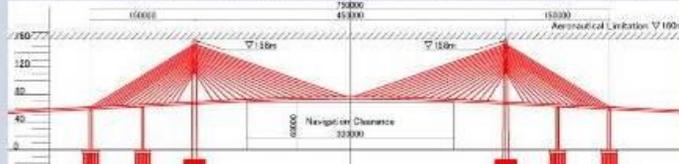


Note: Yellow/Blue:  
Bridge

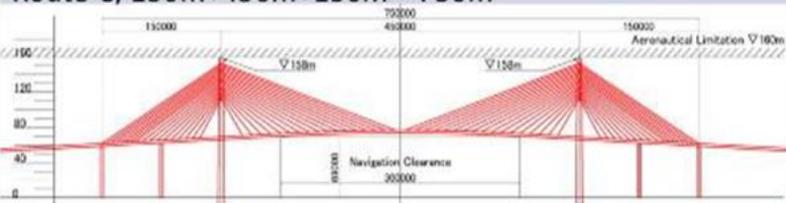
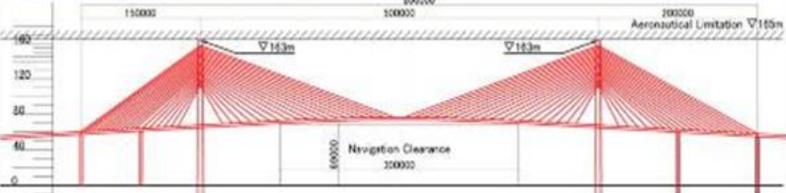
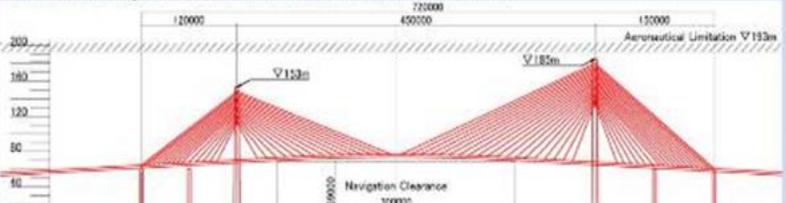
Red: Road (ground level)

Broken line: ROW  
acquisition for future  
extension to SEZ

## 7. Comparison of Bridge Structure Types for the Main Bridge

| Applicable Bridge Types                                                                                                                       | Comparison among 3 types                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>3span – Steel Truss(150+450+150 =750m)</b></p>         | <p>Example of this size: Very few<br/>           Construction Cost: Highest<br/>           Maintenance Cost: Highest<br/>           Appearance: Not good generally<br/>           Not applicable for A2</p> |
| <p><b>3span – Steel Arch(125+450+125 = 700m)</b></p>         | <p>Example of this size: Few<br/> <b>Construction Cost: Middle</b><br/>           Maintenance Cost: Lowest<br/> <b>Appearance: Very Good generally</b></p>                                                  |
| <p><b>3span – Cable-Stayed Bridge(150+450+150=750m)</b></p>  | <p>Example of this size: Many<br/> <b>Construction Cost: Lowest</b><br/>           Maintenance Cost: Middle<br/> <b>Appearance: Good generally</b><br/> <b>Best Type for Route A2, B &amp; C</b></p>        |

## 8. Main Bridge Structure Layout for Alternative Routes

| 3Span - Steel and Concrete Hybrid Cable-Stayed Bridge                                                                             | Outline                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <p><b>Route C; 150m+450m+150m = 750m</b></p>   | <p>Main Span : 450m<br/>           Maximum Height:158m</p> |
| <p><b>Route D; 150m+500m+200m = 850m</b></p>   | <p>Main Span : 500m<br/>           Maximum Height:163m</p> |
| <p><b>Route A2; 120m+450m+150m = 720m</b></p>  | <p>Main Span : 450m<br/>           Maximum Height:185m</p> |

## 9. Structure Types for Approach Bridges and their Application

| Approach Bridge Type and Application                                                                                                                                                                                                                                      | Cross Section |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p><b>PC Box Girder</b> (Span=40-60m)</p> <ul style="list-style-type: none"> <li>- For high bridge (<math>h &gt; 30\text{m}</math>)</li> <li>- For curved bridge</li> <li>- Bridge bottom appearance is good (for Urban)</li> </ul>                                       |               |
| <p><b>PC I-Girder</b> (<math>L &lt; 40\text{m}</math>)</p> <ul style="list-style-type: none"> <li>- For middle and low bridge (<math>h &lt; 30\text{m}</math>)</li> <li>- For straight bridge only</li> <li>- Bridge bottom appearance is not good (for Rural)</li> </ul> |               |
| <p><b>PC U-Girder</b> (<math>L &lt; 40\text{m}</math>)</p> <ul style="list-style-type: none"> <li>- For middle and low bridge (<math>h &lt; 30\text{m}</math>)</li> <li>- For straight bridge</li> <li>- Bridge appearance is good (for urban)</li> </ul>                 |               |
| <p><b>PC Void Slab</b> (<math>L &lt; 30\text{m}</math>)</p> <ul style="list-style-type: none"> <li>- For low bridge (<math>h &lt; 15\text{m}</math>)</li> <li>- For curved bridge / Loop bridge</li> <li>- Bridge appearance is good (for urban)</li> </ul>               |               |

## **10.1 Method of Alternative Route Comparison**

-Evaluation score (S) is given to each route depend on its superiority/inferiority in each evaluation field.

Score criteria is shown in the below.

-Weight (W) is given to each evaluation field depending on the urgency / importance of the field considering the Project objectives. Weighting criteria is explained in the following page.

-The route scored highest total weighted scour (WS) is the best route.

| Evaluation field      | W | Route A |    | Route C |    | Route D |    |
|-----------------------|---|---------|----|---------|----|---------|----|
|                       |   | S       | WS | S       | WS | S       | WS |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
|                       |   |         |    |         |    |         |    |
| <b>Weighted Score</b> |   |         |    |         |    |         |    |

- Definition o of the Score:**
- 5: Superior
  - 4: Relatively superior
  - 3: Fair
  - 2: Relatively inferior
  - 1: Inferior
  - x: Not adoptable as a Bridge route

## **10.2 Evaluation Field for Alternative Route Comparison**

The Survey Team has identified 11 Issues (evaluation fields) deemed to have critical influence on project realization and optimization of impacts. These include:-

1. Efficiency as the commuting route between Likoni/Mtongwe and the Island
2. Potential impact of the bridge in decongesting Mombasa CBD
3. Provision of an efficient freight transportation route between Kilindini Port and Nairobi
4. Potential to support Dongo Kundu (SEZ) driven development in Mainland South
5. Total project cost (construction cost, compensation cost, etc)
6. Bridge operation and maintenance costs
7. Potential environmental and social impacts
8. Potential impact on land-use and ease of land acquisition
9. Buildings / facilities in target ROW
10. Aesthetic harmony of bridge and approach viaducts with surrounding landscape
11. Disturbance on traffic flow during construction

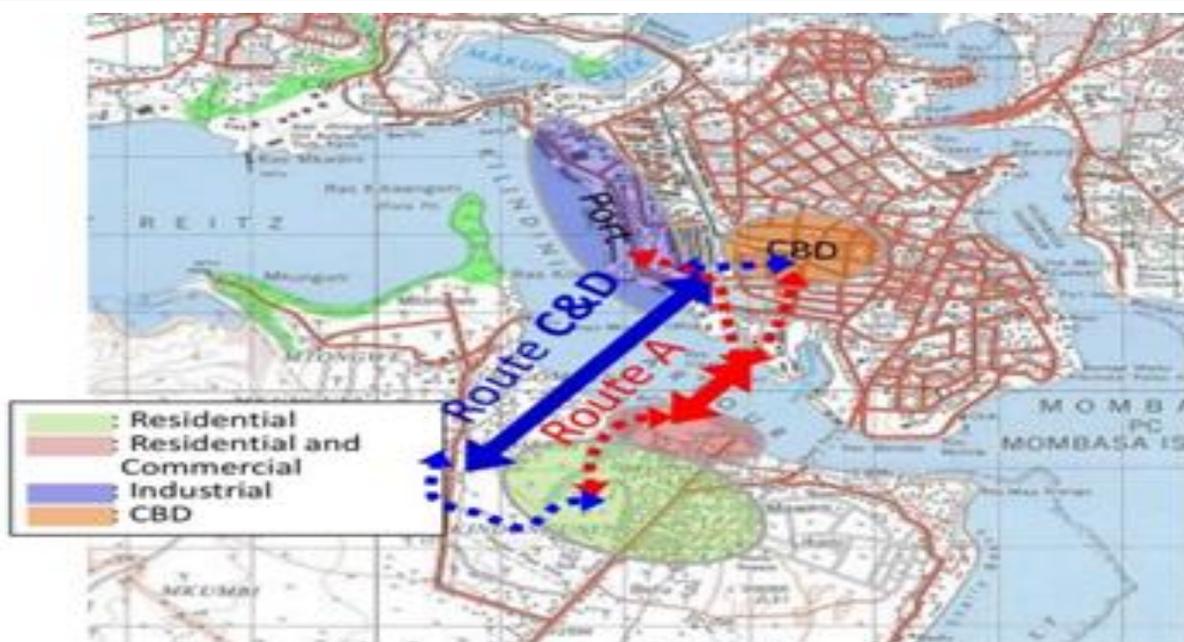
### 10.3 Weight of the Evaluation Field

A Weight rating of 1-5 is given to each evaluation field to reflect perceived public urgency or importance of the Project.

| Weight | Resolution urgency   | Importance for project realization |
|--------|----------------------|------------------------------------|
| 5      | -Very urgent         | -Very important to satisfy         |
| 4      | -Urgent              | -Important to consider             |
| 3      | -Not urgent but soon | -Important but not much            |
| 2      | -Not urgent          | -Less important                    |
| 1      | -No action needed    | -Not important                     |

### 11.1 Efficiency as the commuting route for Likoni/Mtongwe and the Island

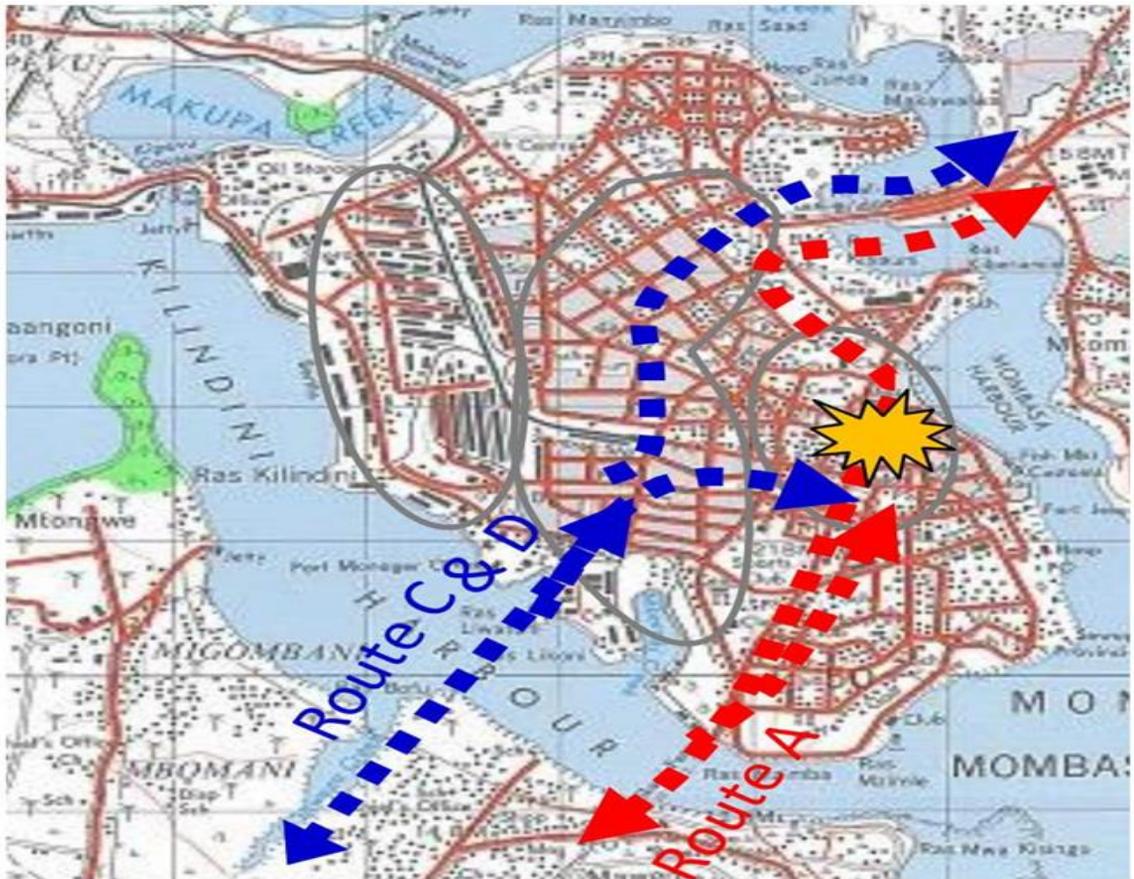
**Weight = 5** Reason: Likoni Ferry is too crowded. Efficient commuting means between the island and Likoni and Mtongwe is **very urgently** needed.



|           |                                                |                                           |
|-----------|------------------------------------------------|-------------------------------------------|
| Route A   | Route A is nearer to the most populated area.  | <b>Score = 4</b><br>(Relatively Superior) |
| Route C&D | Route C is located in the less Populated area. | <b>Score = 3</b><br>(Fair)                |

## 11.2 Potential impact of the bridge in decongesting Mombasa CBD

**Weight = 4** Reason: CBD is congested because of the concentration of vehicles.



Note:

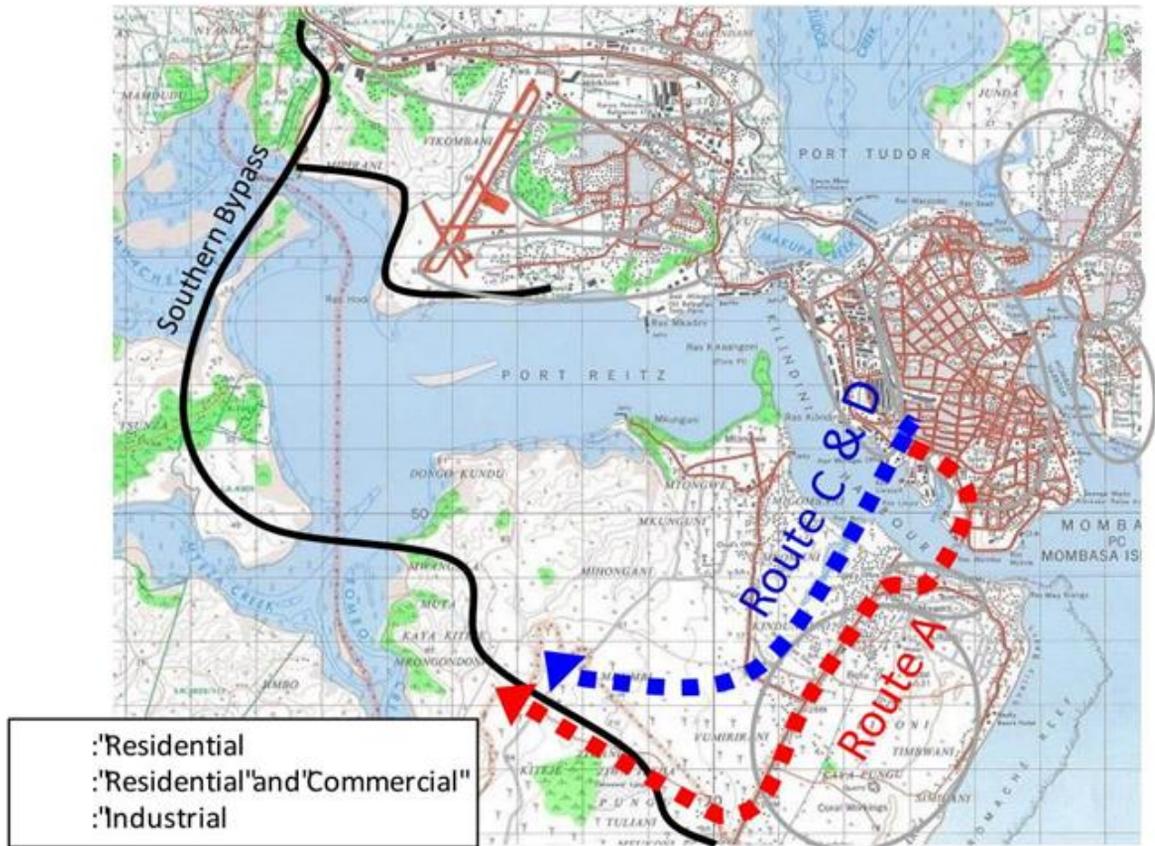
Above VCR and speed are estimated averages of major roads in Mombasa M/P Study area in 2025 (assumed bridge opening year).

VCR: Volume/Capacity Ratio

|             |                             |                                           |
|-------------|-----------------------------|-------------------------------------------|
| Route A     | VCR =0.52<br>Speed=36.8km/h | <b>Score = 2</b><br>(Relatively Inferior) |
| Route C & D | VCR =0.50<br>Speed=37.2km/h | <b>Score = 3</b><br>(Fair)                |

### 11.3 Provision of efficient freight transportation route between Kilindini Port and Nairobi

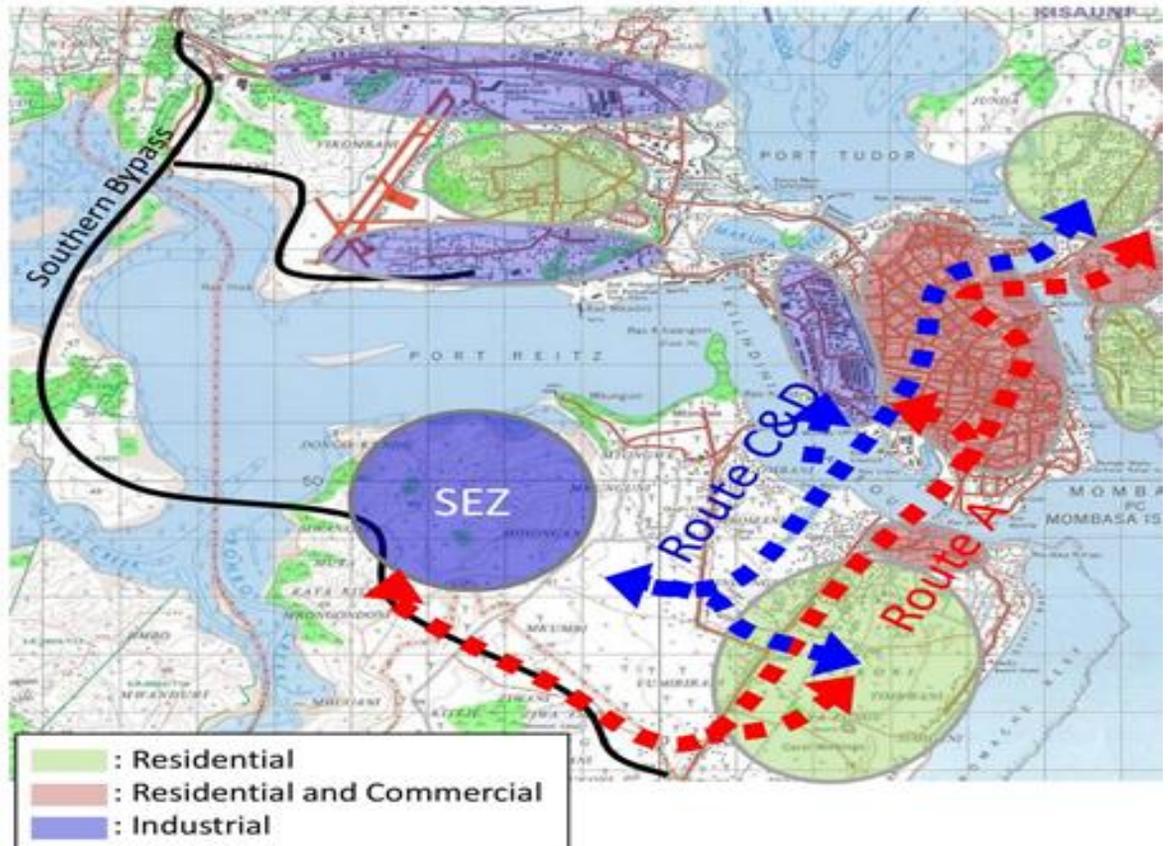
**Weight = 4** Reason: The freight handling volume in 2035 projected at 3.5 times that of 2015. 95% of freight goes toward Nairobi. Changanwe/ Kibarani - Traffic bottleneck between Mombasa, MIA and Nairobi. Island part of Kilindini Port is not connected to SGR and Kipevu Link Road hence trucks pour into Mombasa Island. New route to Nairobi is required to meet future demand of freight transportation, **urgent**.



|             |                                                                                    |                                           |
|-------------|------------------------------------------------------------------------------------|-------------------------------------------|
| Route A     | -It is longer than Route C.<br>-It passes through residential/<br>commercial area. | <b>Score=3</b><br>(Fair)                  |
| Route C & D | -It is shorter than Route A.<br>-It bypasses residential/ commercial<br>area.      | <b>Score = 4</b><br>(Relatively superior) |

## 11.4 Potential support to Dongo Kundu (SEZ) driven development in Mainland South

**Weight= 4** Reason: Lack of functional road connection is a bottleneck to development in the southern Coastal Region. A Bridge at efficient route is **important**.



|           |                                                                                                 |                                 |
|-----------|-------------------------------------------------------------------------------------------------|---------------------------------|
| Route A   | It connects the island and SEZ via A14 to the MSBR. (ROW at Likoni is inadequate for expansion) | <b>Score=3</b><br>(Fair)        |
| Route C&D | It connects Mombasa Island and SEZ directly and has unlimited ROW.                              | <b>Score = 4</b><br>(Relatively |

### **11.5 Total Project Cost**

**Weight= 5** Reason: Project cost is a **very critical** factor in decision making.

Total Project Cost combines cost for construction, compensation, engineering, administration, improvement of connecting roads and contingencies.

The costs below are very roughly estimated for route comparison purpose only. It might be revised in the further survey. The breakdown of the cost will be explained in Progress Report. The cost estimate based on quantity calculation will be reported in Interim Report.

| Route | Rough Project Cost   | Score            |
|-------|----------------------|------------------|
| A2    | Ksh 70 B. ~Ksh 80 B. | <b>Score = 3</b> |
| C     | Ksh 70 B. ~Ksh 80 B. | <b>Score = 3</b> |
| D     | Ksh 65 B. ~Ksh 75 B. | <b>Score = 4</b> |

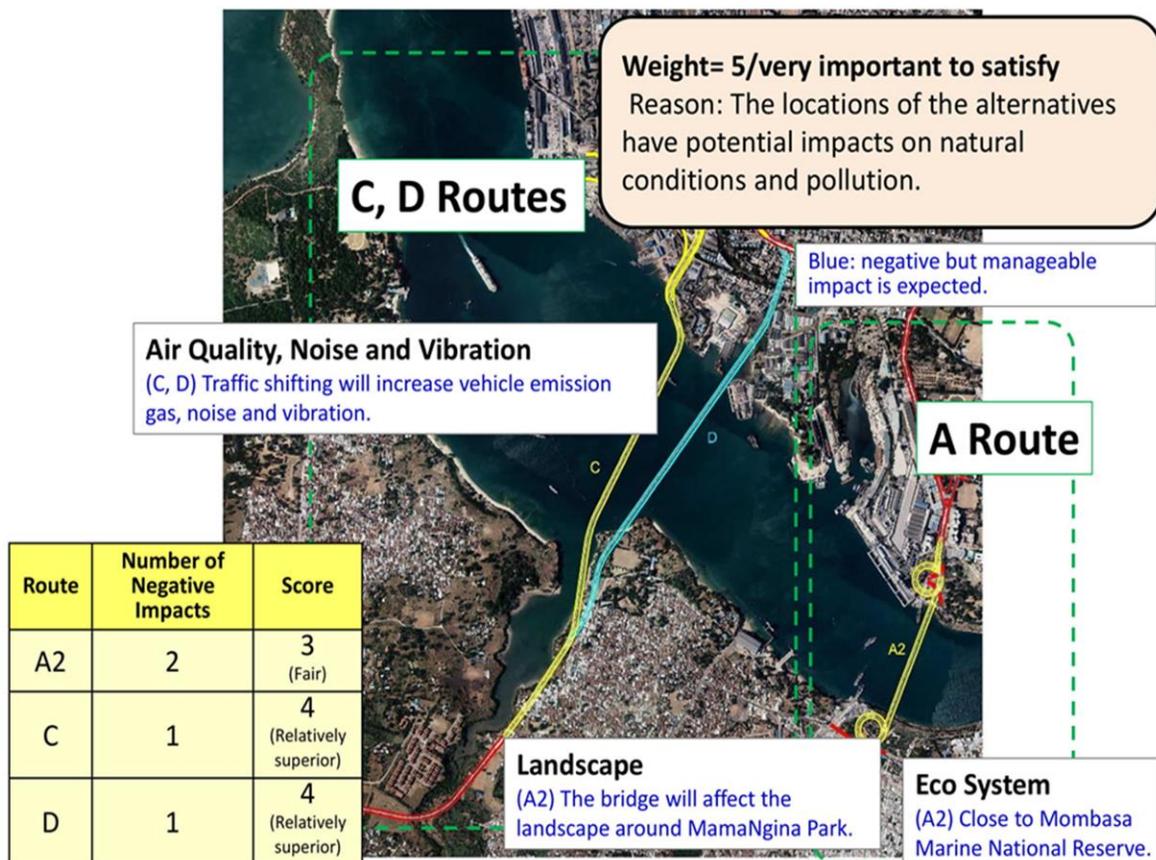
### **11.6 Bridge Operation and Maintenance Cost**

**Weight= 4** Reason: Operation and maintenance cost is **important** because the cost is necessary for a long time.

The bridge operation and maintenance cost entails cost for operation, routine inspection and repair and periodic rehabilitation of main bridge, approach viaducts and others.

| Route | Maintenance cost per 100 years | Score                   |
|-------|--------------------------------|-------------------------|
| A2    | Ksh 10 B. ~Ksh 15 B.           | <b>Score = 3 : Fair</b> |
| C     | Ksh 15 B. ~Ksh 20 B.           | <b>Score = 2 : Fair</b> |
| D     | Ksh 10 B. ~Ksh 15 B.           | <b>Score = 3 : Fair</b> |

## 11.7 Potential environmental and social impacts



## 11.8 Land use and ease of land acquisition

**Weight = 5/Very Important**, Reasons: Land use pattern is a critical factor influencing both route selection and overall realization of the project.

|                           | A2'                                                                                                                                                                                                  | Route C                                                                                                                                                           | Route D                                                                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buildings/facilities@ MBS | <ul style="list-style-type: none"> <li>- Ferry facilities</li> <li>- KES office area</li> <li>- Roundabout</li> <li>- Matatu Terminal</li> <li>- 250+ shops/vendors from Jetty to the end</li> </ul> | <ul style="list-style-type: none"> <li>- Port facilities,</li> <li>- Necessity to be in accordance with KPA's development plan</li> <li>- 6 warehouses</li> </ul> | <ul style="list-style-type: none"> <li>- Bare land with abandoned office building</li> <li>- 40+ food stall &amp; vendors</li> <li>- 5 apartments (3 stories, estimated No. of PAPs: 60+ prs</li> <li>- 1 Car dealer (on the grabbed land?)</li> </ul> |

|                                 |                                                                      |                                                                                                                    |                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Buildings/facilities @main land | - 500+ shops/vendors, some shop-house<br>- YWCA<br>- ACK Guest house | - 20+ houses (estimated No. of PAPs: 100+ prs.)<br>- 15 house foundations<br>- 10+ shops in case connecting to A14 | - 24 + houses (estimated No. of PAPs: 120+ prs.)<br>-18 house foundations<br>- 2 warehouses<br>- 10+ shops in case connecting to A14 |
| <b>Score</b>                    | <b>2</b>                                                             | <b>4</b>                                                                                                           | <b>3</b>                                                                                                                             |
| Est. Resettlement scope         | Large (Category A, Category B possible, if assistance provide PAPs)  | Relatively limited (Category B)                                                                                    | Relatively Large (Category B)                                                                                                        |

### **11.9 Buildings/facilities in target ROW and Scope of resettlement**

**Weight = 4/Important**

Reasons: Resettlement scope could be trade-off to more important evaluation field for attaining the desired function of the bridge

|                                 | <b>A2'</b>                                                                                                                 | <b>Route C</b>                                                                                                     | <b>Route D</b>                                                                                                                                                                 |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buildings/facilities@ MBS       | - Ferry facilities<br>- KES office area<br>- Roundabout<br>- Matatu Terminal<br>- 250+ shops/vendors from Jetty to the end | - Port facilities,<br>- Necessity to be in accordance with KPA's development plan<br>- 6 warehouses                | - Bare land with abandoned office building<br>- 40+ food stall & vendors<br>- 5 apartments (3 stories, estimated No. of PAPs: 60+ prs<br>- 1 Car dealer (on the grabbed land?) |
| Buildings/facilities @main land | - 500+ shops/vendors, some shop-house<br>- YWCA<br>- ACK Guest house                                                       | - 20+ houses (estimated No. of PAPs: 100+ prs.)<br>- 15 house foundations<br>- 10+ shops in case connecting to A14 | - 24 + houses (estimated No. of PAPs: 120+ prs.)<br>-18 house foundations<br>- 2 warehouses<br>- 10+ shops in case connecting to A14                                           |
| <b>Score</b>                    | <b>2</b>                                                                                                                   | <b>4</b>                                                                                                           | <b>3</b>                                                                                                                                                                       |
| Est. Resettlement scope         | Large (Category A, Category B possible, if                                                                                 | Relatively limited (Category B)                                                                                    | Relatively Large (Category B)                                                                                                                                                  |

|  |                             |  |  |
|--|-----------------------------|--|--|
|  | assistance provide<br>PAPs) |  |  |
|--|-----------------------------|--|--|

### 11.10 Aesthetic harmony for bridge and approach viaducts with surrounding landscape

**Weight= 3** Reason: Landscape of the Bridge and viaduct is comparatively **less important** since there are more important matters such as the Bridge function and cost.

The main bridge type is all cable-stayed type; hence appearance is generally all good. Differences are approach viaducts as described in the table:



|             |                                                                                     |                                         |
|-------------|-------------------------------------------------------------------------------------|-----------------------------------------|
| Route<br>A2 | Loop bridge having many piers (26 piers) is not good appearance                     | <b>Score=2</b><br>(Relatively inferior) |
| Route<br>C  | Very high viaducts (max. is 25m at Moi Ave x Mwakilingo St.) is not good appearance | <b>Score=2</b><br>(Relatively inferior) |
| Route<br>D  | Viaducts are lower and shorter than Route C.                                        | <b>Score=3</b><br>(Fair)                |

### 11.11 Disturbance on traffic flow during construction

**Weight= 3** Reason: Disturbance to the traffic due to the bridge construction is **important but manageable**.

The sections indicated in the figure would be partially closed or detoured and exposed to risk of accident during the construction.



|             |                                                                                              |                                         |
|-------------|----------------------------------------------------------------------------------------------|-----------------------------------------|
| Route<br>A2 | If Mombasa side ferry terminal is relocated during construction, disturbance is not serious. | <b>Score=3</b><br>(Fair)                |
| Route<br>C  | Disturbance to Moi Ave. is serious since its traffic volume is large.                        | <b>Score=2</b><br>(Relatively inferior) |
| Route<br>D  | Disturbance to Makarios and Lumumba Rd is not serious since traffic is not heavy.            | <b>Score=3</b><br>(Fair)                |

## **12. Summary of Route Comparison**

Route D was scored the highest total weighted scour.

| Evaluation Field                                      | W | Route A2 |    | Route C |    | Route D |    |
|-------------------------------------------------------|---|----------|----|---------|----|---------|----|
|                                                       |   | P        | WP | P       | WP | P       | WP |
| 1. Efficiency as commuting route for Likoni & Mtongwe | 5 | 4        | 20 | 3       | 15 | 3       | 15 |
| 2. Impact of the bridge in decongesting CBD           | 4 | 2        | 8  | 3       | 12 | 3       | 12 |
| 3. Provision of efficient freight transport route     | 4 | 3        | 12 | 4       | 16 | 4       | 16 |
| 4. Support Dongo Kundu SEZ                            | 4 | 3        | 12 | 4       | 16 | 4       | 16 |
| 5. Total Project cost                                 | 5 | 3        | 15 | 3       | 15 | 4       | 20 |
| 6. Bridge operation and maintenance cost              | 4 | 3        | 12 | 2       | 8  | 3       | 12 |
| 7. Environmental and social impacts                   | 5 | 3        | 15 | 4       | 20 | 4       | 20 |
| 8. Ease of land acquisition                           | 5 | 4        | 20 | 4       | 20 | 4       | 20 |
| 9. Buildings / facilities in target ROW               | 4 | 2        | 8  | 4       | 16 | 3       | 12 |
| 10. Aesthetic harmony with surrounding Landscape      | 3 | 2        | 6  | 2       | 6  | 3       | 9  |
| 11. Disturbance on traffic flow during construction   | 3 | 3        | 9  | 2       | 6  | 3       | 9  |
| Total weighted scour                                  |   | 137      |    | 150     |    | 161     |    |

Weight criteria: 5: Very urgent / Very important  
 4: Urgent / Important  
 3: Fair  
 2:  
 1: Inferior  
 x: Not adoptable route

Definition of score: 5: Superior  
 4: Relatively superior  
 3: Fair  
 2: Relatively inferior  
 1: Inferior  
 x : Not adoptable for

Bridge

## **13. Selection of the Project Bridge Route**

Route D is currently evaluated as the best option. Hence, subjected to acceptance by KDF, it is recommendable to adopt as the most favorable.

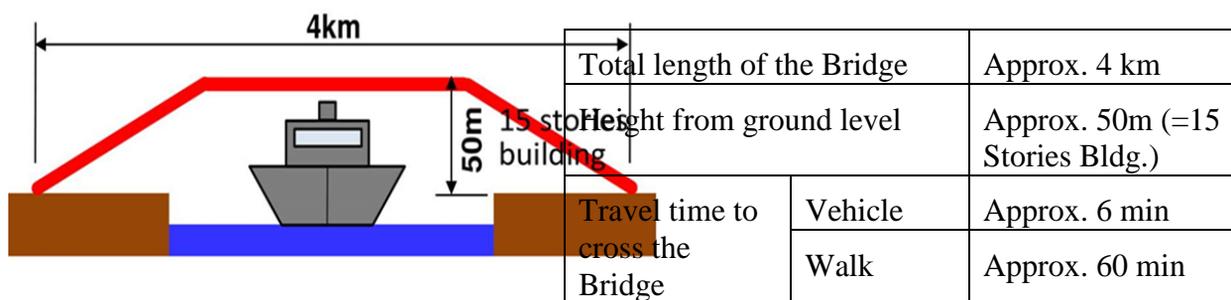
### **Other Advantages of Route D**

- (1) Vessels higher than 65m can enter into the port and dock in the Bamburi Wharf.
- (2) In case of collapse of a bridge span, Route A2 would block the port entrance totally, while Route D would block it partially.

(3) In case of accident or terrorism at Route A, the both Gate Bridge and Likoni Ferry might be malfunction. Route D however offers an alternative crossing means.

#### 14. Necessity to Retain Likoni Ferry Service

- Height of bridge is approx. 50m from ground level and total bridge length is approx. 4km. Therefore walk through the bridge is possible but not easy.
- Commuting means for children, elderly persons, physically challenged and hand cart need to be provided. □ Operation of Likoni Ferry should be retained.
- Passenger comfort will be increased by eliminating conflict between pedestrians and vehicles in the ferry.



#### 15. Harbor Crossing Means for Light Transport/NMT

|             | Route A (Loop Br.) | Route C (Straight Br.) | Likoni Ferry |
|-------------|--------------------|------------------------|--------------|
| Pedestrian  | Δ1)                | Δ1)                    | ◎2)          |
| Bicycle     | x3)                | x3)                    | ◎2)          |
| Motor cycle | x4)                | ○5)                    | ○5)          |
| Tuk-tuk     | ○5)                | ○5)                    | ○5)          |

Legend: ◎: Most convenient means

○: Possible means

Δ: Possible but difficult

x: Banned (unsafe)

Note: 1) Walk through the Bridge is too high (=15F) and too long (3~4km)

2) Ferry is convenient if operation is frequent and charge is free

3) Long steep slope (1.5km, 5%) is unsafe for bicycle

4) Continuous curb (2 loops) is unsafe for motor cycle

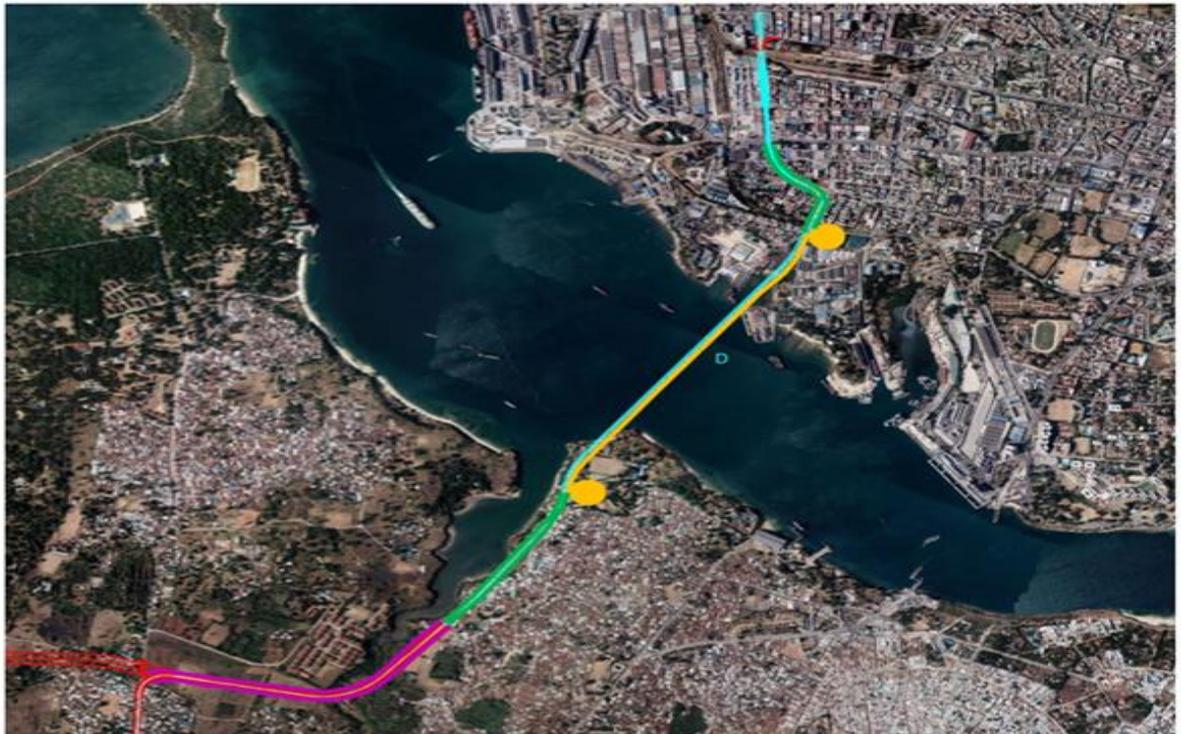
5) Motor cycle and Tuk-tuk can use bridge carriageway and shoulder

#### Discussions about the bridge footpath:

1. Is it necessary to provide footpath along the bridge?
2. Which is better walking along the long approach viaduct or using stairs?

3. Where is preferable location of the footpath entrances? (see next fig.)
4. How wide the footpath is? It depends on how many are to walk through.

**Proposal of Footpath Route in case of Route D**



- Stairs to climb up to the Bridge
- Footpath along road (ground level)
- Footpath under the bridge (ground level)
- Footpath along the bridge

**16. Toll for Bridge Maintenance and Likoni Ferry Operation Costs** Introducing bridge toll is recommended with the following reasons:

- Cost for the bridge maintenance is necessary.
- Cost to retain Likoni ferry service is necessary.
- Bridge toll for vehicles deemed acceptable.

Toll operation system (Organization, toll collecting system, toll facilities, etc.) will be studied and proposed in Phase 2 of the Preparatory Survey.



## **7. Miscellaneous Facilities to be furnished in the Project**

Following facilities are under consideration to be furnished:

- Bridge operation and maintenance staff office
- Light up system
- CCTV
- Main pier protectors against collision with vessels
- Toll gate and toll system

The followings facilities are proposed to be excluded from the Project

- View deck (due to security of the Navy base)
- Lift (continuous maintenance and operators are needed)

## **18. Questions and clarifications:**

(Answers/clarifications are requested by April 27)

Navy

- ① Confirmation of acceptance of Route C and D

KPA

- ① Confirmation of acceptance of the proposed Bridge route and basic conditions of the Bridge plan

KeNHA

- ① Geometric standards and typical cross sections for the Project
- ② ROW is **60m** for bridge approach road (ground level). Land acquisition for Viaduct section is proposed structure width **plus 2m** for each side

## 19. Updated Survey Schedule

| Survey Activity Item                                | Mar |     | Apr |     |     | May |     | June |     |      | July |     |
|-----------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|------|------|-----|
|                                                     | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th  | 9th | 10th | 11th | 5th |
| <b>Coordination Meeting</b>                         |     |     |     |     |     |     |     |      |     |      |      |     |
| <b>1. Traffic Planning</b>                          |     |     |     |     |     |     |     |      |     |      |      |     |
| Confirmation of the Project Objectives              | ✓   |     |     |     |     |     |     |      |     |      |      |     |
| Confirmation of Necessary Function of the Bridge    |     | ✓   |     |     |     |     |     |      |     |      |      |     |
| Traffic Survey                                      |     |     | ✓   |     |     |     |     |      |     |      |      |     |
| Traffic Demand Forecast for Alternative Routes      |     |     | ✓   | ✓   | ✓   | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| Necessity of Connected Road Improvement             |     | ✓   | ✓   |     |     |     |     |      |     |      |      |     |
| <b>2. Road Design</b>                               |     |     |     |     |     |     |     |      |     |      |      |     |
| Geometric Standards                                 | ✓   |     |     |     |     |     |     |      |     |      |      |     |
| Typical Cross Section                               | ✓   |     |     |     |     |     |     |      |     |      |      |     |
| Alignments Bridge Routes                            | ✓   | ✓   | ✓   |     |     |     |     |      |     |      |      |     |
| Alternative Approach Road Layouts                   |     | ✓   | ✓   |     |     |     |     |      |     |      |      |     |
| Utility Location Survey                             |     |     |     |     |     |     |     |      |     |      |      |     |
| Basic Design of Road, Drainage, Pavement and others |     |     | ✓   | ✓   | ✓   | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| <b>3. Natural Condition Survey</b>                  |     |     |     |     |     |     |     |      |     |      |      |     |
| Topographic Survey                                  |     |     |     |     |     |     |     |      |     |      |      |     |
| Geological Survey                                   |     |     |     |     |     |     |     |      |     |      |      |     |
| Natural data collection                             |     |     |     |     |     |     |     |      |     |      |      |     |
| <b>4. Bridge Design</b>                             |     |     |     |     |     |     |     |      |     |      |      |     |
| Bridge Design Criteria                              |     | ✓   |     |     | ✓   |     |     |      |     |      |      |     |
| Alternative Bridge Structures Layout                |     |     |     | ✓   |     |     |     |      |     |      |      |     |
| Basic Design of Main Bridge                         |     |     |     |     |     | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| Basic Design of Approach Viaducts                   |     |     |     |     |     | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| <b>5. Construction Planning and Cost Estimate</b>   |     |     |     |     |     |     |     |      |     |      |      |     |
| Basic Cost Survey                                   |     |     |     |     |     |     |     |      |     |      |      |     |
| Cost Estimation                                     |     |     |     | ✓   | ✓   | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| Construction Planning                               |     |     |     |     |     | ✓   | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| <b>6. Environmental &amp; Social Considerations</b> |     |     |     |     |     |     |     |      |     |      |      |     |
| Preparation of Environmental Matrix                 |     |     | ✓   | ✓   |     |     |     |      |     |      |      |     |
| Confirmation of Land Use in the Affected Area       |     |     | ✓   | ✓   |     |     |     |      |     |      |      | ✓   |
| Identification of Structures could be Affected      |     |     | ✓   | ✓   |     |     |     |      |     |      |      | ✓   |
| EIA to be undertaken by local consultant            |     |     |     |     |     |     | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |
| RAP to be undertaken by local consultant            |     |     |     |     |     |     | ✓   | ✓    | ✓   | ✓    | ✓    | ✓   |

✓ : Presentation and discussion      
  : Survey in Kenya  
 : Survey in Japan  
 : Survey undertaken by local consultant

## 20. Others

- (1) Survey Team will leave from Mombasa on May 7, 2016
- (2) Explanation of Progress Report (survey results of the first filed survey) and discussions will be May 4 9:30 am?
- (3) Explanation of Interim Report (basic design of project components, project cost estimate, economic & financial analysis) and discussions will be the end of July 2016
- (4) Matters to follow up (who, when, how)



**Thank you**

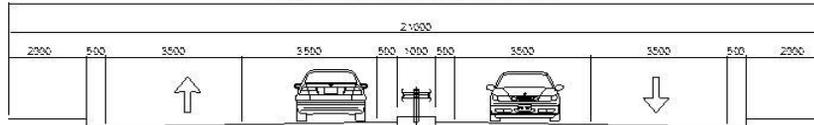
## Proposed Geometric Standards & Typical Cross Sections

|                   |          | Japan        | MoLG            | MoR          | Adopted Reason |                       |
|-------------------|----------|--------------|-----------------|--------------|----------------|-----------------------|
| Road Class        |          | 4-1          | National Trunk  | DU2 TypeII   |                |                       |
| Design Speed      |          | 60 km/h      | 80 km/h         | 50km/h       | 50km/h* MoR    |                       |
| Lane Width        |          | 3.25m        | 3.50m           | 3.65m        | 3.5m           | Southern Bypass       |
| Min. Median Width |          | 1.0m         | 1.5m            | -            | 1.0m           | Southern Bypass       |
| Min. Width        | Shoulder | 0.5m(0.25m*) | 0.6m            | -            | 0.5m           | Southern Bypass       |
| Desirable Width   | Shoulder | 1.25m        | 1.5 – 2.0m      | 1.5m (Br.)   | 1.5m           | MoR                   |
| Min. Median Width |          | 1.0m         | 1.5m            | -            | 1.0m           | Southern Bypass       |
| Max Gradients     |          | 6.0% (8.0%*) | 4.0%<br>(5.0%*) | 9.0%(11.0%*) | 5.0%           | Speed reduction of HV |
| Min. Curve Radii  |          | 100m         | 90m             | 85m          | 85m            | MoR                   |

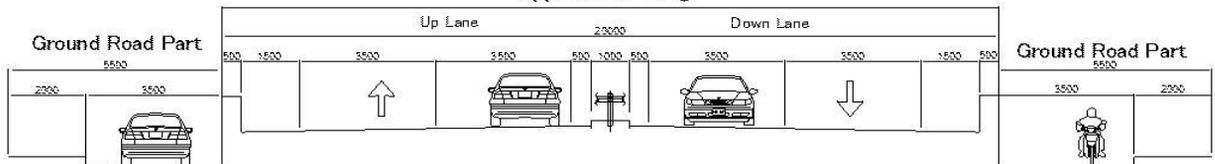
Note: \* Design speed of loop bridge is 40km/h.

## Typical Cross Sections

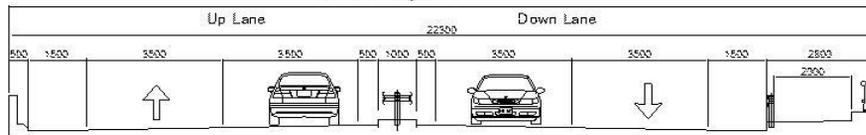
Normal Section on the Ground



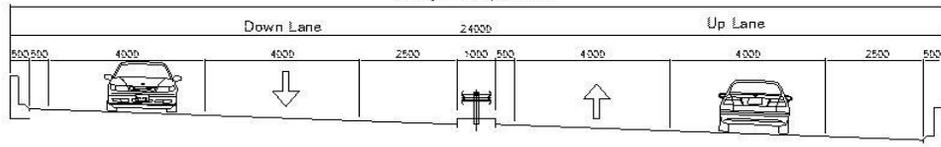
Approach of Bridge



Main Bridge Part



Loop Bridge Part



**Updated Route A2)**

**(Construction of a temporary ferry terminal at the other side of Mama Ngina Park during the construction was proposed)**

