REPUBLIC OF KENYA

MINISTRY OF WATER & IRRIGATION

COAST WATER SERVICES BOARD (CWSB)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROJECT REPORT

FOR

BARICHO IMMEDIATE WORKS-LOT 3: KAKUYUNI/GONGONI & KAKUYUNI/KILIFI INTERCONNECTION PIPELINES

Works carried out under

Contract No.: CWSB/WaSSIP-AF/C/25/2013

Report Prepared by:

Zamconsult Consulting Engineers

JUNE 2017

ESIA EXECUTIVE SUMMARY

Background

The Coast Water Services Board (CWSB) is a Parastatal (Government Owned and Autonomous) created under Water Act, 2002 and established through a Gazette Notice No. 1328 of 27 February 2004.

CWSB (or the Board) is the agency charged with the responsibility for the effective and efficient provision of water and sanitation services within the Coast Province. The Board undertakes this by contracting Water Service Providers.

CWSB as part of its mandate intends to improve bulk water supply to Kilifi and Gongoni Areas in Kilifi Sub-County and Magarini Sub-County respectively, by laying of a 56Km 500mm diameter pipeline from the tank at Kakuyuni to the Water Tanks at Kilifi, and the laying of a 36.36Km 400mm diameter pipeline from the tank at Kakuyuni to a proposed tank at Gongoni Market. The pipelines are shown in the figure below

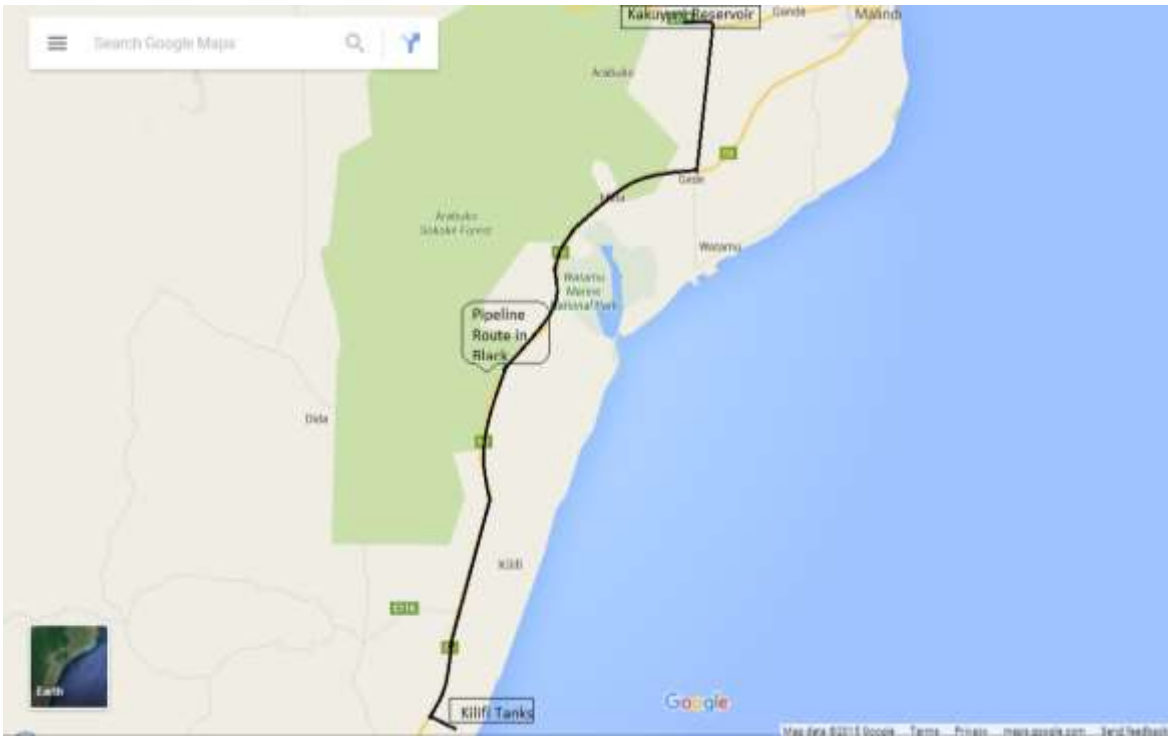

Figure: Kakuyuni Kilifi Pipeline route and Project Area Map (Google Maps Image)

Both pipelines start at the Kakuyuni Tank at GPS co-ordinates (UTM 37) 609456E, 9644547S, with the Gongoni pipeline ending at GPS co-rdinates (UTM 37) 626040E and 9664389S, and the Kilifi pipeline ending at GPS co-ordinates (UTM37) 595086E and 9598949S.

The project areas in particular Gongoni has been experiencing severe water shortages. Kilifi currently receives water from the Baricho Mombasa pipeline, however the new pipeline is dedicated to Kilifi with offtakes for the centres along the pipeline. Both pipelines will go a long way in alleviating water shortages along the pipeline routes.

Zamconsult Consulting Engineers has been contracted to undertake the ESIA and RAP for the proposed pipelines as part of the WaSSIP AF projects with funding from the World Bank.

Study Methods

The study approach and methodology adopted included screening and scoping to determine the extent of the project and desktop data search and analysis for the baseline bio-physical and social environmental parameters of the project area. In addition, the consultant worked with the project design group and was briefed and obtained design approaches to be used which informed the requirements of the environmental reporting process and for which excerpts have been obtained on salient design information. The Consultant engaged on multi-faceted public consultation process which included ad hoc roadside interviews, household social and environmental surveys using structured questionnaires duly analysed and key informant interviews to institutions and lead agencies. Based on these findings and expert judgement, the consultant has compiled the projected social and environmental impacts (positive and negative) likely to emanate from proposed project activities and also the Environmental and Social Monitoring and Management Plan (ESMMP) which details how adverse impacts will be reduced or eliminated and by whom.

Legislative Framework for this Study

The principal National legislation governing issues of environmental concern in Kenya is the Environmental Management & Coordination Amended Act (2015) typically referred to as EMCA. EMCA calls for Environmental Impact assessment (EIA) (under Section 58) to guide the implementation of environmentally sound decisions and empowers stakeholders to participate in sustainable management of the natural resources. Projects likely to cause environmental impacts require that an environmental impact assessment study to be carried out. It is under this provision that the current study has been undertaken.

Other legislation adhered to during this study are the regulations borne of EMCA namely the Environmental Impact Assessment and Audit Regulations 2003; The Environmental Management Act, Coordination (Waste Management) Regulations 2006; the Environmental Management Coordination (Water Quality) Regulations 2006; and the Environmental Management and Coordination (Noise and Excessive vibration pollution Control) Regulations2009 (Legal Notice 61), Air quality Regulations 2009 among others.

Sectoral legislation applicable to this Project include The Lands Act (2012), the National Land Commission (2012), the Wildlife Act Cap 376, The Public Health Act (CAP. 242), the forest act (2016) and the Physical Planning Act (Cap 286) among others.

In addition to the local legislation, the Consultant identified the various World Bank operational policies relevant to the project. These are highlighted in Chapter 4 of this report.

Expected impacts

The expected impacts emanate from the Planning phase, the Construction Phase, The Operation phase and the De-commissioning Phase of the project.

In general, successful implementation of the project will have high socioeconomic benefits to the people and will contribute to their health and well-being. Overall, negative expected impacts are related to the pipelines and associated infrastructure installation such as valve chambers, washouts and water storage tanks and replacement and expansion construction works and operations. These impacts are localized and not considered significant and long-lasting and can be mitigated through appropriate mitigation measures. The severity and duration of these impacts can be minimized by ensuring that the excavation and construction works are limited to short working sections, and that works are carried out rapidly and efficiently.

A significant Planning Phase impact is the land-take for construction. This is adverse, long-term and irreversible. The pipeline will be confined to a 4m reserve. Existing road reserves will be utilised as much as possible. A detailed Resettlement Action Plan has been prepared and approved for implementation by the client.

Significant Construction Phase impacts are generally significant in magnitude and socially and environmentally adverse but are also reversible, short-term and largely manageable. Construction camp impacts include generation and inappropriate disposal of solid and liquid wastes, haphazard exploitation of natural resources in the surrounding areas e.g. trees for firewood, increased spread of Sexually Transmitted Diseases (STD) and HIV/AIDs and change of cultural norms from migrant workers. Construction work impacts include noise, dust, disruption of services like water supply, electricity supply and disruption of storm water facilities, loss of flora and fauna. Other detrimental construction phase impacts derive from extraction of materials in borrow and quarry sites and their subsequent haulage and stockpiling. Positive construction phase impacts include economic boost from injected construction money which is spent in the local environment for purchasing food and other supplies, rental accommodation and local travel. Also, there will be opportunity for skills transfer and skills acquisition.

Operation phase impacts will largely be positive benefits accruing from operation of improved water supply and sanitation. These include less water-borne disease, reduced water costs and therefore reduced cost of living, improved access to water, improved comfort and regional prosperity. There will be overall improved quality of life due to multiplier benefits of improved service delivery. However, significant adverse impacts from operations include solid waste disposal from the facilities, increased risk of HIV/AIDS and STD infections since a development of an area inevitably comes with vices from migrant community.

De-commissioning of the Project is not envisaged. Project components however will be rehabilitated over time having served their useful life.

Environmental & Social Mitigation and management Plan (ESMMP)

This was prepared to reduce, minimize or altogether eliminate the adverse impacts. Positive impacts are project enhancements and do not require mitigation.

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
Land acquisition for laying of pipeline	The pipelines will be laid within the existing road reserves thus there will be no need for land acquisition. However there will be land acquisition for the Gongoni tank.	Design/preparation	CWSB
Loss of structures	Implementation of the RAP	Design/preparation	CWSB
Loss of livelihoods	Implementation of the RAP	Design/preparation	CWSB
Traffic Congestion	Road Signs and Notices of on-going works; Plan itineraries for site traffic on a daily basis; The Contractor should effect traffic controls and cleanliness;	Construction	Contractor Supervising Engineer

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	Control of onsite traffic the Contractor has to ensure that they		
Site Related Oil Spills	Prepare and implement the company procedures for dealing with spills and leaks. In case of spillage the Contractor should isolate the source of oil spill and contain the spillage to the source of leakage Ensure that there is always a supply of absorbent material for spillages; All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications The Contractor should assemble and clearly list the relevant emergency telephone contact numbers for staff, and brief staff on the required procedures.	Construction	Contractor Supervising Engineer
Soil Related Impacts	The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna would be excavated separately and piled in an adequate manner for re-use. temporary drainage channels or holding ponds can be employed. After completion of the construction works, immediate restoration spreading piled top soil and by sowing adequate grass cover and planting of trees. Plan emergency response measures in case of accidental oil spills.	Construction	Contractor Supervising Engineer
Impact on water resources	Ensure proper solid and liquid wastes disposal mainly from the contractor's camps, sites and offices. Ensure proper measures are in place for collection and disposal of spilled oils and lubricants.	Construction	Contractor, Supervising Engineer Local WSP Sub-County Water Officer
Socio – Economic Impacts	Unskilled construction and skilled (if available) labor to be hired from the local population.	Construction	Contractor, Supervising Engineer

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	Use of manual labor during trenching works where possible. Sensitize workers and the surrounding community on awareness, prevention and management of HIV/AIDS. Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members Enforce and maintain a code of conduct for his employees		Local Chiefs
Air pollution	Vehicles and other equipment emissions would be kept to a minimum by servicing and maintaining the equipment to manufacturer's specification. The Contractor should also make use of the readily available labour.	Construction	Contractor Supervising Engineer
Noise and Dust	Avoid night time construction with loud machinery when noise is loudest. No discretionary use of noisy machinery within 50 m of residential areas and near institutions such as schools Good maintenance and proper operation of construction machinery. Where possible, ensure non mechanized construction to reduce the use of machinery	Construction	Contractor Supervising Engineer CWSB
Loss of flora and fauna	Re-plant the indigenous vegetation as much as practical once work is completed. Spare the vegetation that must not necessarily be removed such as trees. Minimize the amount of destruction caused by machinery by promoting non-mechanized methods of construction. The Contractor should ensure that the employees on site are aware of the company procedures. Provision of dustbin and sanitation facilities within the Contractor's camp.	Construction	Contractor Supervisor – project Engineer to consult KFS on appropriate replanting seedlings Sub-County Environmental officer

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
Public Health and Safety	Ensure that all construction machines and equipment are in good working conditions and to manufacturer's specifications. Establish a Health and Safety Plan (HASP). Appoint a trained health and safety team. Provide workers with appropriate personal protective equipment (PPE). Provide workers with adequate drinking water and breaks. Provide workers training on safety procedures and emergency. Water spray murram and earth roads. Work to minimize or altogether eliminate mosquito breeding sites. Provide appropriate human and solid waste disposal facilities Cordon off the trenches being worked on. Provide crossing points within trenches Provide clean toilets for workers.	Construction	Contractor Supervising Engineer CWSB
HIV and AIDS impacts	Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS. Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members	Construction	Contractor Local Administration Public Health Officer
Service Delivery Impacts	Provide appropriate signage. The contractor should communicate any intended disruption of the services to enable the people to prepare. Areas being trenched to be temporarily cordoned off. In the event that delivery trucks damage parts of the road, repair the spots in consultation with the local authorities.	Construction	The Contractor

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
Gender empowerment impacts	Ensure equitable distribution of employment opportunities between men and women Provide toilets and bathrooms.	Construction	The contractor The Supervising Engineer CWSB
Cultural Heritage	Use of "chance find" procedures by the contractor.	Construction	The Contractor County Government
Child Labour and Protection	Ensure no children are employed on site in accordance with the law Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police	Construction	Contractor Supervising Engineer Local Administration
Gender Equity, Sexual Harassment	The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy. The contractor should prepare and implement a gender action plan,	Construction	Contractor Supervising Engineer Local Administration
Liability for loss of life, injury or damage to private property	Provision of PPE. The workers should receive requisite training. There should be adequate warning and directional signs. Ensuring that the prepared code of conduct for staff. Develop a site safety action plan. Cordon off unsafe areas Provide first Aid kit within the construction site. Recording of all injuries that occur on site. Contractor to ensure compliance with the Workmen's Compensation Act. The Contractor to repair any damage done to private property.	Construction	Contractor Supervising Engineer
Generation of solid and liquid waste	Provide adequate waste disposal facilities.	Operation and Maintenance	Local WSP

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	Put in place adequate and efficient sanitary facilities. Come up with regular trash collection system. In the long term the respective WSPs should invest in a waste water collection and treatment system for Kilifi.		
Impact on Water Resources	Wastewater will be channeled to the sewerage system if available or constructed septic tanks. Pit latrines can be used where sewerage system is not available or where construction of septic tank is not feasible. All solid waste will be collected from generation points, safely transported to the central place where it is sorted out by type and then safely disposed according to type.	Operation and Maintenance	Local WSP
Socio-Economic Impacts	A tariff system will have to be looked into by making use of WASREB's tariff policy for providing sustainable and affordable water supply.	Operation and Maintenance	Local WSP
Decommissioning of Contractor's Site	After Consultation with the local administration and Client, identify the best use for the Contractor's Camp	De-Commissioning	Contractor CWSB Local Administration

Conclusion

The ESIA concludes that the project has a potential to improve both the social and economic aspects of the areas being affected. It will primarily bring about better distribution of water within the areas being served, which will be in line with the sustainable development goals of ensuring clean water and sanitation for all. It will also bring about employment during project implementation and supply sufficient potable water to meet projected future demands of domestic and other uses in the project area. In summary although the adverse impacts are present, the positive aspects outweighs them.

The adverse impacts on the physical and natural environment will be "in sum total," not significant, and can be handled through the recommended mitigation measures at a cost of K.Shs. 29,900,000.00. Compensation for demolition of structures and livelihood will be done through a detailed Resettlement Action Plan.

Table of Contents

List of Tables

List of Figures

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
CBO	Community Based Organization
EMCA	Environment Management Coordination ACT
RAP	Resettlement Action Plan
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
GoK	Government of Kenya
HIV	Human Immunodeficiency Virus
ID No.	Identity Card Number
KAPP	Kenya Agricultural Productivity
K.Shs.	Kenya Shillings
KFS	Kenya Forestry Service
KWS	Kenya Wildlife Service
MDG	Millennium Development Goals
CWSB	Coast Water Services Board
MWI	Ministry of Water and Irrigation
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NMK	National Museums of Kenya
NPEP	National Poverty Eradication Plan
O&M	Operation and Maintenance
PEC	Poverty Eradication Commission
WSB	Water Services Board
WSP	Water Services Provider
WSS	Water Supply and Sanitation Services
m^3	cubic metres
RC	RAP Committee
GRC	Grievance Redress Committee
DN	Nominal Diameter
DI	Ductile Iron
STP	Standard Temperature and Pressure

1 INTRODUCTION

The Coast Water Services Board (CWSB) is a Parastatal (Government Owned and Autonomous) created under Water Act, 2002 and established through a Gazette Notice No. 1328 of 27 February 2004.

CWSB (or the Board) is the agency charged with the responsibility for the effective and efficient provision of water and sanitation services within the Coast Province. The Board undertakes this by contracting Water Service Providers.

Seven Water Services Providers (WSPs) whose areas of jurisdiction correspond with the seven initial districts of Coast Province, namely, Mombasa, Malindi, Kilifi, Kwale, Taita and Taveta, Lamu and Tana River have been appointed by the Board to provide water and sanitation services in their respective jurisdictions. The WSPs are Mombasa Water and Sanitation Company (MOWASCO), Malindi Water and Sanitation Company (MAWASCO), Kilifi Water and Sanitation Company (KIMAWASCO), Kwale Water and Sanitation Company (KWAWASCO), Taita and Taveta Water and Sanitation Company (TAVEVO), Lamu Water and Sanitation Company (LAWASCO) and Tana River respectively.

Unlike in other parts of the country, CWSB is also the water undertaker for the Coastal Bulk Water Supply System. Additionally, the Board is the asset holder of all public water and sanitation facilities within its area of jurisdiction.

CWSB as part of its mandate intends to improve bulk water supply to Kilifi and Gongoni Areas in Kilifi Sub-County and Magarini Sub-County respectively. Both areas experience water shortage with Gongoni experiencing slightly more than Kilifi. Kilifi obtains its water from an offtake from the main Baricho Mombasa Pipeline as such experiences water fluctuations based on the demand of Mombasa. Gongoni and its environs is not served with a water pipeline, with locals making use of water from shallow wells and water bowsers. The quality of water in most cases is not adequate which leads to illnesses in the area. The proposed pipelines will provide residents of Kilifi, Gongoni and centres along the pipelines with dedicated clean water, which will go a long way in improving the quality of life of the residents.

Both water supplies will source their water from the Kakuyuni Tank in Kilifi County. The Kakuyuni – Kilifi Pipeline will pass along the C103 road, turn into the E899 road from Kakuyuni to Gede and then join the B8 Mombasa – Malindi – Garsen Road and until it reaches Kilifi, the project intends to supply Kilifi and surrounding areas with dedicated water, since Kilifi currently relies on an off take of the Mombasa Pipeline. The Kakuyuni – Gongoni Pipeline will move along the C103 road, but will not turn at Gongoni, it will instead turn into E895 at Ganda Market and then join the B8 highway until it reaches Gongoni centre, where there will be a tank. All pipelines will be located within the road reserves of the respective roads. Further details about the project will be located in the following chapters.

Zamconsult Consulting Engineers has been contracted to undertake the ESIA and RAP for the proposed pipelines as part of the WaSSIP projects with funding from the World Bank.

1.1 OBJECTIVES OF THE ASSIGNMENT

Objectives of the EIA carried out by Zamconsult Consulting engineers were;

- To fulfil the legal requirements as outlined in section 58 to 69 of the Act and Regulation 7 of the EIA Regulations.

- To obtain background biophysical information of the site, legal and regulatory issues associated with the project;
- To assess and predict the potential Impacts during site preparation, construction and operational phases of the project;
- To propose mitigation measures for the potential significant adverse environmental impacts and safety risks;
- To assess the legal and regulatory framework governing the project;
- To allow for public participation;
- To lower project cost in the long term;
- To prepare an Environmental and Social Management and Mitigation Plan
- To prepare an environmental and social monitoring plan; and
- To compile an EIA Project Report for submission to NEMA.

1.2 METHODOLOGY OF WORK

The ESIA was carried out in a manner considered to be commensurate with the scale, technicality and sensitivity of the project. The chief stages in the process included proposal definition, screening, scoping, key informant & household consultations, impact assessment, mitigation, review, decision making and monitoring. To maintain high standards for this ESIA, recommendations have been inculcated into the project development process. This is meant to serve as a stepping-stone to consent from environmental regulators and financial backers and a management tool for use during project planning and execution. It will also help evade unnecessary impacts, delays and unanticipated costs.

By use of a holistic approach, the consultant obtained the necessary baseline data and information on the key aspects of the ESIA study. The following two major data collection and analysis processes were applied to carry out the ESIA.

1.2.1 Desktop Studies

This mainly involved;

- Checklist that consists of a simple catalogue of environmental factors which are compared to the activities to be developed.
- Early meetings with the Client to deliberate on the proposed project, keeping in mind the various sites and activity options under consideration;
- Assembly and review of baseline data, maps, reports and any relevant information on the existing environmental and social conditions of the Project Area influenced by the proposed development;
- Review of existing Legislation, Regulation and Policies relevant to the proposed Project;
- Review of proposed Project Engineering Designs, previously carried out ESIA reports and Construction Inputs, including anticipated technical processes if any.

1.2.2 Field Investigations

Activities implemented during field investigations involved;

- Site visits to the Project Area and the neighbouring areas within the zone of influence of the project.

- Photographing the significant aspects to aid in describing baseline environmental and social conditions of the Project area and its influence zone.
- Acquisition of relevant documents from the authority such as Local government, licensing board which is within the Project influence zone.

The main purpose of the field investigation was to verify information and data collected during the desktop study and earlier field investigation and collection of any new information that may assist in the assessment of impacts and design mitigation measures.

2 PROPOSED PROJECT DESCRIPTION

2.1 LOCATION

The project pipelines are located in Kilifi County. The proposed pipelines are shown in the map below:

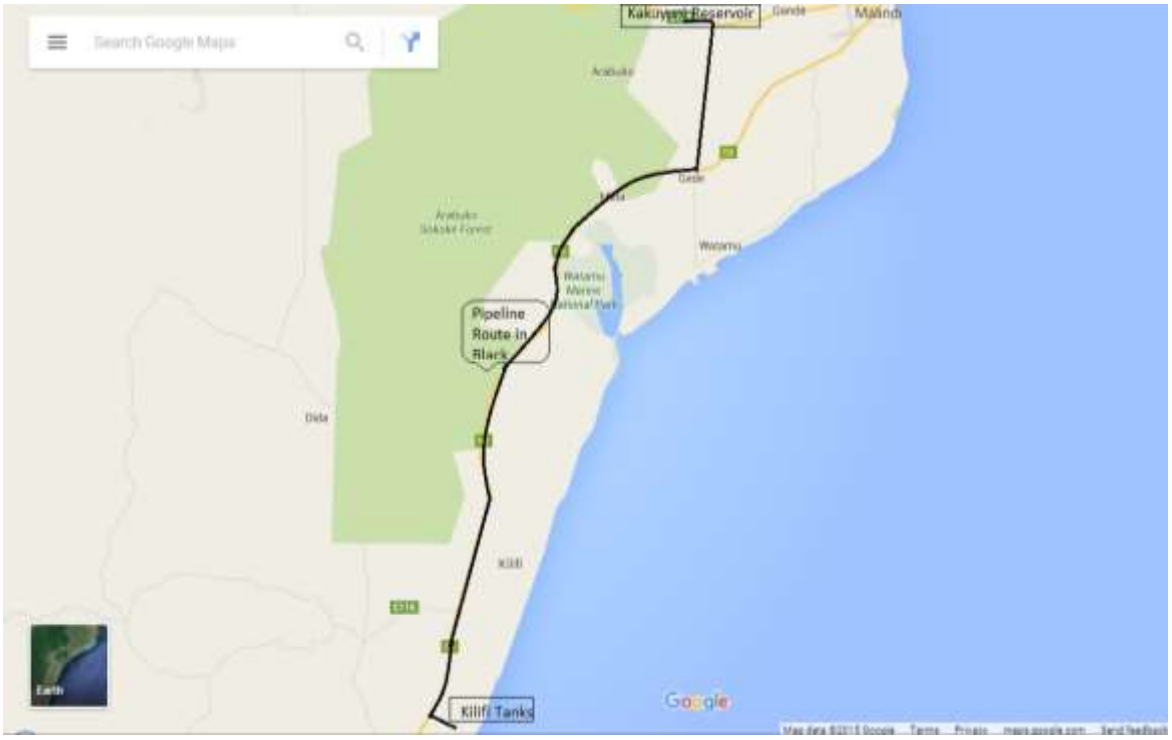

Figure 2-1: Kakuyuni Kilifi Pipeline route and Project Area Map (Google Maps Image)

Both pipelines start at the Kakuyuni Tank at GPS co-ordinates (UTM 37) 609456E, 9644547S, with the Gongoni pipeline ending at GPS co-rdinates (UTM 37) 626040E and 9664389S, and the Kilifi pipeline ending at GPS co-ordinates (UTM37) 595086E and 9598949S. This tank sources its water from the Baricho well field and water works as shown in the map below:

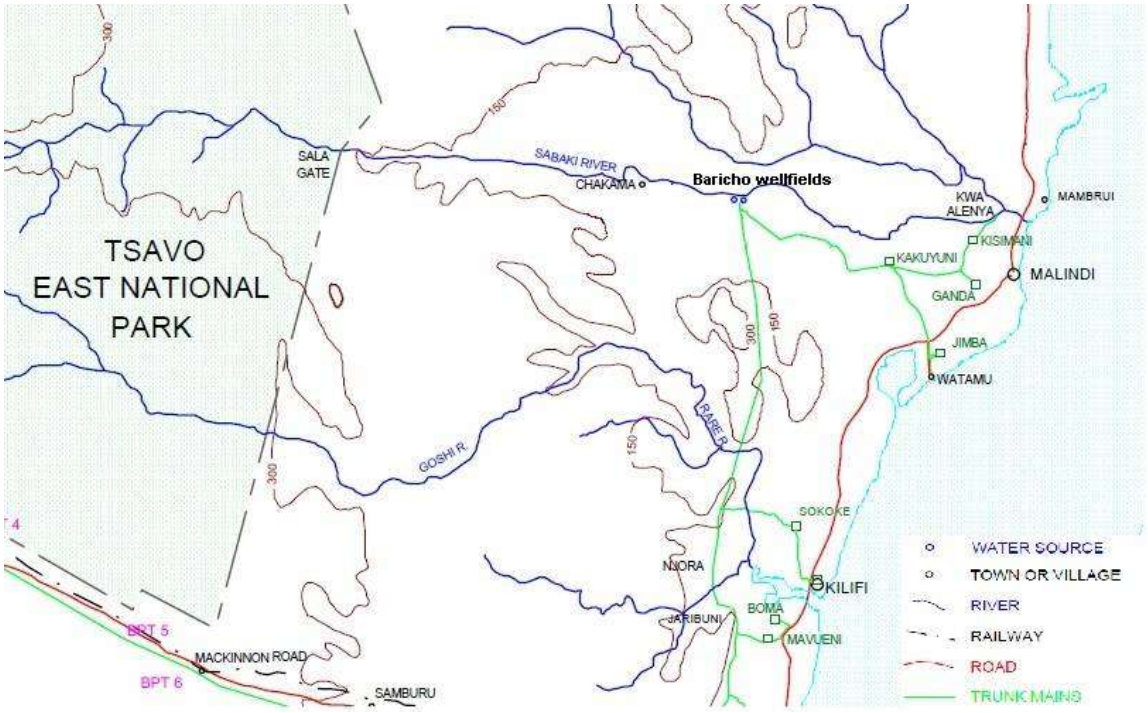

Figure 2-2: Map of Baricho wellfield and water works in Relation to the Kakuyuni Tank

The Kakuyuni – Kilifi Pipeline will pass along the C103 road, turn into the E899 road from Kakuyuni to Gede and then join the B8 Mombasa – Malindi – Garsen Road and until it reaches Kilifi. The B8 highway passes along the edge of Arabuko Sokoke Forest which is to the left of the highway if heading from Mombasa to Malindi, at around Mida, the Right Hand side of the road has the Mida Creek Mangrove forest which is shown on the map above. The pipeline will not affect either of the forests as it will pass within the road reserve. Both forests including the Mida creek form Biosphere Reserve identified by the United Nations Educational, Scientific and Cultural Organization (UNESCO), a cultural site.

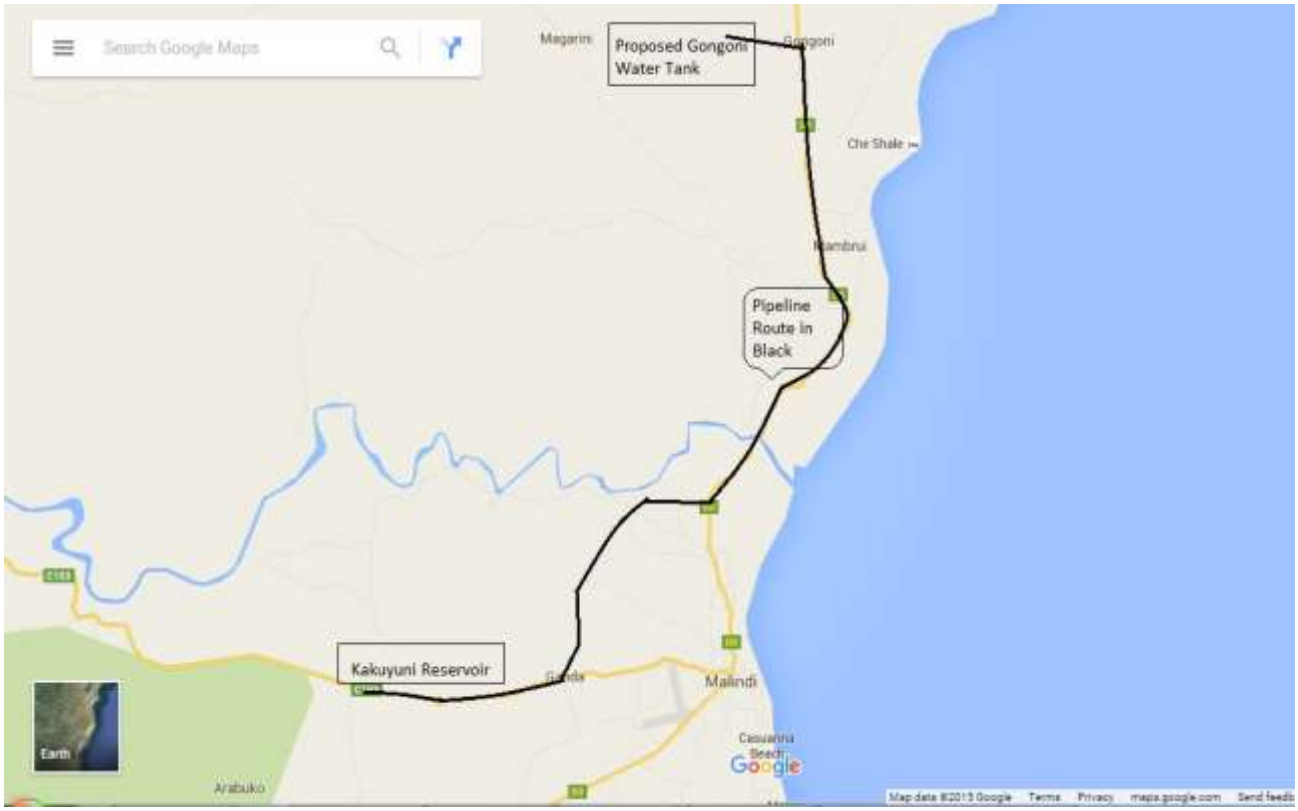

Figure 2-3: Kakuyuni - Gongoni Pipeline Route and Project Area Map

The Kakuyuni – Gongoni Pipeline will move along the C103 road, but will not turn at Gongoni, it will instead turn into E895 at Ganda Market and then join the B8 highway until it reaches Gongoni centre, where there will be a tank. The pipeline will be located within the road reserves of the respective roads.

2.2 THE BACKGROUND OF PROPOSED PROJECT

Kilifi Town is currently supplied by a 250 mm branch pipeline which starts at the Sokoke tank and by a 150 mm line which origins in Bomani. The Sokoke tank is fed by a 250 mm branch of the Sabaki pipeline. The Sabaki pipeline supplies Nguu Tatu Tank with water from the Baricho Wellfield, thus the water to kilifi offtakes from the pipeline. The proposed pipeline intends to offtake water from the Kakuyuni Tank and provide dedicated water supply to Kilifi Town and its environs. This will improve the water supply in the area. The Board also intends to build a new 5000m^3 tank alongside the existing 1550m^3tank at Birikani in Kilifi Town which will be rehabilitated.

Gongoni on the other hand is not connected to the Baricho water supply as such the population in the area is in great need of water. The Board will also construct a 2500m^3 tank in Gongoni.

The source of water for the county is the Baricho wellfields located in Lango Baya Location which is currently under the jurisdiction of CWSB. The wellfields are also one of the water sources for Mombasa.

2.3 OBJECTIVES OF THE PROJECT

The objectives of the project are to provide the residents of Kilifi and Gongoni and the surrounding areas with water to an ultimate year of 2035.

2.4 DESIGN COMPONENTS

2.4.1 Sources of water into the Kakuyuni Tank

The existing Kakuyuni tank sources its water from the Baricho well field and water works located about 30Km from the Kakuyuni tank. The Baricho water works currently produces about 90,000 m³/day and supplies Mombasa (60,000m^3/day), Malindi, Watamu, Kilifi and the surrounding areas (the other 30,000m^3/day) with water. In addition works are on-going to increase the number of wells in the wellfield from eight to eleven with the addition of 3 new wells. An ESIA for those works is presented under a separate report. The new wells will augment the production by an additional 22,000 m³/day to meet the increased demand of providing water to Gongoni and additional areas in Kilifi. This water will be adequate to meet the needs of the existing areas as well as the proposed new additions served. In addition Mombasa is in the process of establishing additional sources of water which may reduce is demand on the Baricho water works. The water from the wellfield undergoes treatment at the Baricho water works, the water quality from the wellfield is summarised in the table below:

Table 2-1: Water quality of upper and lower well fields**

Parameter	Unit	Upper Wellfield	Lower Wellfield	Guide Value
pH		7.52	7.7	6.5 – 8.5
Conductivity (E.C)	µS/cm	572	608	2000 max
Total Dissolved Solids	mg/l	366	384	1000 max
Alkalinity ($CaCO_3$)	mg/l	173	161	500 max
Total Hardness ($CaCO_3$)	mg/l	120	125	500 max
Calcium	mg/l	18.4	20.2	150 max
Magnesium	mg/l	18	16.8	100 max
Chloride	mg/l	82.7	82.7	250max
Fluoride	mg/l	0.12	Not Determined	1.5 max
Total Iron	mg/l	0.05	0.07	
Total Manganese	mg/l	<0.01	<0.01	0.5
Sulphate	mg/l	50.2	53.2	
Lead	mg/l	<0.01	<0.01	0.05
Copper	mg/l	<0.01	<0.01	0.05
Aluminium	mg/l	<0.02	<0.02	0.1

** Water sampled and analysed in August 2014 during the project design stage

Based on the water quality analysis, the water meets the local water quality standards shown in Table 4-1, with the water undergoing disinfection at the treatment works.

Moreover, CWSB has a water quality monitoring program in place of the raw and treated water supplied for selected parameters (daily, monthly and quarterly).

Surce	*PH Units*	*Colour*	*E.C*	*TDS*	*Turbidity*	*Chloride*	*Salinity*	*T.Alkalinity*	*T.Hardness*	*Ca^{2+}*	*Mg^{2+}*
		Hazen	*µs/cm*	*mg/l*	*NTU*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
B/Hole 3	7.8	7.5	624	312	0	59	97.35	154	92	93.6	5.76
B/Hole 4	8	7.5	647	323.5	0	65	107.25	152	94	28.4	5.76
B/Hole 7	7.8	2.5	788	394	0	87	143.55	156	110	36.5	4.8
B/Hole 8	7.8	2.5	650	325	0	59	97.35	136	94	35.6	1.44
Combined Raw Water	7.3	7.5	746	373	0	69	113.85	180	120	37.3	6.72
Treated Water	7.6	2.5	722	361	0	69	113.85	164	102	32.4	5.28

*** sampled in Nov 2016

SOURCE OF SAMPLE	Date sampled	Total Coliforms	E.coli	Residual chlorine
Baricho W/supply at Kakuyuni Tank	3/8/2016	0	0	<0.1
Baricho W/supply Treated water	3/8/2016	0	0	<0.1

A hydrogeological study of the project area and the proposed works shows that the existing wells are situated around 50m from the Sabaki River which is one of the two major permanent rivers that make their way into the Indian Ocean, thus a high percentage of the abstracted water is bank filtrate from the river and there's no risk of any over abstraction. In addition the wells are located in a paleochannel as such there is no risk of any land subsidence.

2.4.2 Kakuyuni – Kilifi Pipeline

The proposed pipeline will be 56Km long and will start at the Kakuyuni tank and will end at the existing tank at Birikani in Kilifi Town as shown below.

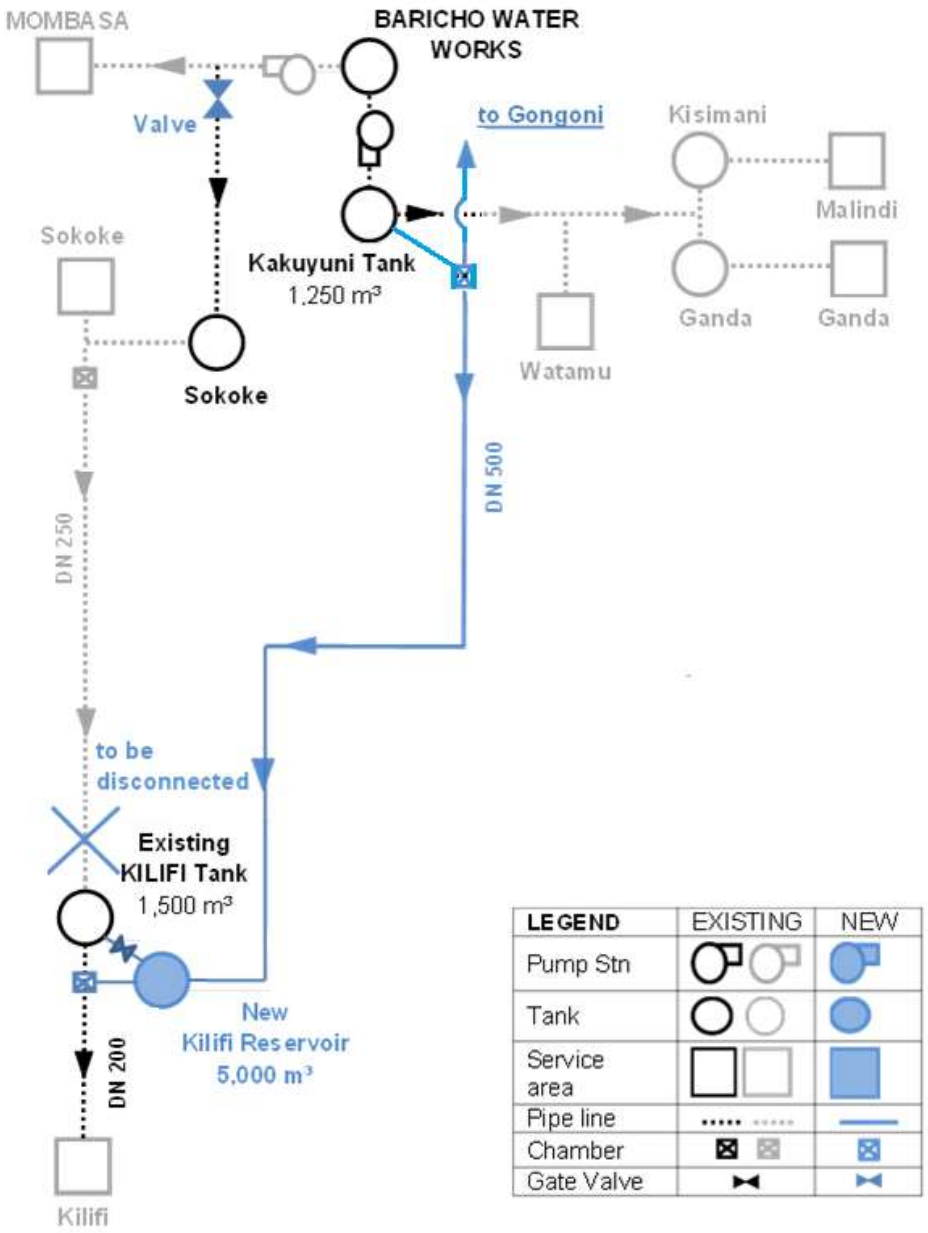

Figure 2-4: Schematic of the proposed Pipeline

1) *Water Demand Population*

The proposed pipeline will supply the town of Kilifi and its environs with water up to the year 2035. The design population in the ultimate design year is 121,396 people. The water demand and corresponding populations are shown in the table below:

Table 2-2: Water Demand for Kilifi Town

Year 2015		**Design Year 2035**	
Population (persons)	**Water Demand (m^3/d)**	**Population (persons)**	**Water Demand (m^3/d)**
64,424	5,686	121,396	13,240

2) General Characteristics

The proposed pipeline begins at the Kakuyuni tank at a mean elevation of 121.84masl and flow via gravity to the Kilifi Tank at an elevation of 39.48masl.

The pipeline will be 500mm in diameter which will meet the water demands for Kilifi and its environs. The main pipeline characteristics are summarised in the table below:

Table 2-3: Kakuyuni Kilifi Pipeline Characteristics

No.	Pipeline Section	Length (Km)	Pipeline Material	Pressure Class	STP
1	0+000 – 9+000 Km	9	DN 500 DI	PN10	15bar
2	9+000 – 56+207 Km	47.207	DN 500 DI	PN16	21bar

Other additional features included in the design are:

- 8 T-pieces for future connections to adjacent communities
- 44 air vents
- 43 wash outs
- 19 sectional valves

3) Pipeline Route

The proposed pipeline begins at Kakuyuni Tank along the C103 road at Kakuyuni Centre. From here, the line shall run on the left side of the road corridor to Kakuyuni village.

At the market place of Kakuyuni village the pipeline shall turn into a southerly direction towards the village of Gede along the E899 road. On the first 100 m the pipeline will run on the left side of the road and then cross the road to the right hand side in order to avoid displacement of structures. It then crosses again to the left, then to the right until Gede Centre along the Mombasa – Malindi B8 road.

At the Junction with the B8 highway, the pipeline turns right and continues along the right hand side of the B8 reserve and will cross the highway at Matsangoni Primary School. It then stays on the left hand side of the road reserve until the entrance to Kilifi town at the Kobil Petrol Station, and maintain the left hand side until it reaches the tank in Kilifi town.

2.4.3 Kakuyuni – Gongoni Pipeline

This pipeline also starts at the Kakuyuni Tank towards Gongoni after the Sabaki River on the B8 highway on the way to Garsen as shown in the schematic below:

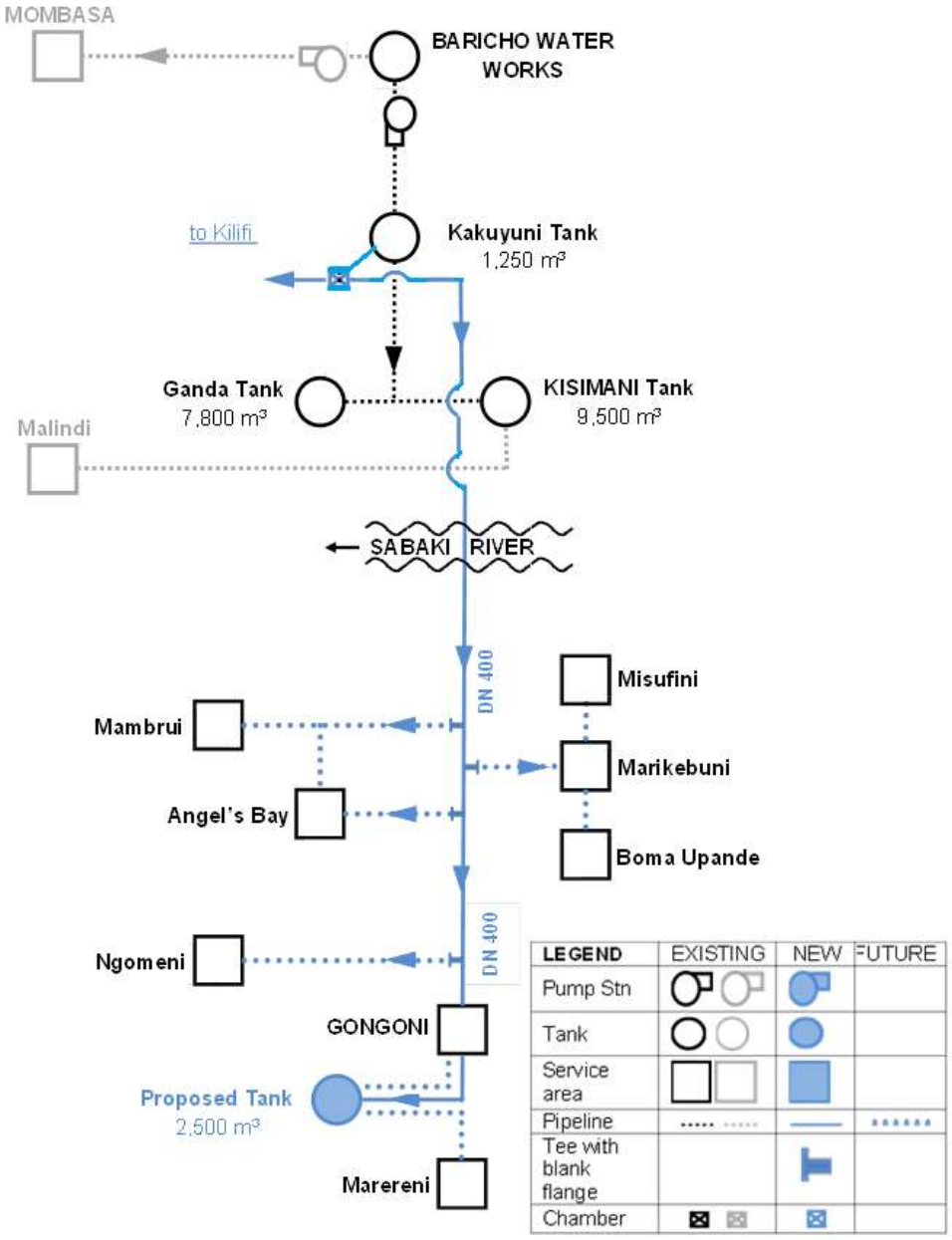

Table 2-4: Schematic Map of the Proposed Kakuyuni - Gongoni Pipeline

1) Water Demand Population

The proposed pipeline will supply the town of Gongoni and its environs with water up to the year 2035. The design population in the ultimate design year is 225,199 people. The water demand and corresponding populations are shown in the table below:

Table 2-5: Water Demand for Gongoni Town and surrounding Areas

Year 2014		**Design Year 2034**	
Population (persons)	**Water Demand (m^3/d)**	**Population (persons)**	**Water Demand (m^3/d)**
103,250	4352	225,199	10,506

The surrounding areas to be supplied in addition to Gongoni include:

a) Marereni/Fundisa
b) Ngomeni
c) Mambrui
d) Marikebuni
e) Bomani

2) General Characteristics

The proposed pipeline begins at the Kakuyuni tank at a mean elevation of 121.84masl and flow via gravity to the Kilifi Tank at an elevation of 22.65masl.

The pipeline will be 400mm in diameter which will meet the water demands for Gongoni and its environs. The main pipeline characteristics are summarised in the table below:

Table 2-6: Kakuyuni Gongoni Pipeline Characteristics

No.	Pipeline Section	Length (Km)	Pipeline Material	Pressure Class	STP
1	0+000 – 17+950 Km	17.95	DN 400 DI	PN10	15bar
2	17+950 – 36+360 Km	18.41	DN 400 DI	PN16	21bar

Other additional features included in the design are:

- 3 T-pieces for future connections to adjacent communities and 4 T-pieces for future branches to adjacent villages
- 39 air vents
- 40 wash outs
- 15 sectional valves
- Sabaki River crossing

3) Pipeline Route

The proposed pipeline begins at Kakuyuni Tank along the C103 road at Kakuyuni Centre and runs along the left hand side of the road past Kakuyuni Village towards Ganda Shopping Centre. It then branches to along E894 towards the B8 Malindi – Garsen Highway just outside Malindi town. The line still maintains the left hand side along the B8 highway.

The proposed pipeline then crosses the Sabaki River and will use the Sabaki Bridge for support and then proceeds to the proposed tank site at Gongoni Centre.

2.5 ALTERNATIVES TO THE PROJECT

The current pipelines will source water from the Kakuyuni tank and transmit water to Kilifi and Gongoni areas, while serving towns along the way. During the design, there were considerations of offtaking water from existing infrastructure. This chapter looks into the alternatives considered for the project. These alternatives, include alternative offtake points for the water supply from an existing system for each of the pipelines.

The alternatives considered were compared to the proposed design in terms of environmental impacts, engineering achievability and in meeting the mandate of the proposed works. The best options for meeting these requirements, was considered in this ESIA.

The different alternatives for each of the pipelines is considered below.

2.5.1 Kakuyuni – Kilifi

1) Replacing the Existing offtake from the Baricho – Mombasa Pipeline

This alternative involves augmenting the existing offtake from the Baricho – Mombasa Pipeline (Sabaki), changing the existing 600mm diameter pipe to an 800mm diameter pipeline. This option was not considered due to the fact that the new line would result an increase in the Hydraulic Capacity, and have a negative effect on the water supply to Mombasa. This will not meet the mandate of the project as well as negatively impact an existing water supply. In addition, the new pipeline would not have a tank as a source of water, as such the best option is the use of the existing Kakuyuni Tank, to source the water.

2) Do Nothing Alternative

The No Action Alternative is the future without the planned Project. This alternative involves the continued usage of the Sokoke – Kilifi pipeline which is experiencing several leakages currently in addition to the fact that the water is dedicated to Mombasa, making the supply to Kilifi dependent on the needs of Mombasa. This option ensures that Kilifi will not have access to adequate water supply even with its growing population. As such, the swelling population within this region will suffer in days to come with the already inadequate water supply. The advantage of a dedicated line to this region is that it aims at satisfying the water demand within the area during the project life. Minimal to no negative impacts are anticipated since the proposed project will improve the water supply into the affected regions hence people's livelihoods and wellbeing.

2.5.2 Kakuyuni – Gongoni

1) Alternative Proposed by Mbuga Consultant

A previous design was carried out in 2009 as shown in the schematic below:

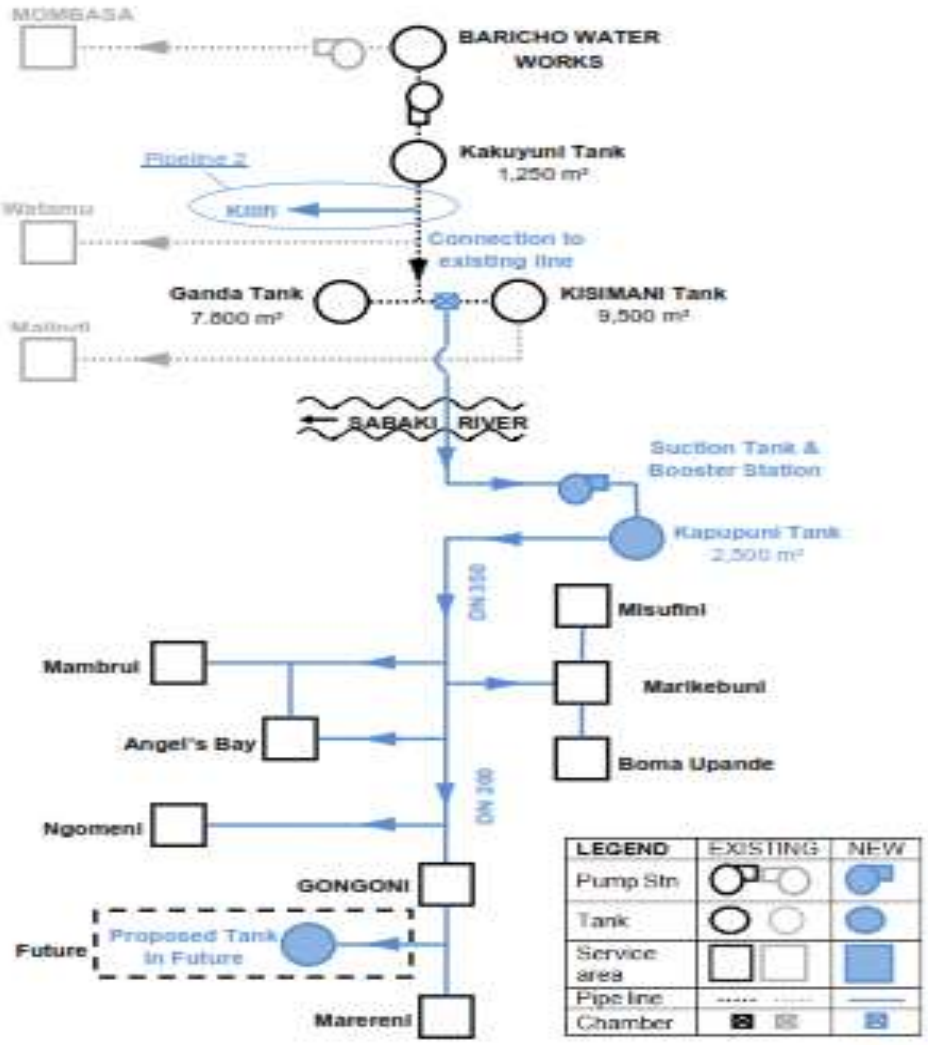

Figure 2-5: Schematic Proposed by Mbuga Consultant in 2009

This option was, however not feasible due to inadequate flow at the takeoff point to meet the water demands of Gongoni. Thus the engineering achievability of the project will not be met.

2) Do Nothing Alternative

The No Action Alternative is the future without the planned Project. This option will lead to the continued suffering of the local residents who are making losses in form of time and money, looking for water. The do nothing alternative will in this case be disadvantageous to the rising population at Gongoni since they lack piped water and mainly depend on water bowsers to access water. Being a fast growing town, the population in the area keeps expanding due to urbanization implying that inadequacy of water will only serve to increase the cost of acquisition of water, regardless of the water quality hence may predispose people to waterborne diseases. On the other hand, the project will improve people's livelihoods, businesses, lifestyles and wellbeing.

3 PHYSICAL, BIOLOGICAL AND SOCIAL BASELINE CONDITIONS OF AFFECTED ENVIRONMENT

This Section discusses the baseline situation in respect of climate, topography, air quality, soils and geology, hydrology, terrestrial ecology, and socio-economic structure as well as existing infrastructure and utilities such as water, sewerage, transportation network, electricity, air transport and telephone/telecommunications and solid waste management in the region of the proposed project.

3.1 ENVIRONMENTAL AND SOCIAL ECONOMIC SURVEY

3.1.1 Kakuyuni Kilifi Pipeline

The socio-economic situation of the area was captured based on findings of a household survey carried out using a structured questionnaire. A sample group of 300 households was interviewed for purposes of the analysis.

1) Population dynamics and household characteristics

The study established that 5-18 years was the dominant age group in the area as shown in Figure 4-1.This indicates that the youth are majority (29.5% and 33.2%). The youths should be involved and consulted in this project. There is an indication that there are strong and young people who could provide for the labour on the project that will affect them in the future.

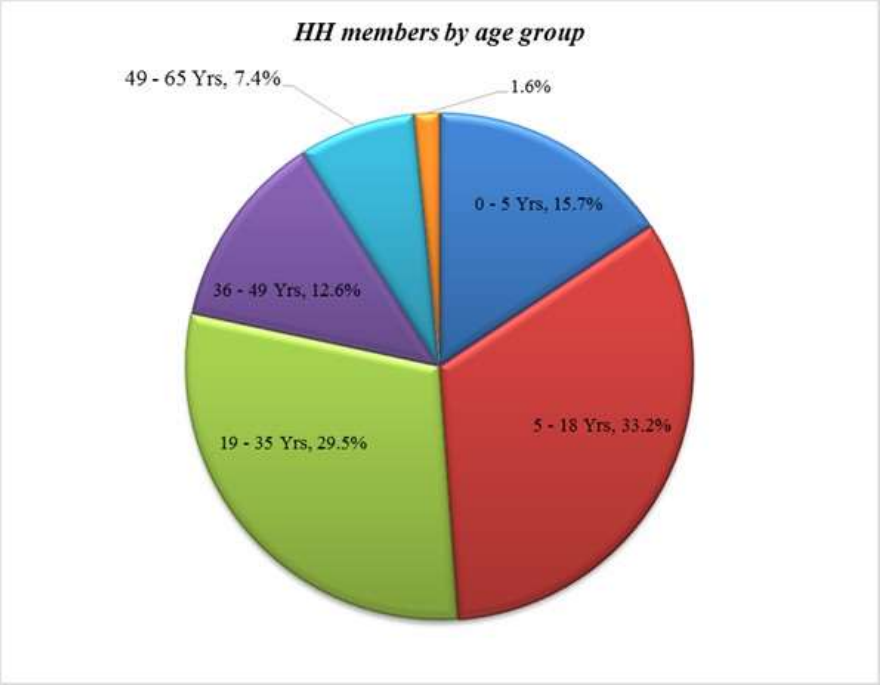

Figure 3-1: Age of Population

Source: Survey Data

Most of Kakuyuni - kilifi residents have attained basic education as indicated in figure 3-1.There is need to advocate and encourage the residents to further their education. If larger percentage of the affected people would understand the importance of the project, it would be easier to explain to them of the benefits of the project. The 25% who haven't attained any education level should have the details of the project explained to them, for them to be at par

with the rest of the population so as to avoid misunderstanding during the project construction. The household literacy levels are shown in the chart below:

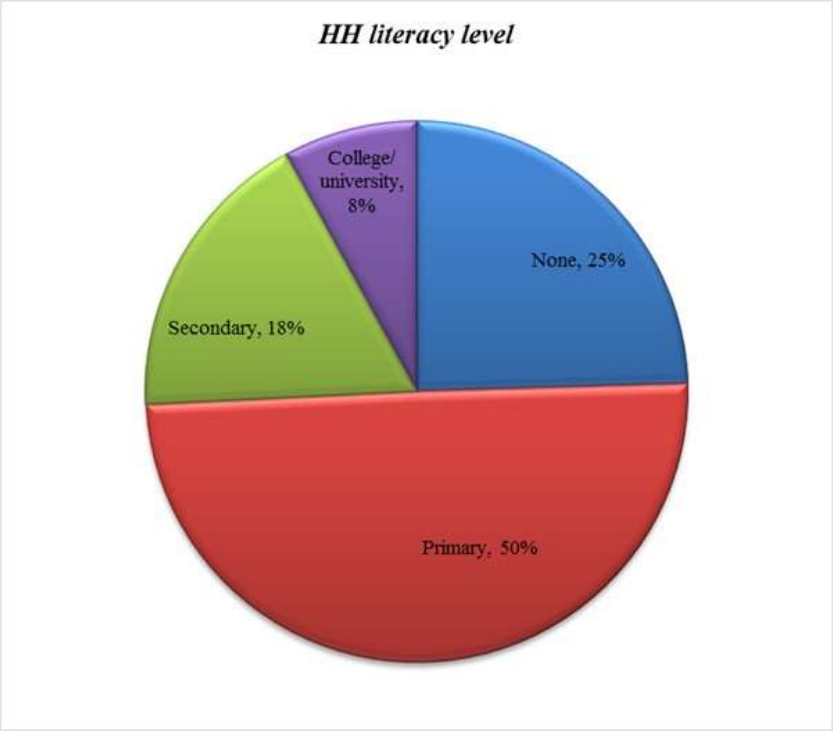

Figure 3-2: Household Literacy Levels

Source: Survey Data

Christianity is the dominant religion in this area as shown in figure 3-3 (81%), the rest of the population is Muslim.

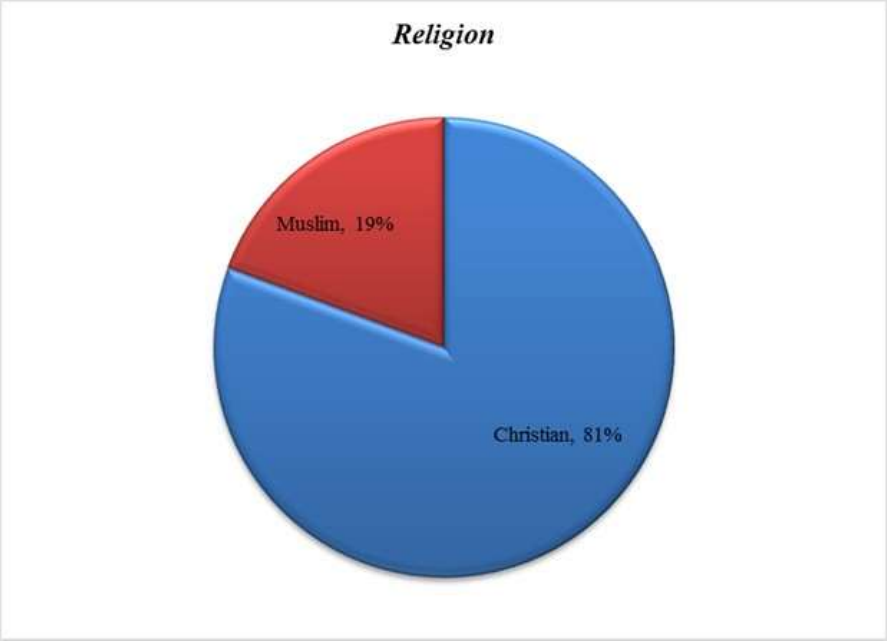

Figure 3-3: Religion of Population

Source: Survey Data

Firewood (56%) and charcoal (30%) are the most used sources of fuel as indicated in figure 3-4. The commonly used sources of fuel imply the destruction of the environment ecosystem.

Afforestation and reforestation should be practiced and more environmental friendly fuels should be used. Sensitization on effects of destruction of the forest should be encouraged to the local community and other options given to avoid environmental destruction.

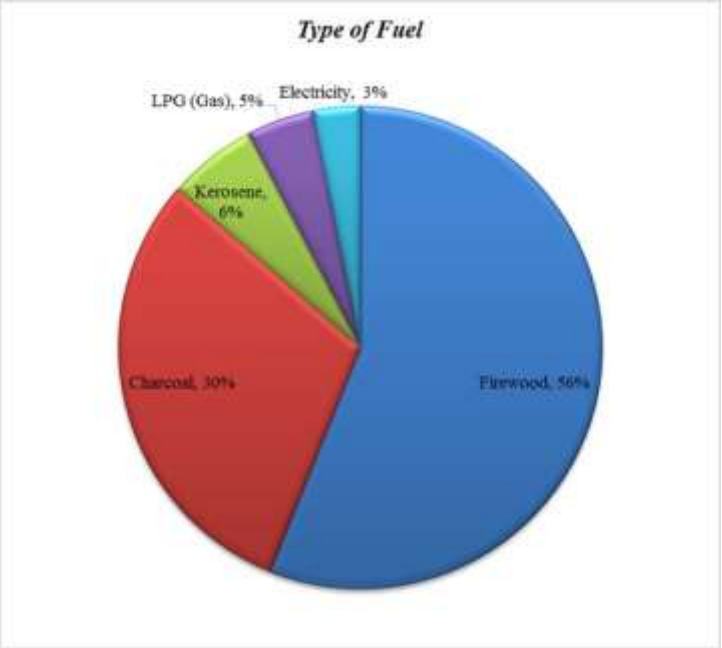

Figure 3-4: Source of Energy

Source: Survey data.

2) Socio-economic activities and land use patterns

Agriculture is the main economic activity practiced other occupational activities are shown in the figure below.

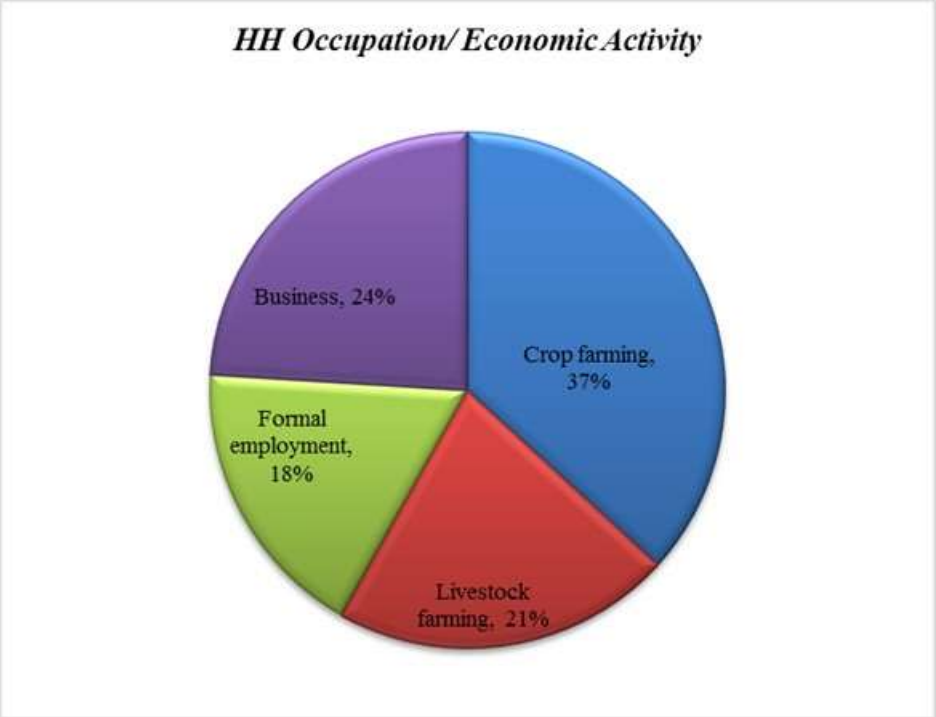

Figure 3-5: Household Socio-economic Activities

Source: Survey data.

Most of the people earn below K.Shs. 15,000(40%) and K.Shs. 30,000 (35%) as indicated in figure 3-6

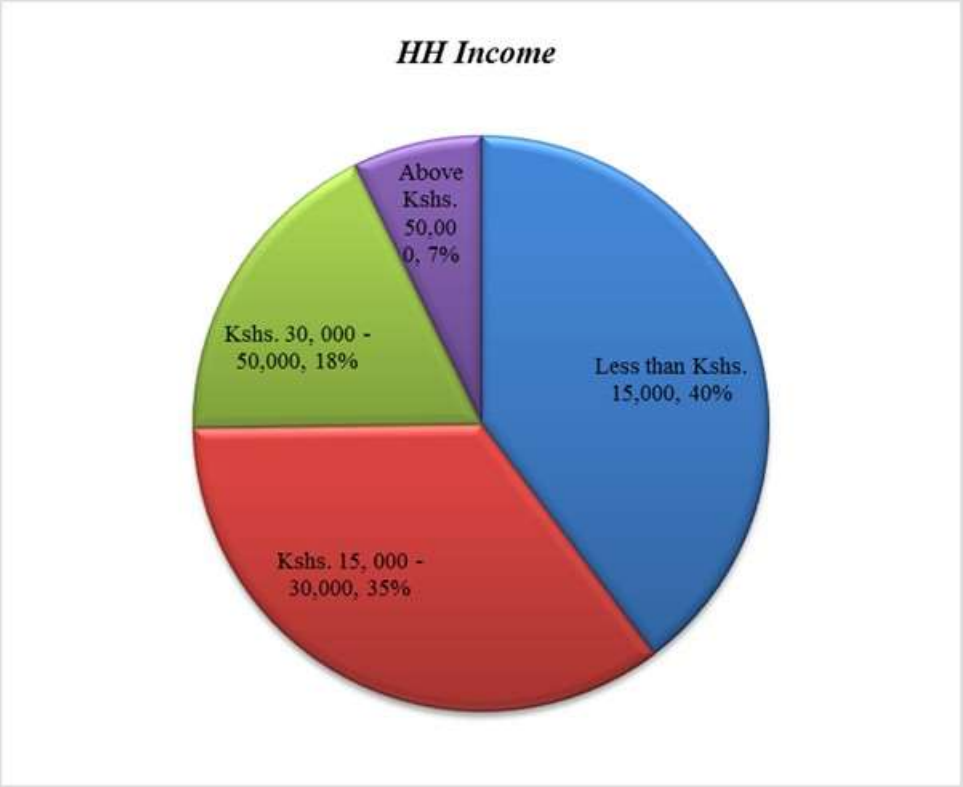

Figure 3-6: Main Sources of Income

Source: Survey data.

Maize is the major crop planted by the residents as shown in figure (45%) There is a need to diversify the crops being planted in order to have a variety of nutritious food crops. Diversification would also help in crop rotation and reduce the plants being affected by diseases and nutrients decrease due to mono cropping.

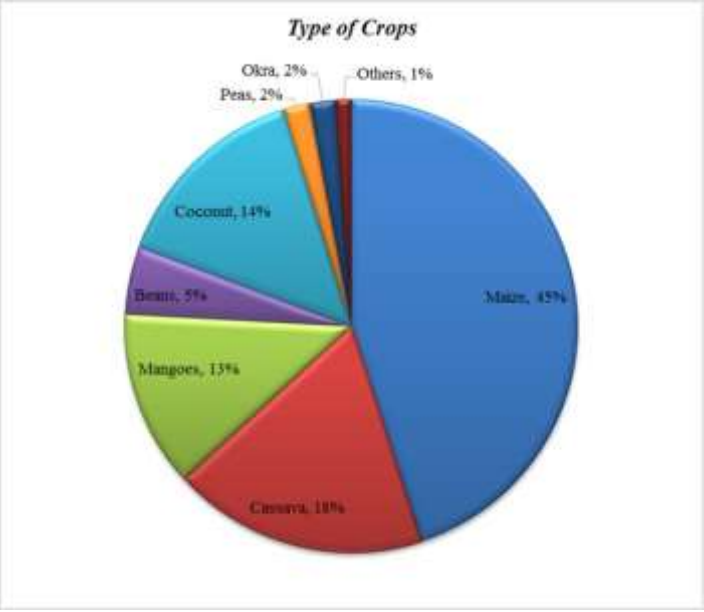

Figure 3-7: Type of crops

Source: Survey data.

Goats (60%) are the main livestock kept by the residents as indicated in figure 3-7; industries could be built to make products from the animals' raw materials and create employment. Training on how to rear livestock should be conducted so as to rear the high breeds and maximize on production.

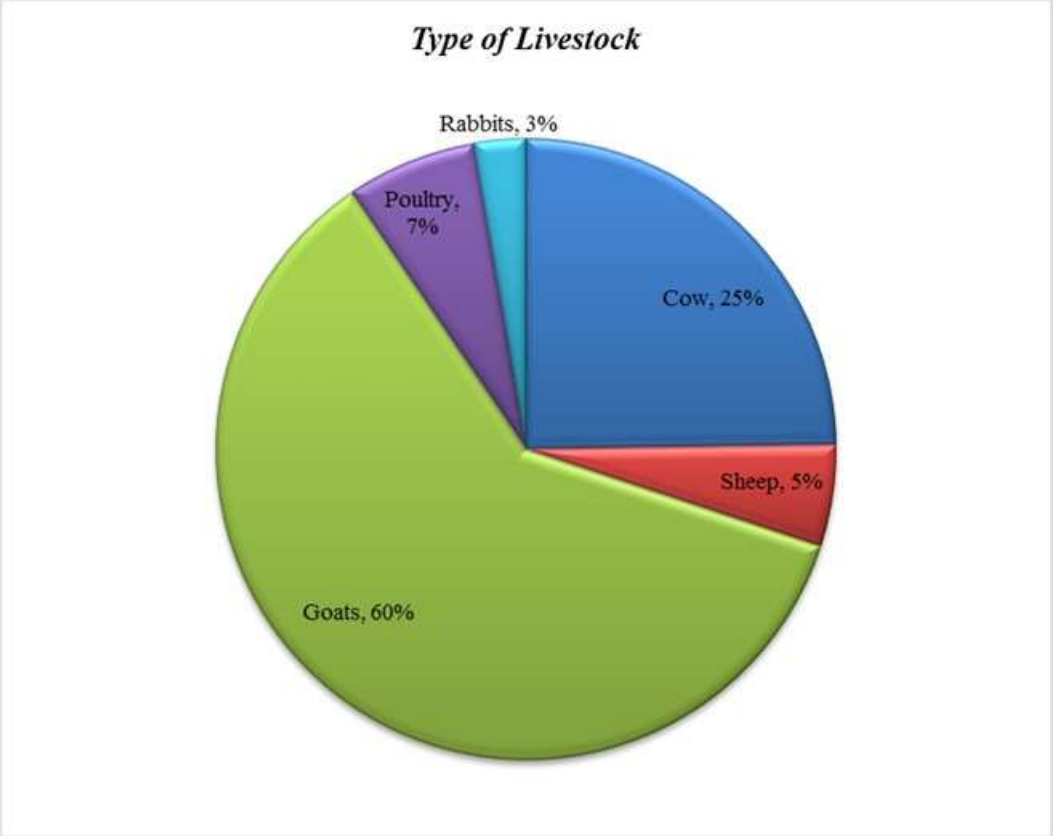

Figure 3-8: Main Livestock Owned

Source: Survey data.

The type of businesses owned mostly by residents are shops (34.9%) and motorbikes taxis (24.8%) as indicated in figure 3-9. The residents should be given new ideas so as to diversify and reduce competition so as to maximise on sales and profits.

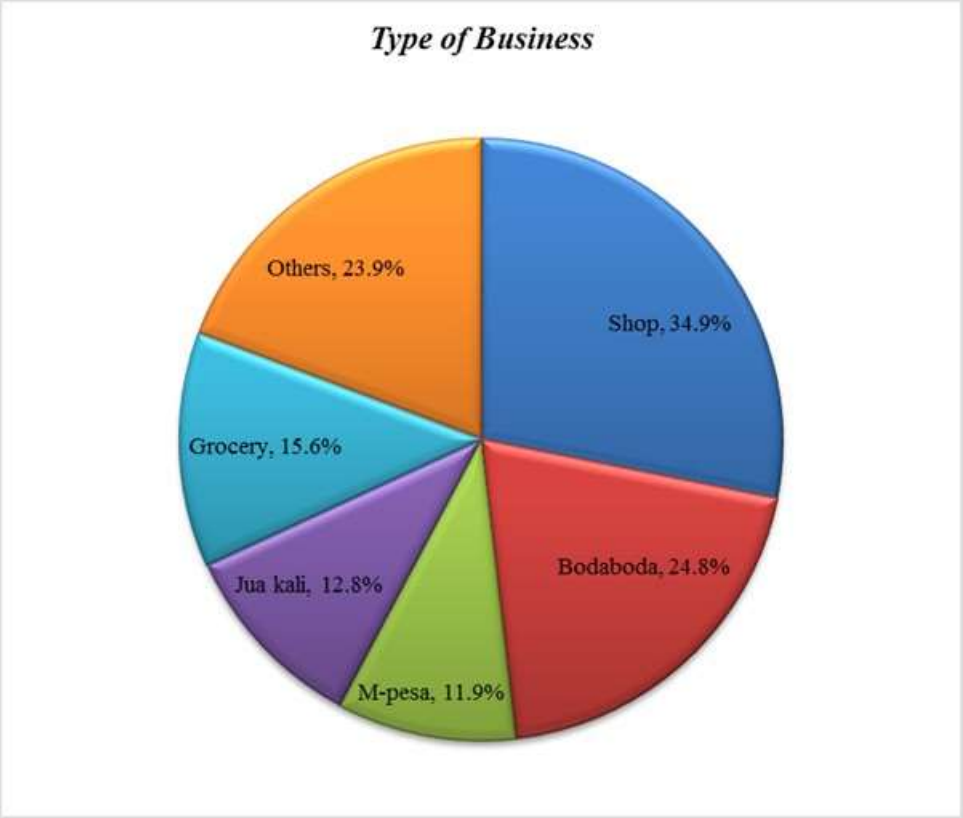

Figure 3-9: Type of Business Carried Out

Source: Survey data.

3) Water supply

Private and public water are the main sources of water in the area constituting 86%. However majority of the water is drawn from private taps as shown in the figure below.

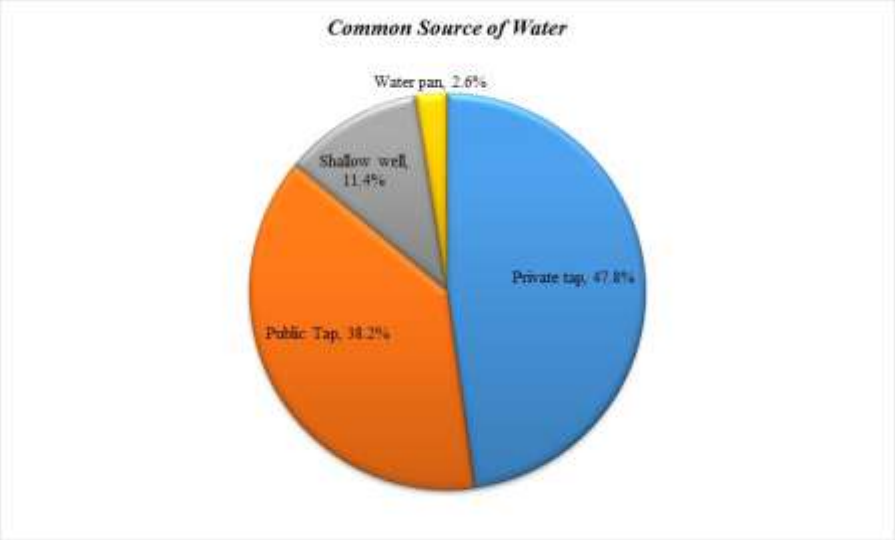

Figure 3-10: Main Sources of Water for the Community

Source: Survey data.

The ownership of the water sources is indicated in the chart below:

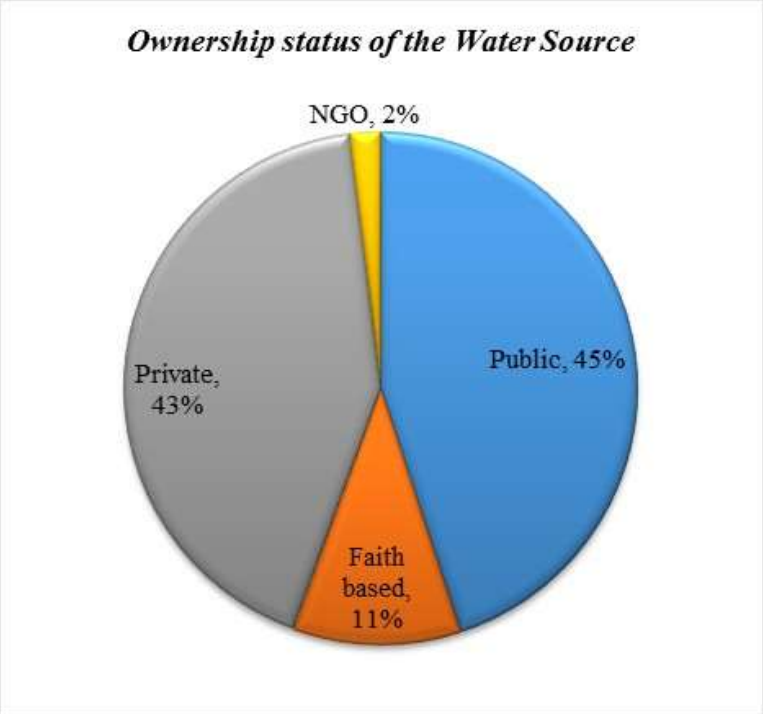

Figure 3-11: Ownership Status of Water Sources

Source: Survey data.

The cost of water varies from Ksh.5 to above Ksh.20 depending on the ownership status 83% of the population pay for water.

Figure 3-12: Cost of 20 Litre Jerry can of Water

Source: Survey data.

The water quality is generally good. 52% of the residences view the water quality as fair, 30% as good and 18% as bad.

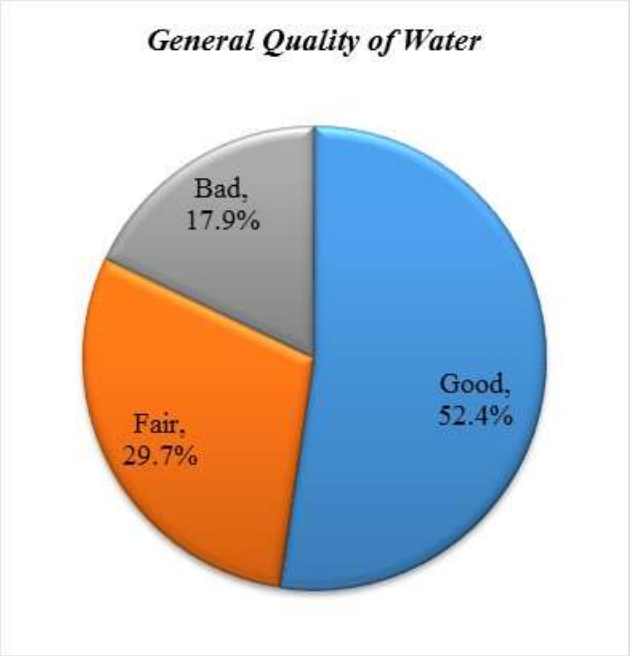

Figure 3-13: General Quality of Water

Source: Survey data.

In most cases the existing water supply is inadequate in meeting the needs of all the people. 73% of the population felt that the water being currently provided wasn't adequate whereas the remaining 27% were being adequately supplied.

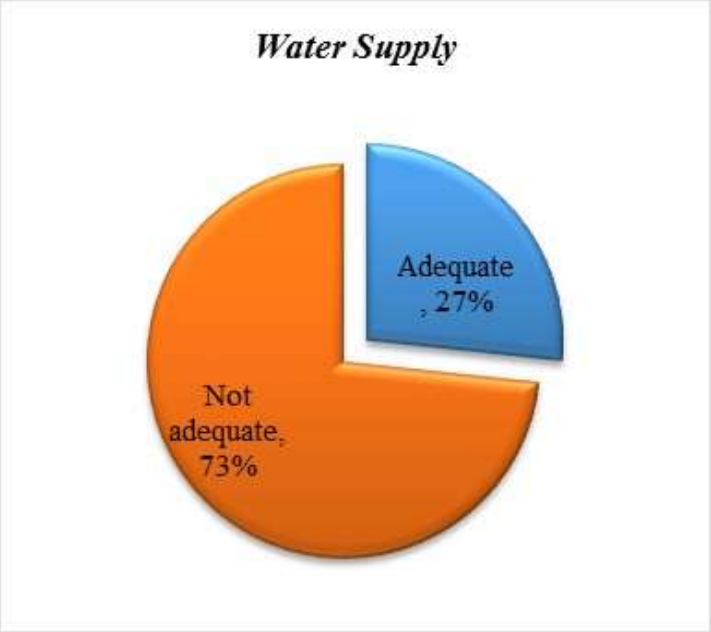

Figure 3-14: Adequacy of Water Supply

Source: Survey data.

75% of the population fetch water every day of the week while the remaining 25% fetch every alternate day of the week.

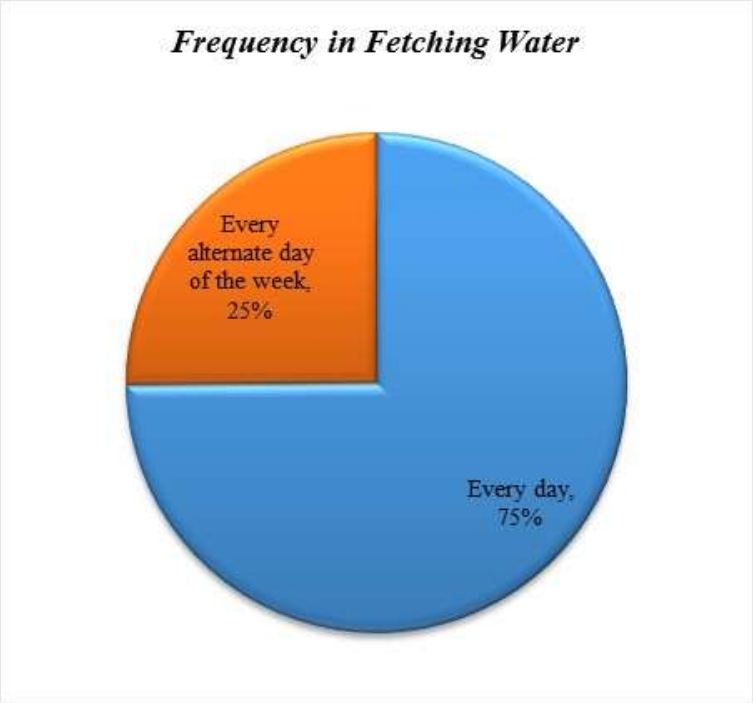

Figure 3-15: Frequency of Fetching Water

Source: Survey data.

32% of the population walks for less than 0.2 km to the water fetching points; 56% walks for 0.2-1 km, 8% walks for 1-2km while 2% walk for more than 2 km to the water source.

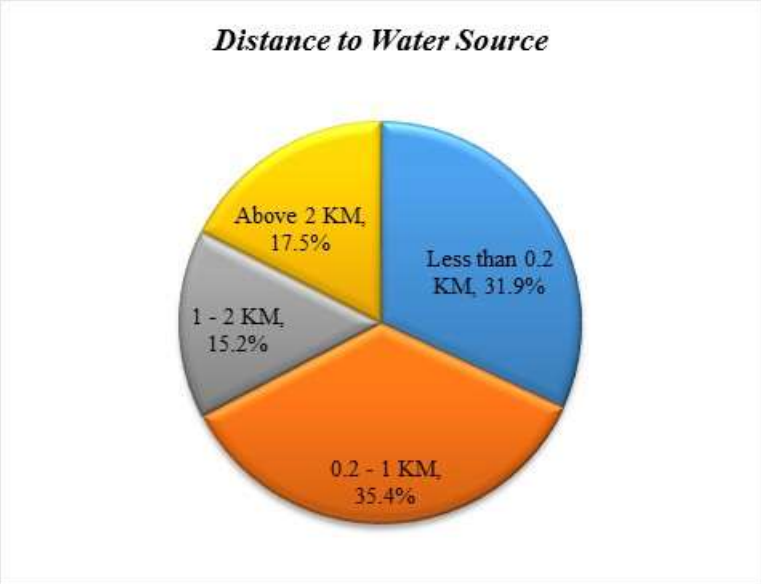

Figure 3-16: Distance to Water Source

Source: Survey data.

The common mode of transporting water is by carrying on the head which accounts for 64% of the population while carrying on hand driven carts/wheelbarrow accounts for 23%. Use of bodaboda (bicycle, motorbike) accounts for 14%.

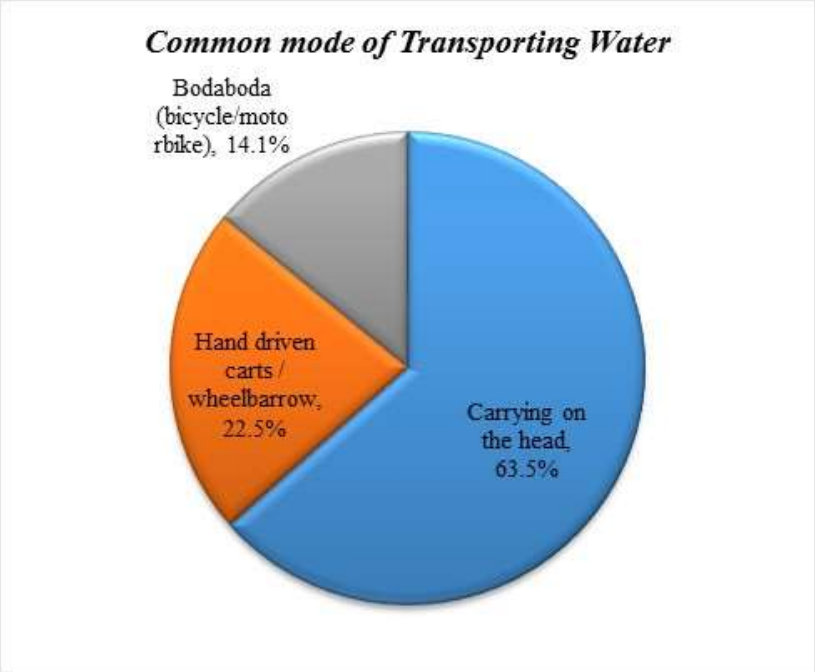

Figure 3-17: Common Modes of Transporting Water

Source: Survey data.

The common challenges faced in transporting water include loss of time 60% and physical fatigue due to long distances travelled to get to the water sources 40%.

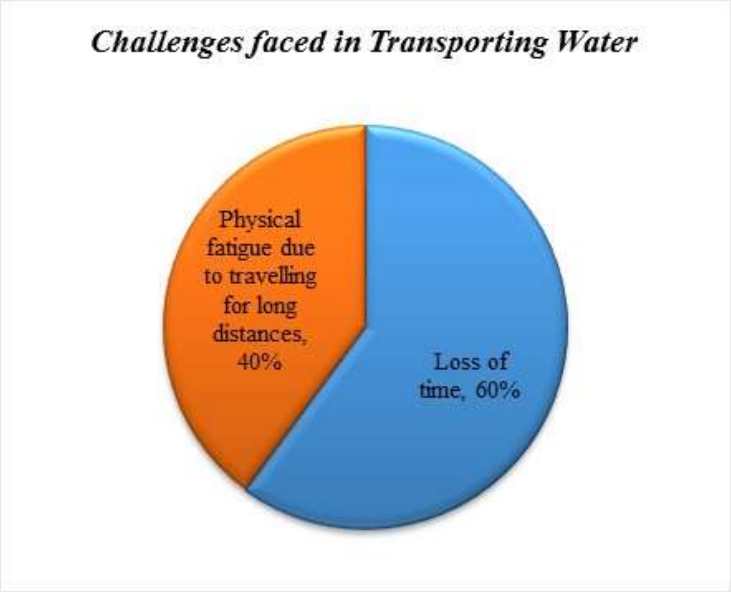

Figure 3-18: Challenges Faced in Transporting Water

Source: Survey data.

4) Environmental situation

The environmental concerns in the area include water shortage, invasive species, extinction of endangered species, mosquitos and malaria spread, overgrazing, deforestation, drought, solid wastes, and others (mosquitoes and malaria spread)

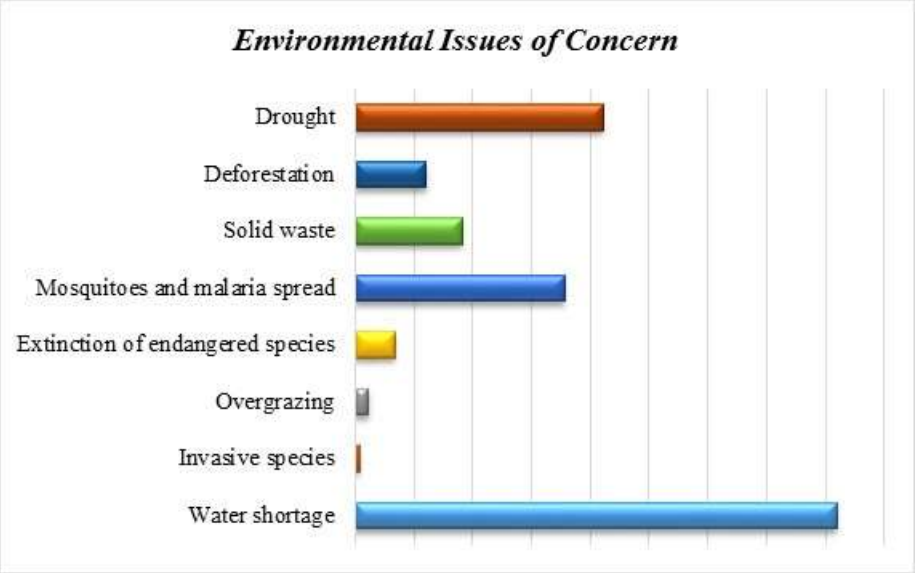

Figure 3-19: Environmental Issues of Concern

Source: Survey data.

There are a number of environmental conservation initiatives in the area such as tree planting, educating the public on environmental conservation and clearing of mosquito breeding sites, collection of solid wastes, others (burning waste, sweeping compounds and clearing bushes).

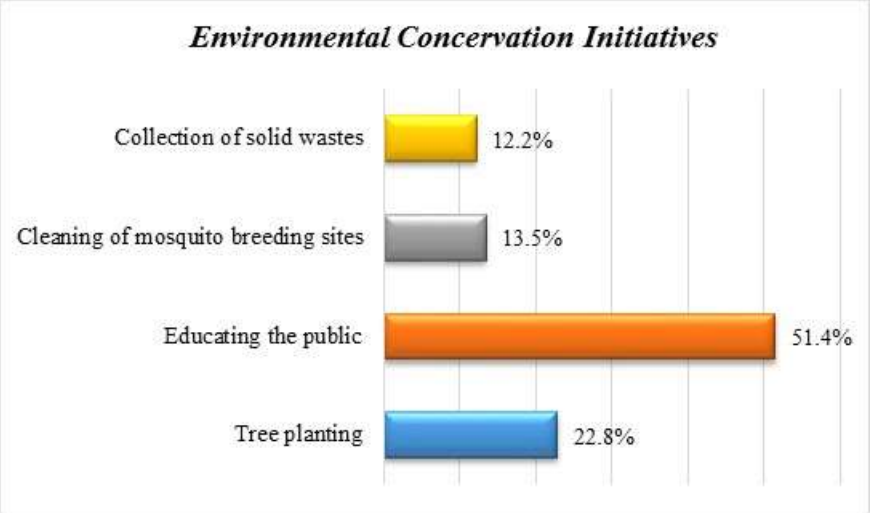

Figure 3-20: Environmental Conservative Initiatives

Source: Survey data.

These activities are carried out by youth groups, women groups, NGOs, CBOs, individuals and work for food program and others (young boys at home, volunteers) as shown in the figure below:

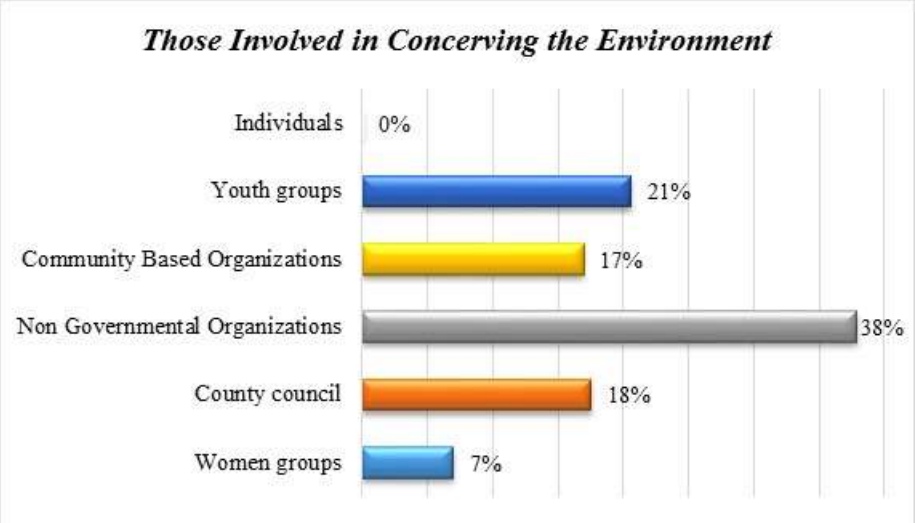

Figure 3-21: Implementers of the Environmental Conservation Initiatives

Source: Survey data.

87% of the population feel that the project will help conserve the environment while 13% feel that it will not.

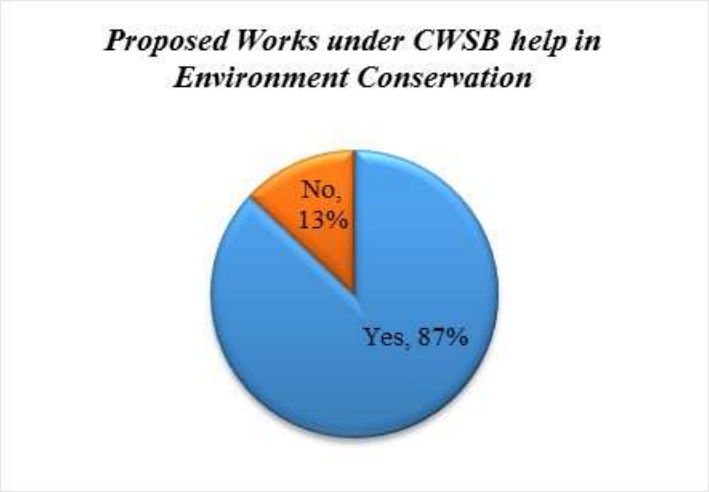

Figure 3-22: Effectiveness of the Environmental Conservation Initiatives

Source: Survey data.

5) Health status

The prevalent diseases in the area are malaria, diarrhea, eye problems, skin rashes, cholera and respiratory infection as shown in the figure below.

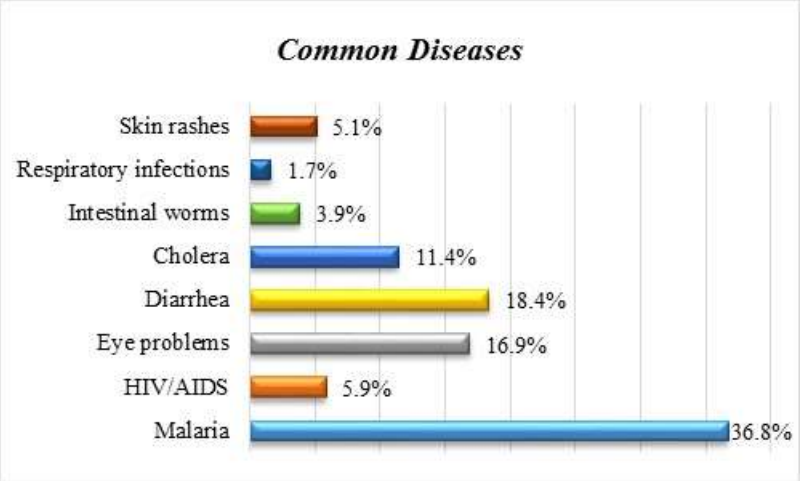

Figure 3-23: Prevalent Diseases in the Area

Source: Survey data.

Most of the respondents when sick seek medical attention from a health centre.

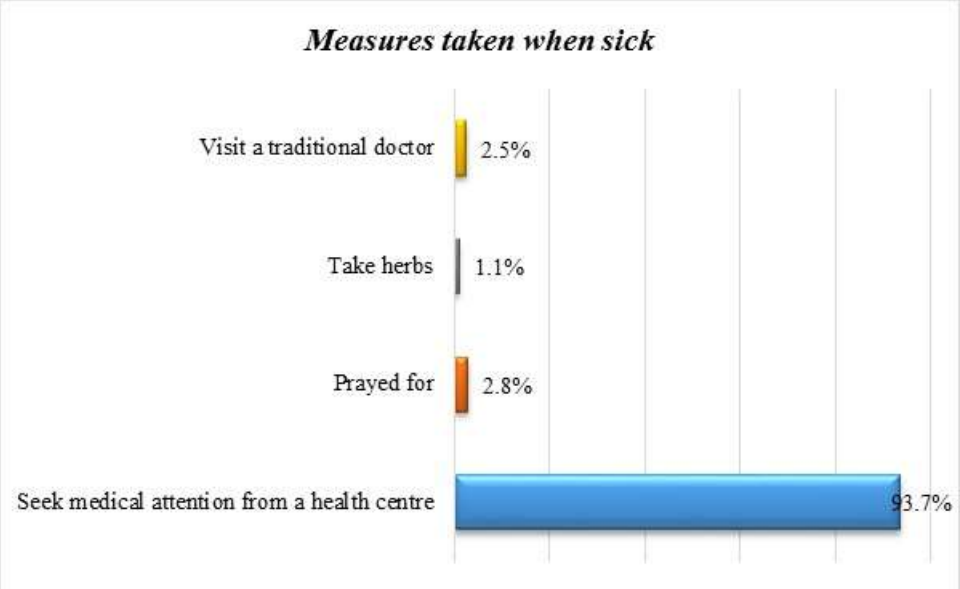

Figure 3-24: Treatment Sought when ill

Source: Survey data.

The health facilities where the people in the area seek help are mainly government health centres.

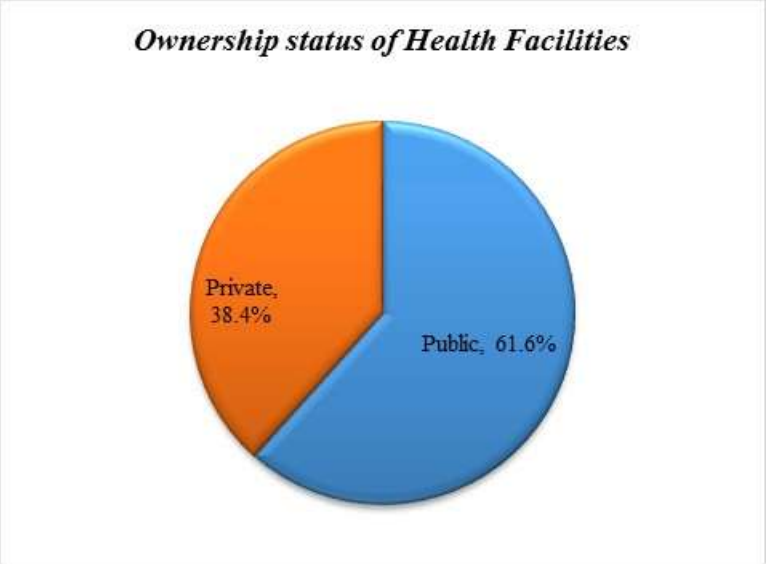

Figure 3-25: Ownership Status of Health Facilities

Source: Survey data.

32% of the respondents walk for 1-3km to the health facilities, 15% walk for 3-5 km, 24% for more than 5 km, while 28% walk for less than 1km.

Figure 3-26: Distance to Health Facilities

Source: Survey data.

The level of HIV/AIDS awareness is high. 88% of the population are aware of HIV/AIDS.

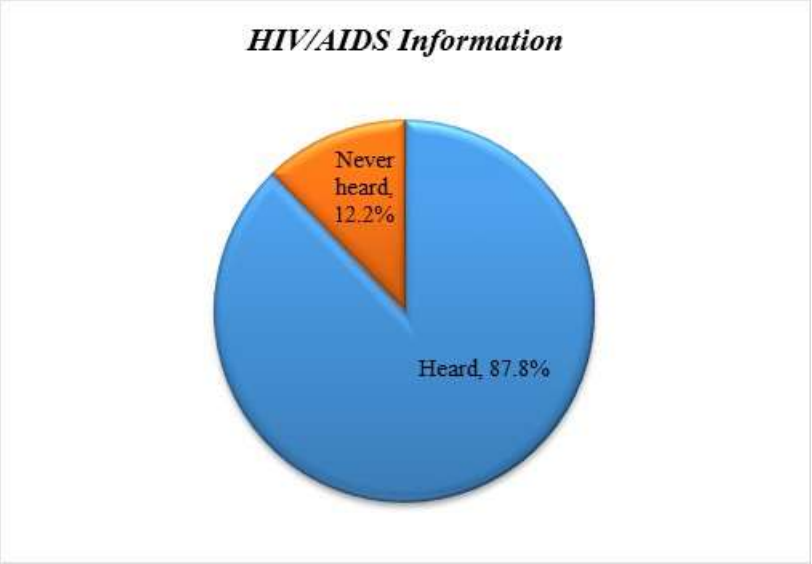

Figure 3-27: Level of Awareness on HIV/AIDS

Source: Survey data.

Information about HIV/AIDS is mainly got from the media, family members and friends, health workers and the newspapers as shown in the figure below.

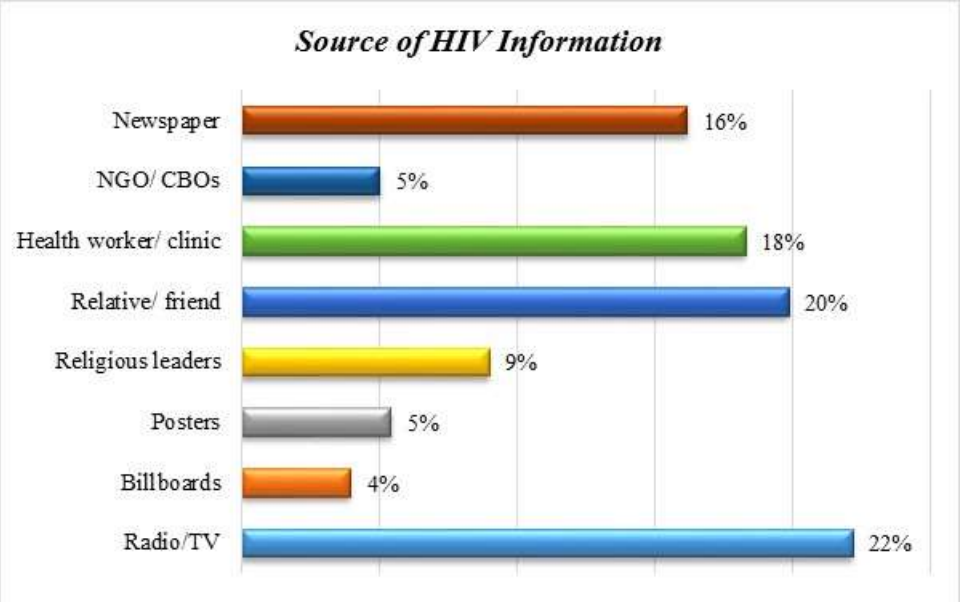

Figure 3-28: Source of Information on HIV/AIDS

Source: Survey data.

16% of the respondents have been affected by the disease whereas 84% hadn't been affected by Aids.

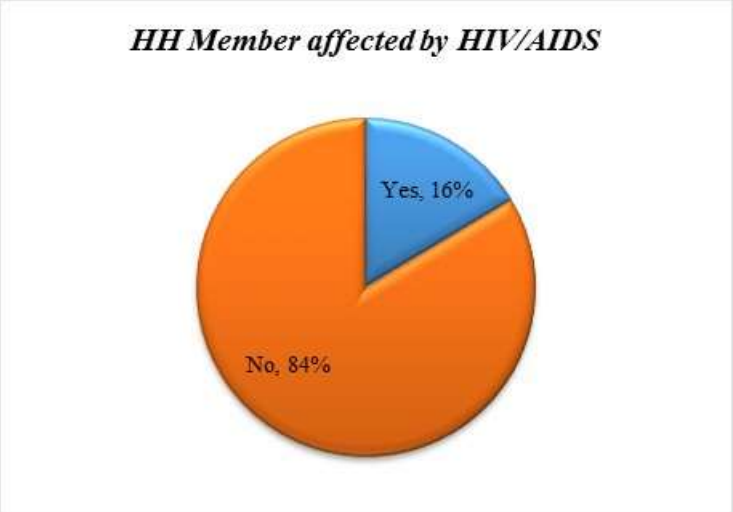

Figure 3-29: Households Affected by HIV/AIDS

Source: Survey data.

80% of the respondents feel that HIV/AIDS can be prevented while 7% says it cannot be prevented. 14% of the respondents have no idea if it can be prevented.

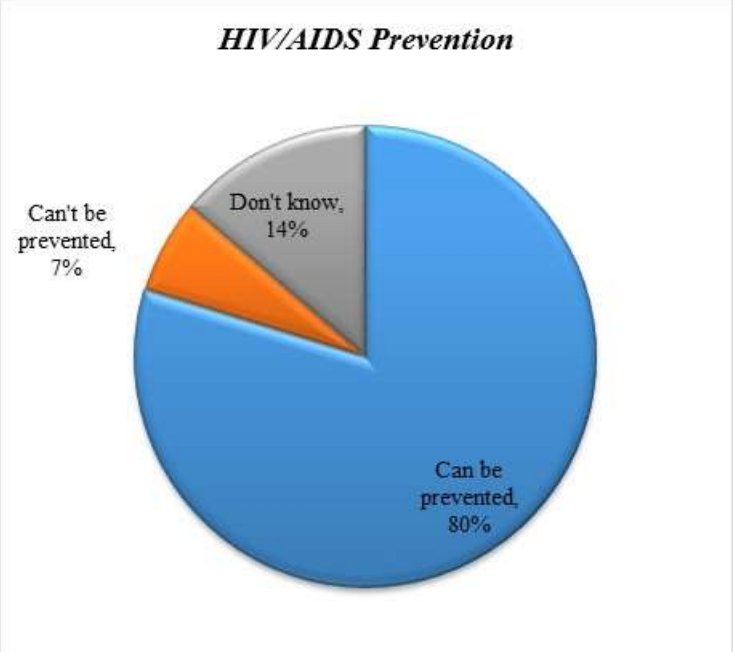

Figure 3-30: Knowledge on Whether HIV/AIDS Can be prevented

Source: Survey data.

86% of the respondents know where to go for voluntary counselling and testing for HIV/AIDS, while 14% do not.

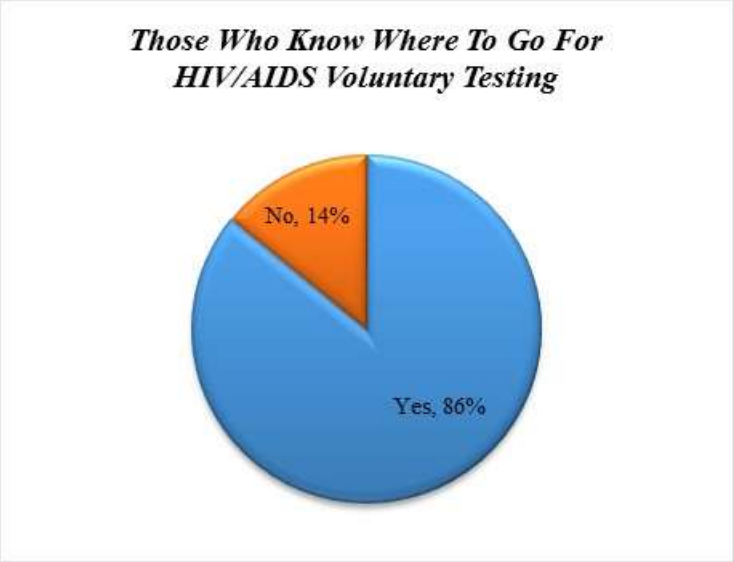

Figure 3-31: Respondents Who Know Where to go For Voluntary HIV/AIDS Testing

Source: Survey data.

6) Waste management

The methods used by the population to dispose refuse are by burning, burying/using a compost pit, recycling, dumping in open areas, and collection by the county council as shown in the chart below.

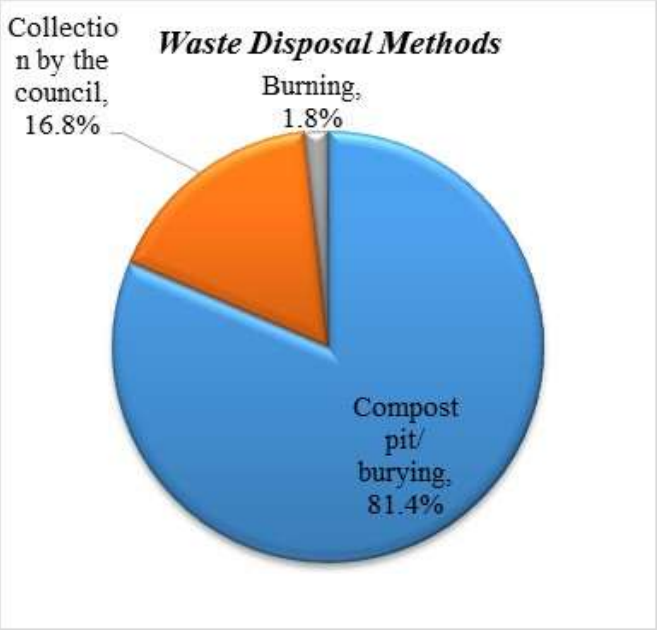

Figure 3-32: Common Waste Disposal Methods

Source: Survey data.

81% of households in the project area are have toilets.

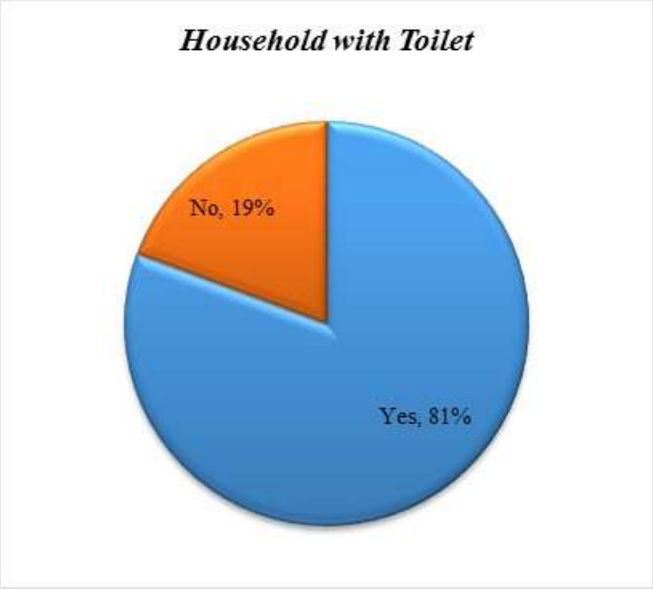

Figure 3-33: Respondents Who Have Toilets in Their Compound

Source: Survey data.

74% of the population in the project area use pit latrines while the remaining 26% use the flush system with septic tanks.

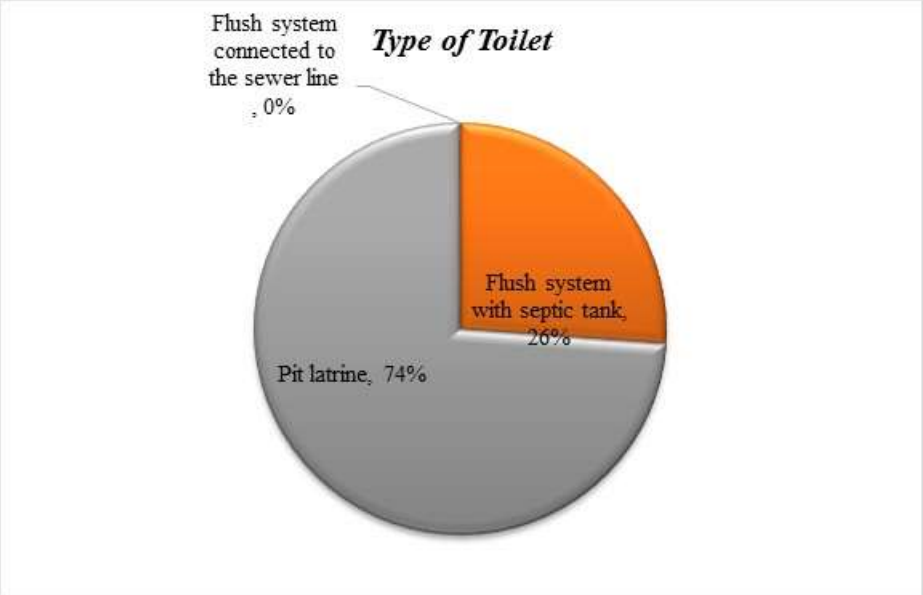

Figure 3-34: Types of Toilets Respondents Have in Their Compound

Source: Survey data.

7) The Coast Water Service board pipeline water supply

A fair percentage of the residents are aware of the intended construction of the pipeline as shown in the figure below:

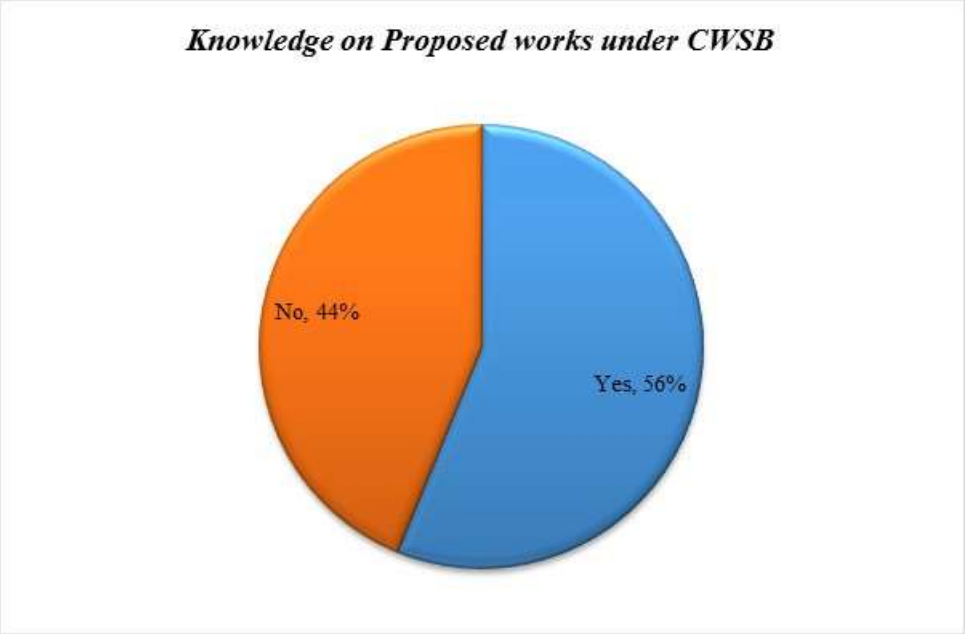

Figure 3-35: Public Awareness of the Intended Construction of the Pipeline

Source: Survey data.

67% of the respondents perceived that the construction of the pipeline will bring positive impacts while 33% perceived that it will bring about adverse impacts.

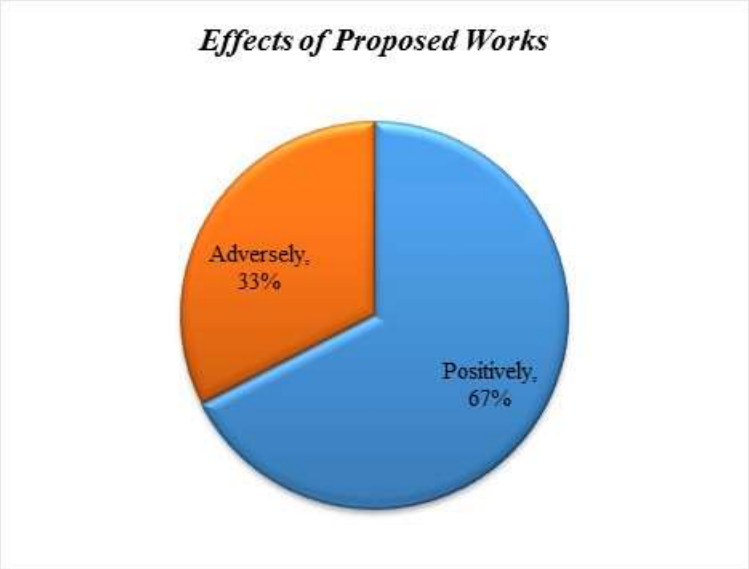

Figure 3-36: Perceived Impact of the Water Supply Project

Source: Survey data.

The positive impacts expected include reduced time and cost of travel to look for water, alleviate water shortages, improved hygiene, reduced cases of waterborne diseases, improved businesses, growth of town with the water supply, reduced livestock deaths and diseases, and employment for the youth as shown in the figure below.\

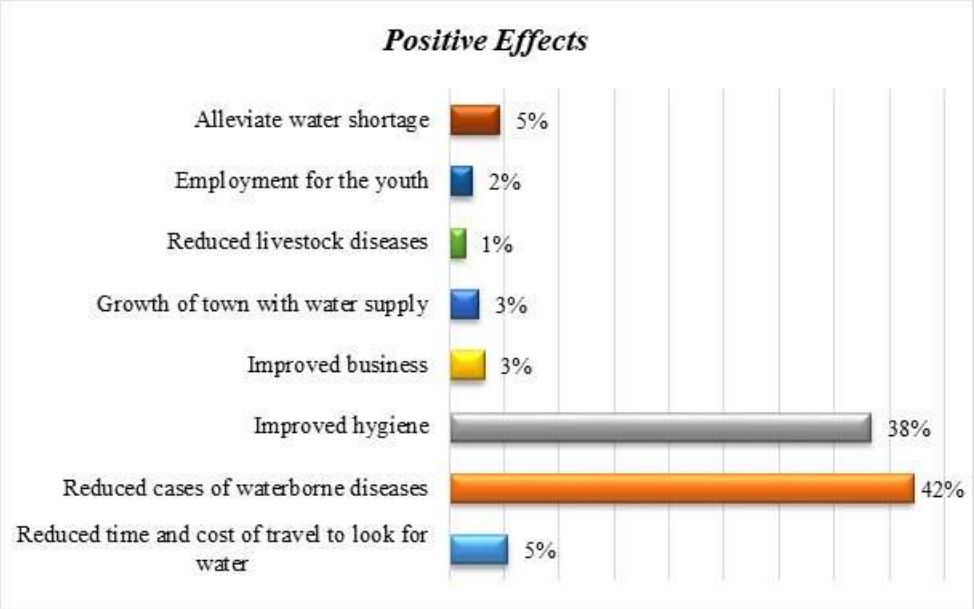

Figure 3-37: Positive Impact of the Proposed Project

Source: Survey data.

The negative impacts expected include loss of land/trees/crops, demolition of structures, interruption of services (electricity, water, transport) and soil erosion.

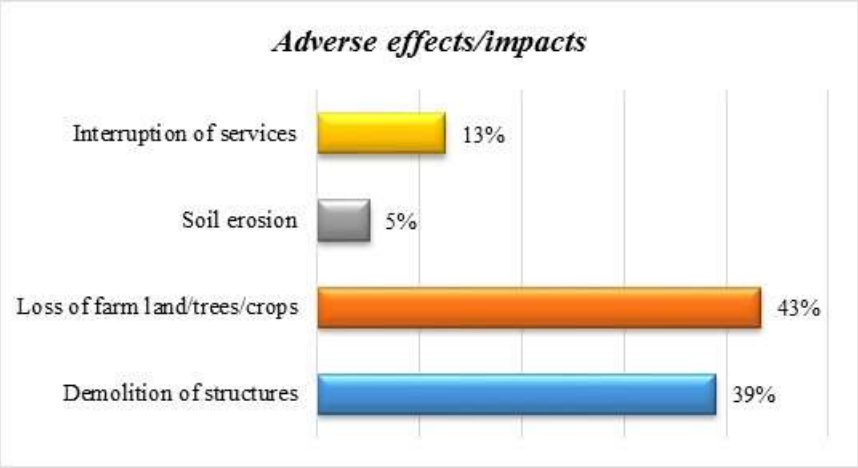

Figure 3-38: Negative Impact of the Proposed Project

Source: Survey data.

To mitigate the negative impacts the respondents feel that there is need to inform the public on any interruption of services, need to educate the public and the construction crew on health and safety, compensate the structure/land/crops/tree owners, avoid night time construction and install storm water drains.

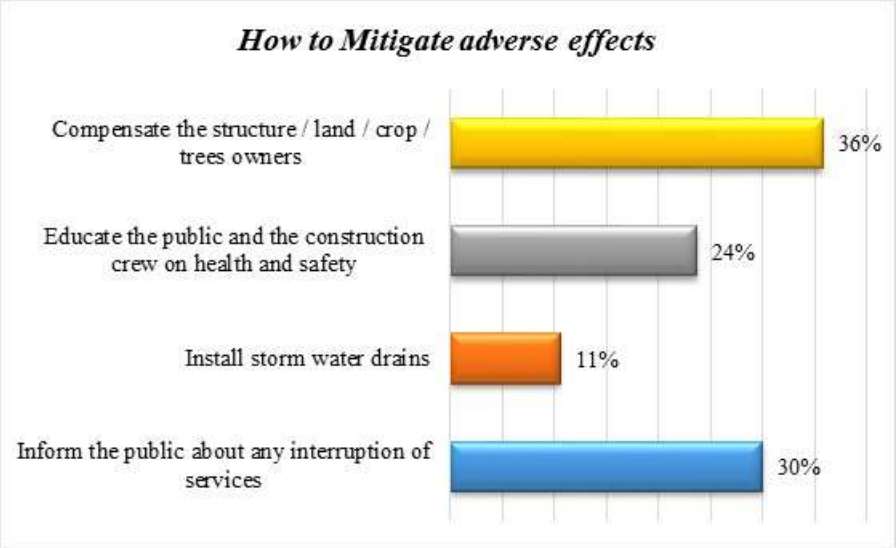

Figure 3-39: Mitigation Measures of Adverse Effects

Source: Survey data.

3.1.2 Kakuyuni – Gongoni Pipeline

The socio-economic situation of the area was captured based on findings of a household survey carried out using a structured questionnaire. A sample group of 300 households was interviewed for purposes of the analysis.

1) Population dynamics and household characteristics

The average household size is 9 people with a maximum recorded size of 31 people. The findings indicate that the age brackets of 5-18 and 19-35 comprise the bulk of the population. Figure 3-40 defines the population age brackets.

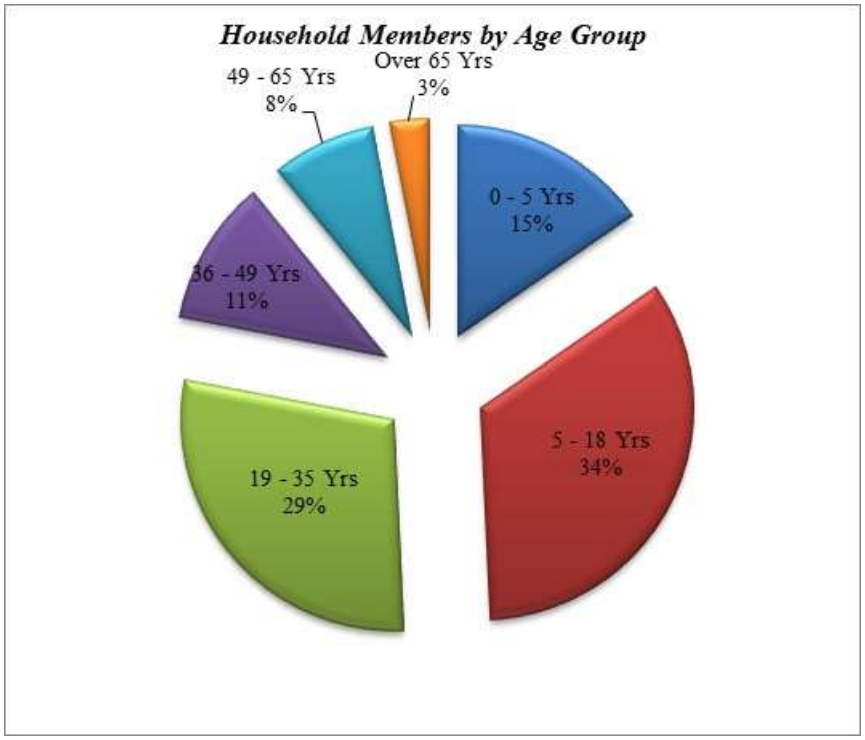

Figure 3-40: Age of Population

Source: Survey data.

The following is the summary of the literacy levels:- Primary level 56%, Secondary level 17%, college /university 3% and no education at all 24%. Therefore 76% of the population are able to read and write.

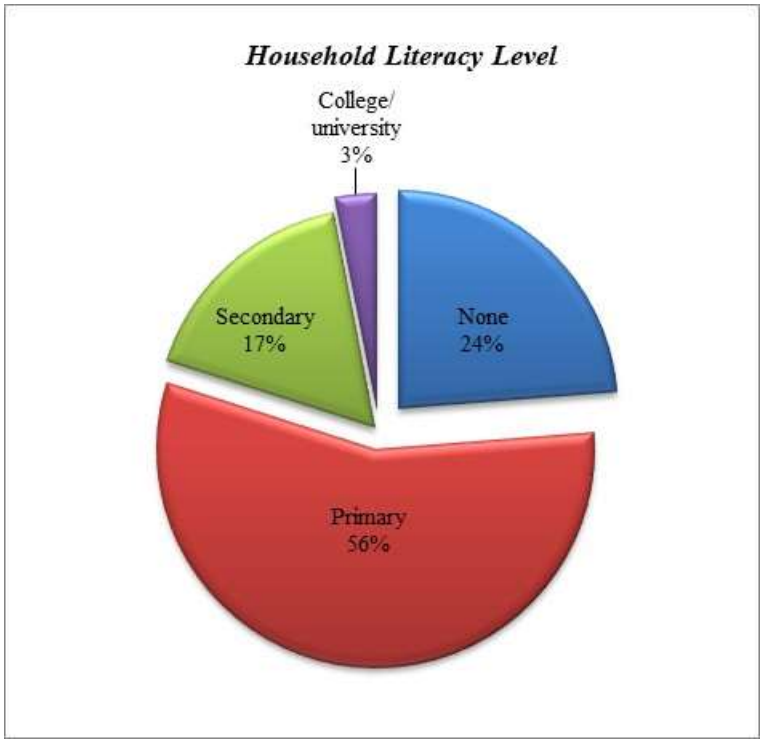

Figure 3-41: Household Literacy Levels

Source: Survey data.

Christianity is the principal religion in the area with 82% of the population falling under that category. Traditionalism is the religion whose prevalence is lowest at 4% of the population.

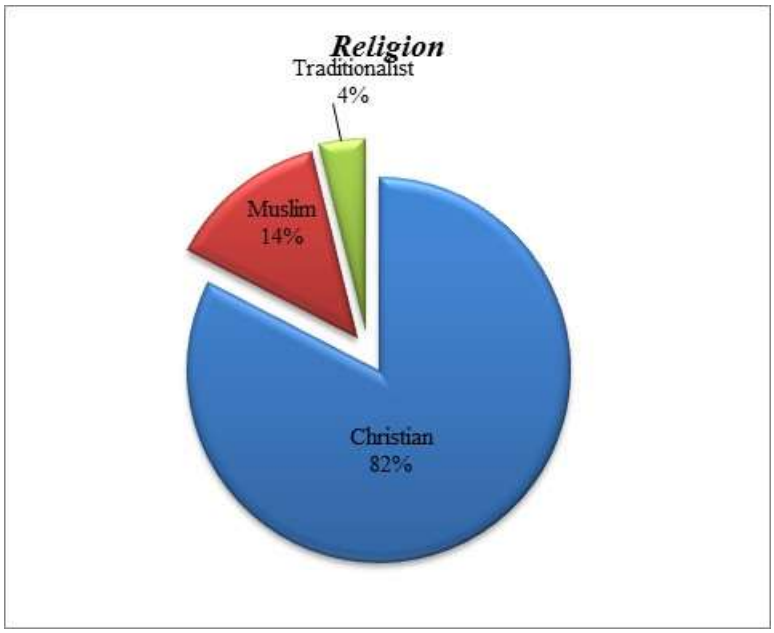

Figure 3-42: Religion of Population

Source: Survey data.

89% of the population depend on firewood for fuel hence making it the primary source of fuel. 8% depend on charcoal while a meagre 1% depend on gas making it the least suitable source of fuel in the area.

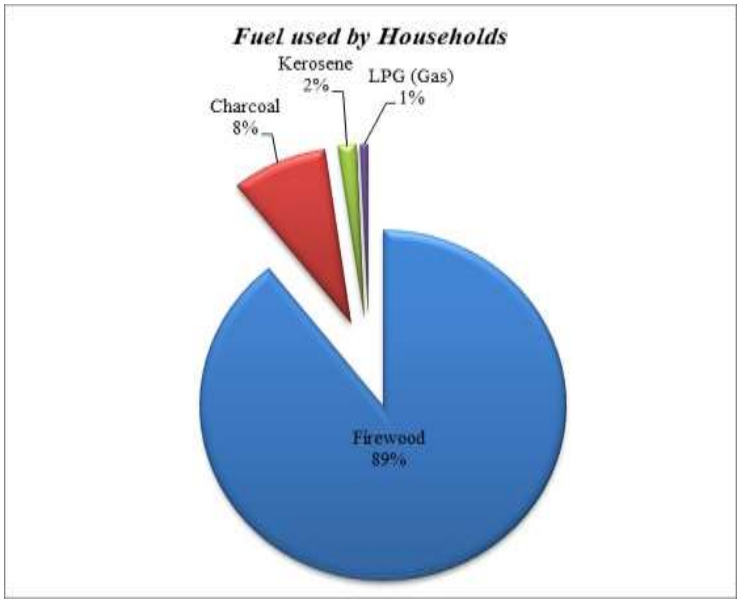

Figure 3-43: Source of Energy

Source: Survey data.

2) Socio-economic activities and land use patterns

Crop farming and livestock rearing at 52% and 22% respectively are the main sources of livelihood in the affected area. While 14% of the population depend on business for survival, only 10% of the population depend on employment for survival.

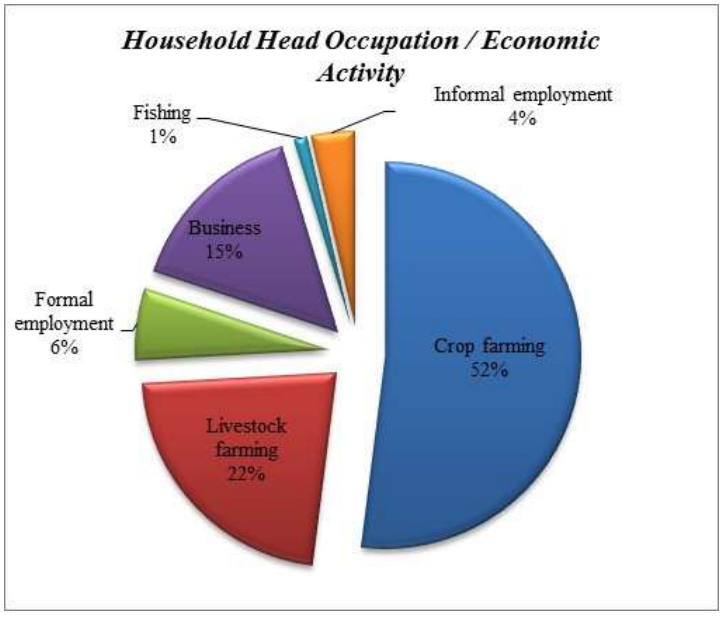

Figure 3-44: Household Socio-economic Activities

Source: Survey data.

The greater part of the population that is employed either formally or informally receive less than 15,000 shillings per month. On the other hand, only a paltry 4% receive over 30,000 shillings as their monthly income.

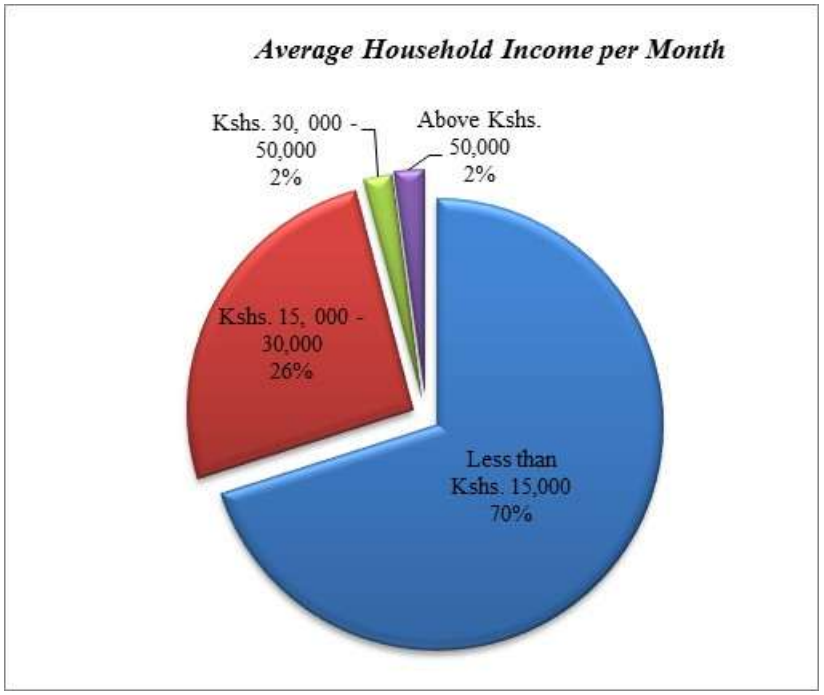

Figure 3-45: Average Household Income per Month

Source: Survey data.

22% of the households own livestock. The core livestock reared are goats, at 61% and cattle at 27%. Sheep are the least popular livestock as only about 1% of the households own sheep.

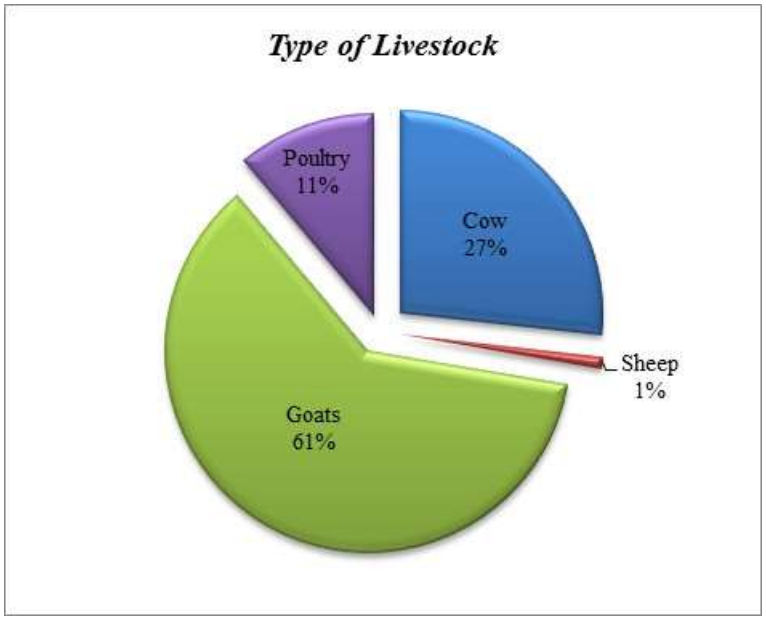

Figure 3-46: Main Livestock Owned

Source: Survey data.

The households conducting business constitutes 15% of the total population. The motorcycle taxi business is the most popular in the region, closely followed by shopkeeping at 30% and 29% respectively. The Jua Kali sector is an indispensable source of livelihood comprising 20% of the total businesses being carried out in the area.

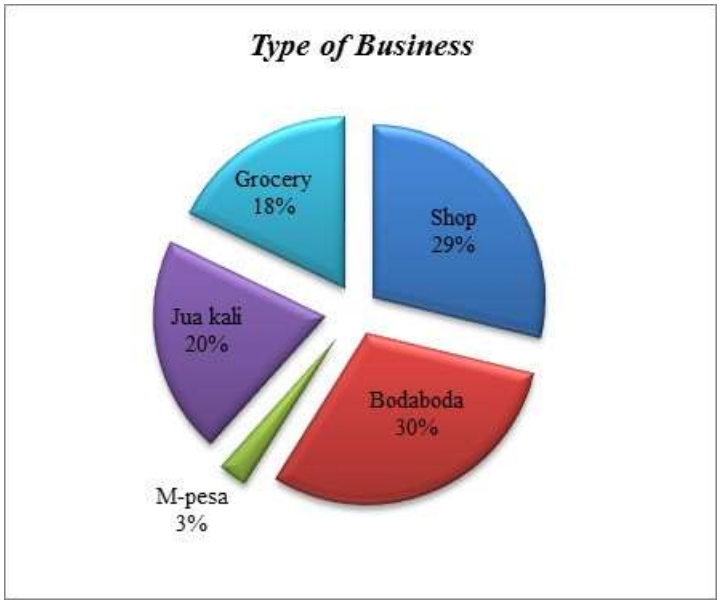

Figure 3-47: Type of Business Carried Out

Source: Survey data.

3) Water supply

Public water provided by the water service provider and CWSB is the main source of water in the area constituting 41%. This water is mainly drawn from public taps.

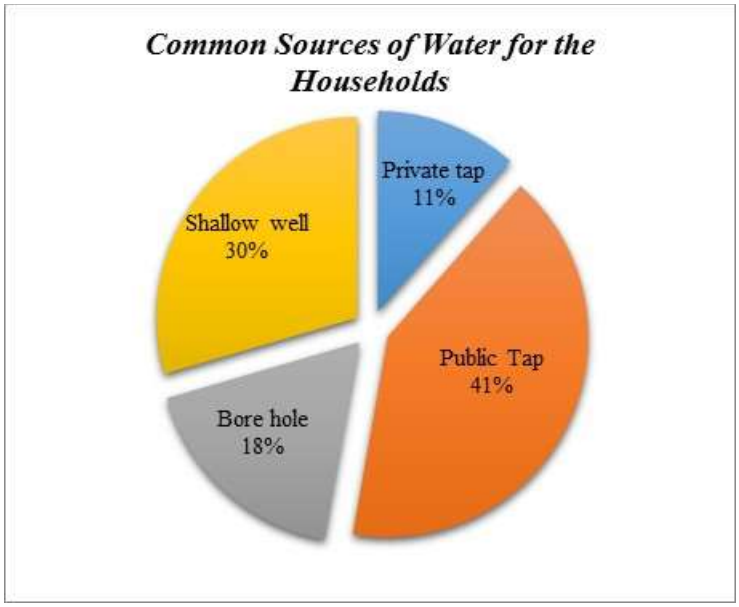

Figure 3-48: Main Sources of Water for the Community

Source: Survey data.

Most of the water providing companies are either privately owned or publicly owned, with 63% owned by the public and 29% owned by the private sector and. NGO's and faith based institutions only own 7% and 1% respectively.

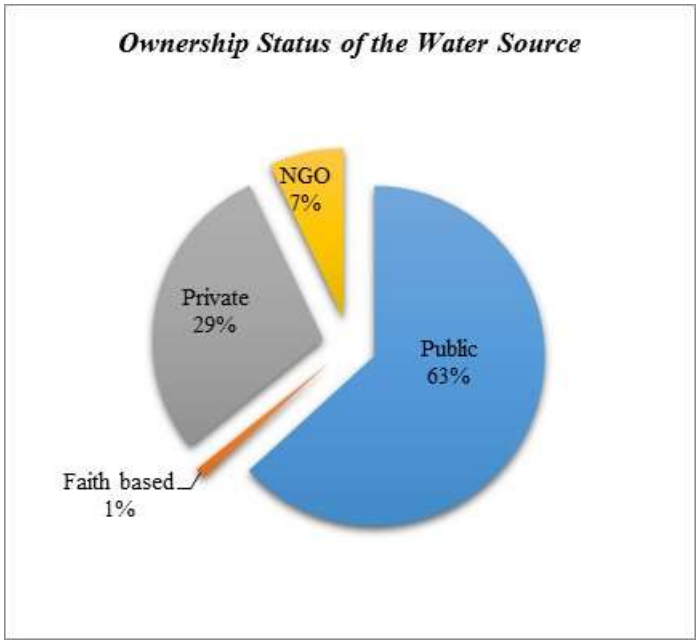

Figure 3-49: Ownership Status of Water Resources

Source: Survey data.

67% of the population purchases water while only a mere 33% of the population does not purchase the resource.

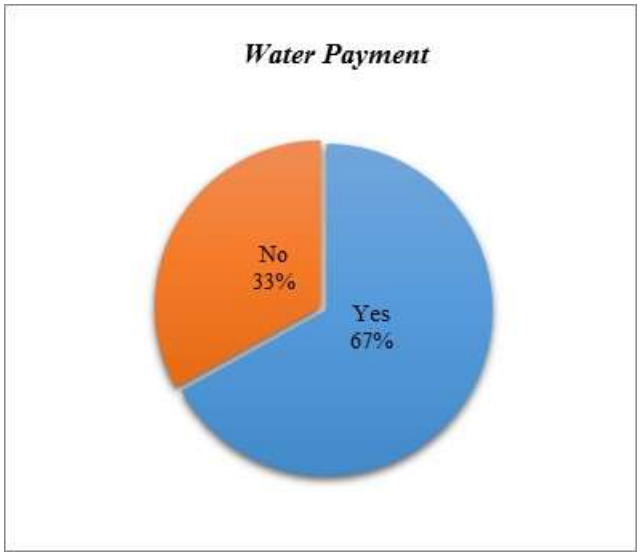

Figure 3-50: Percentage Population Paying for Water

Source: Survey data.

The cost of water varies depending on the ownership of the water. Others in this case includes any amount above 10 shillings. The bulk of the population in the project area pay K.shs. 2 for a 20lt jerry can.

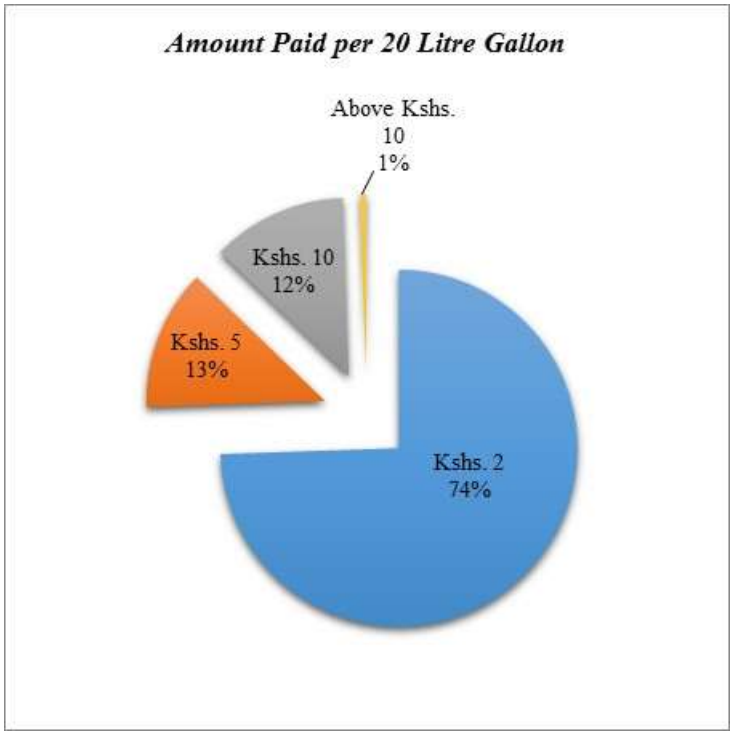

Figure 3-51: Cost of 20 Litre Jerry can of Water

Source: Survey data.

The water quality is generally good. 59 % of the residents view the water quality as good while the remainder views it as fair.

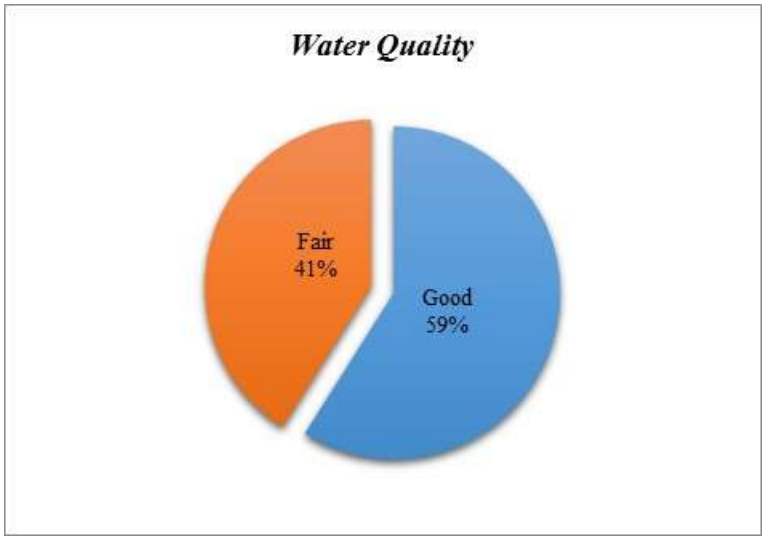

Figure 3-52: General Status of Water Quality

Source: Survey data.

Although 61% of the population feel that the water being provided is adequate, a whole 39% feel that it is inadequate. This means that there is need to expand the existing supply in order to meet the needs of the entire population.

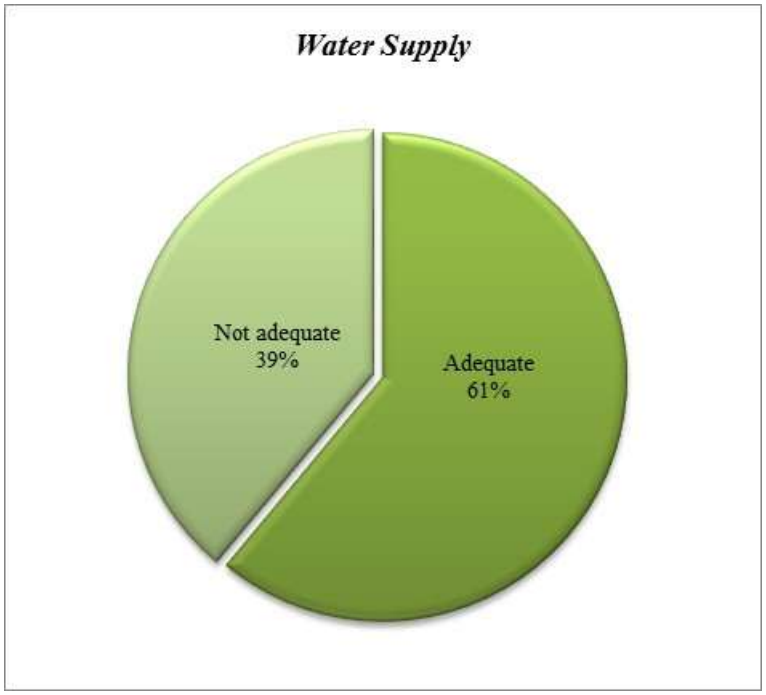

Figure 3-53: Adequacy of Water Supply

Source: Survey data.

Save for 1%, the entire population fetches water every day of the week while the remainder does it on alternate days of the week.

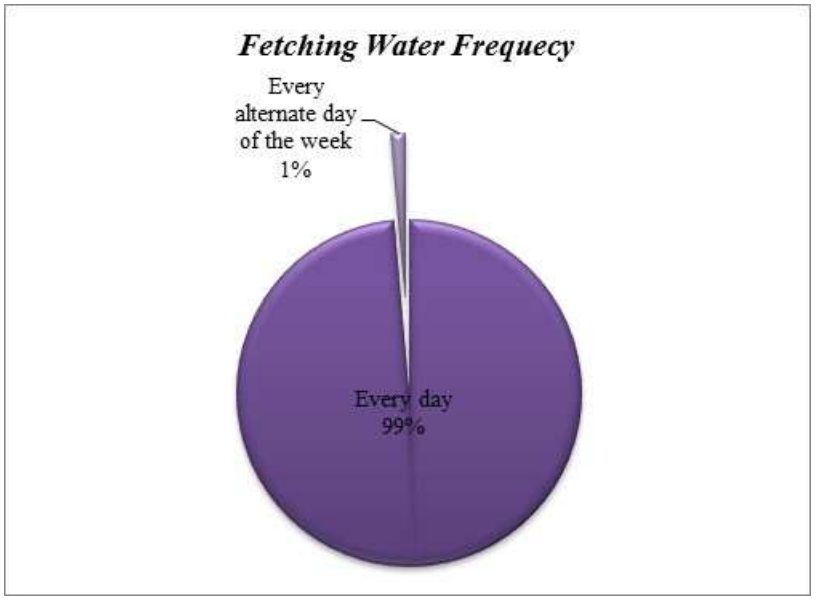

Figure 3-54: Frequency of Fetching Water

Source: Survey data.

38% of the population walks for less than 0.2 km to the water fetching points; 47% walks for 0.2-1 km, 13% walks for 1-2km while 2% walk for more than 2 km to the water source.

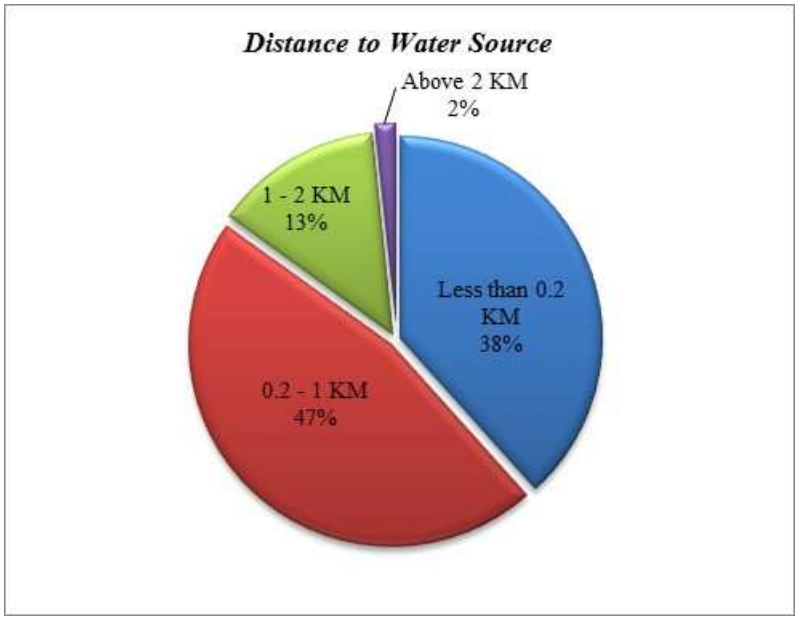

Figure 3-55: Distance to Water Source

Source: Survey data.

Water is commonly transported via carrying on the head whereby 75% of the population apply that means. 12% of the population uses the motorcycle for water transportation while 9% transport it via animal driven carts. The hand driven carts comprise of 3% of the mode of water transportation while pack animals i.e. the donkeys and camels comprise of only 1%.

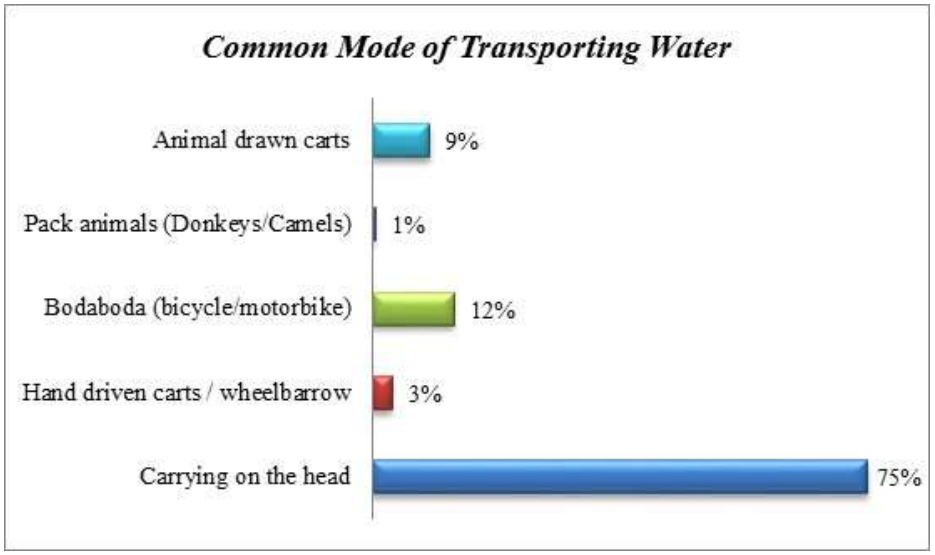

Figure 3-56: Common Modes of Transporting Water

Source: Survey data.

The common challenges faced in transporting water include loss of time 65% and physical fatigue due to long distances travelled to get to the water sources at 35%.

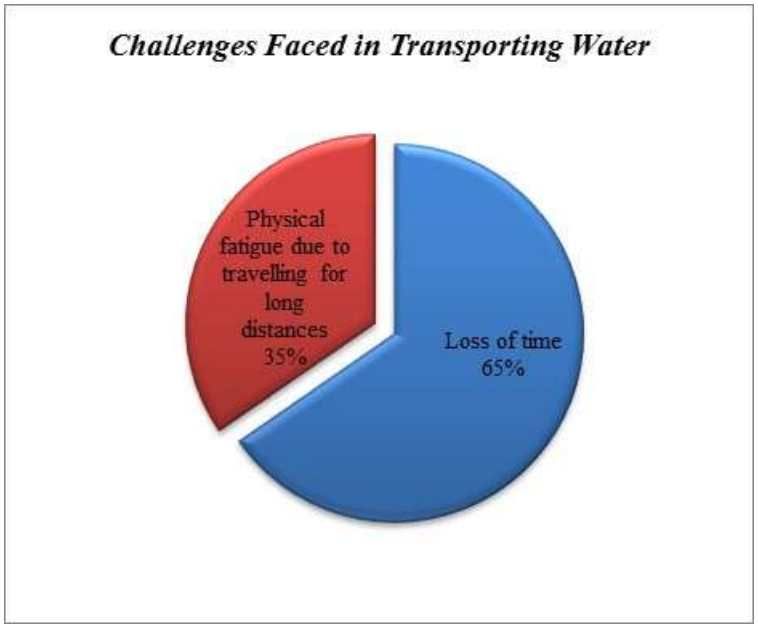

Figure 3-57: Challenges Faced in Transporting Water

Source: Survey data.

4) Environmental situation

The key environmental concerns in the area include water shortage, extinction of endangered species, mosquitos and malaria spread, overgrazing, deforestation, drought and solid wastes as shown in the figure below.

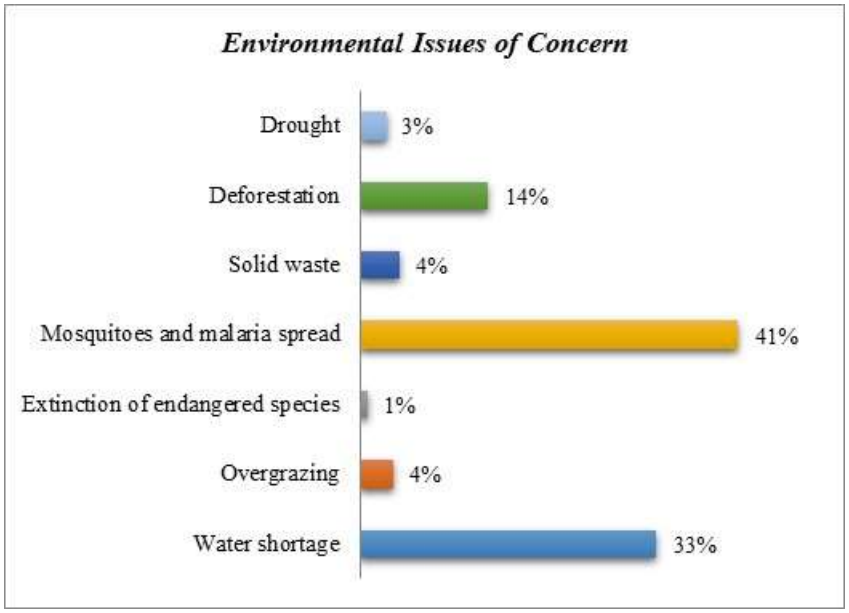

Figure 3-58: Environmental Issues of Concern

Source: Survey data.

There are a number of environmental conservation initiatives in the area such as tree planting, educating the public on environmental conservation and clearing of mosquito breeding sites as well as collection of solid wastes.

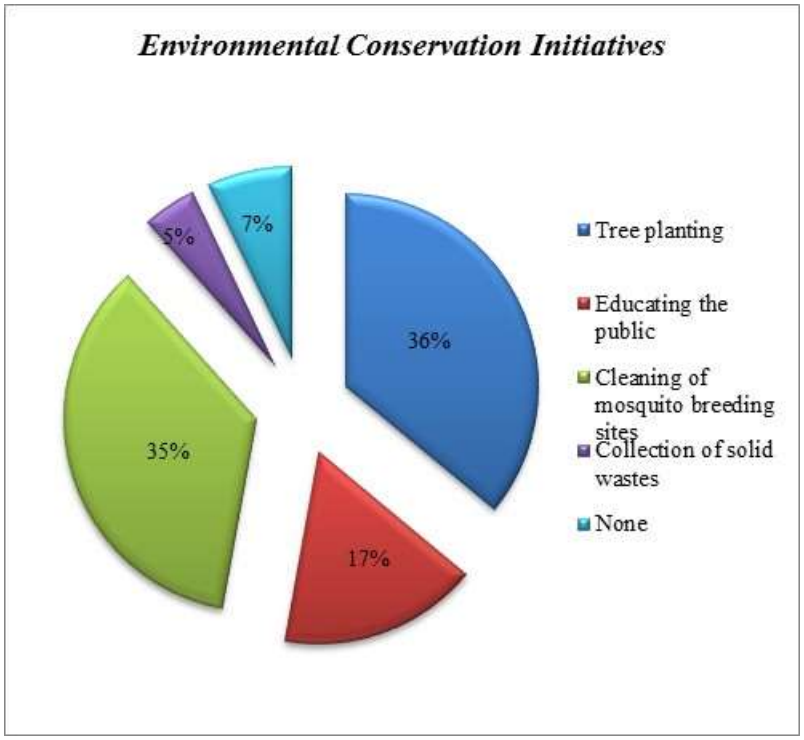

Figure 3-59: Environmental Conservative Initiatives

Source: Survey data.

These activities are carried out by youth groups, community based organizations, non-governmental organisations, the county council, women groups, not forgetting individual volunteers.

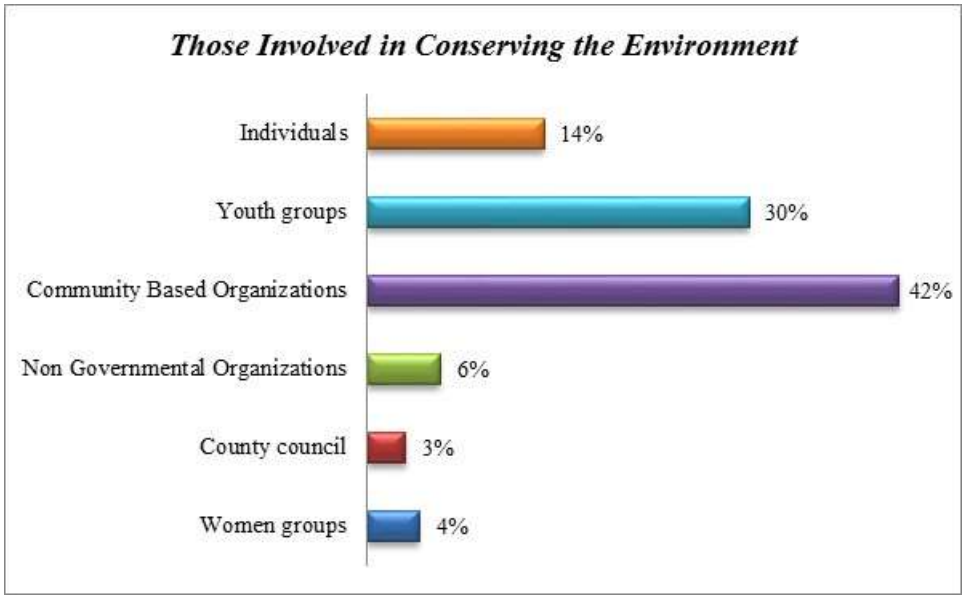

Figure 3-60: Implementers of the Environmental Conservation Initiatives

Source: Survey data.

100% of the population feel that the project will help conserve the environment.

5) Health status

The prevalent diseases in the area are malaria, diarrhea, eye infection, skin rashes cholera and respiratory infection.

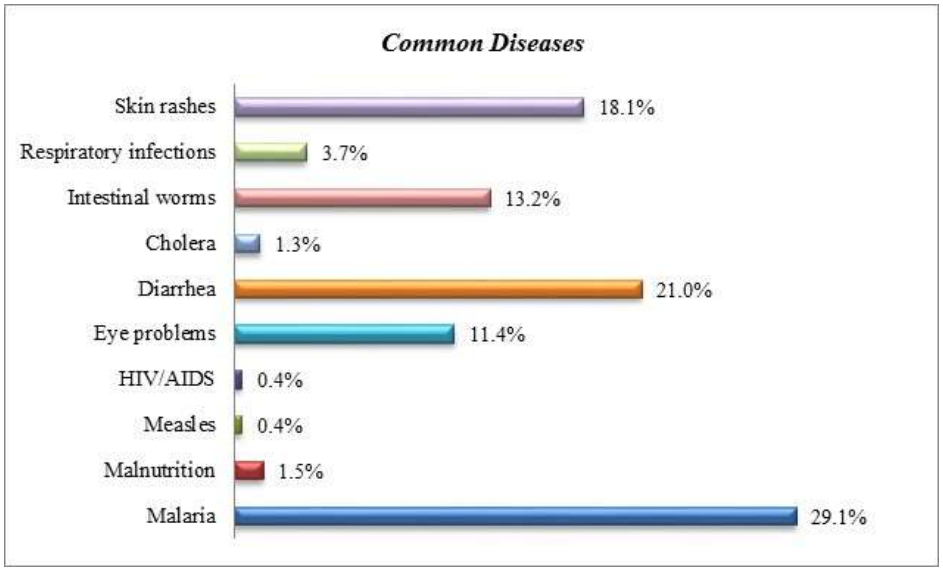

Figure 3-61: Prevalent Diseases in the Area

Source: Survey data.

Most of the respondents when sick seek medical attention or buy drugs from the health centre. The 4% who don't either seek prayers or the attention of a traditional doctor.

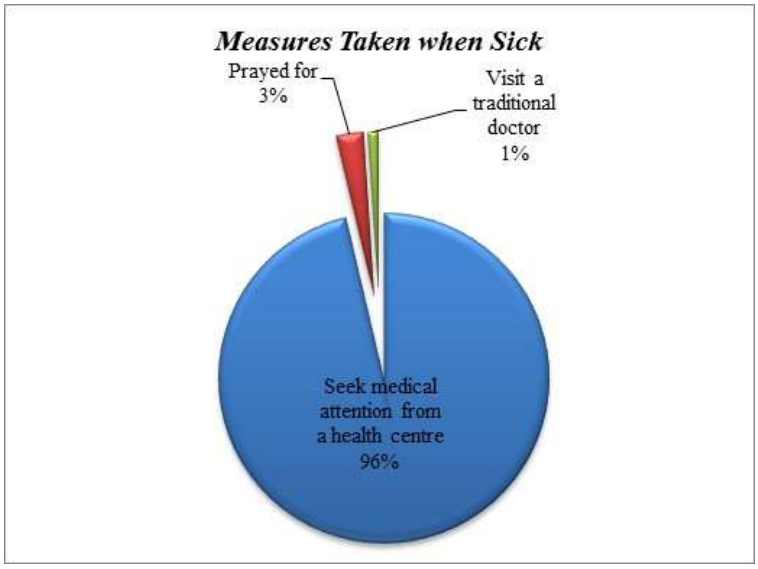

Figure 3-62: Treatment Sought when sick

Source: Survey data.

The health facilities where the people in the area seek help are mainly government health centres. 9% of the health facilities are privately owned while 8% are faith based health facilities. Only 1 % of the population depend on traditional sources of healthcare.

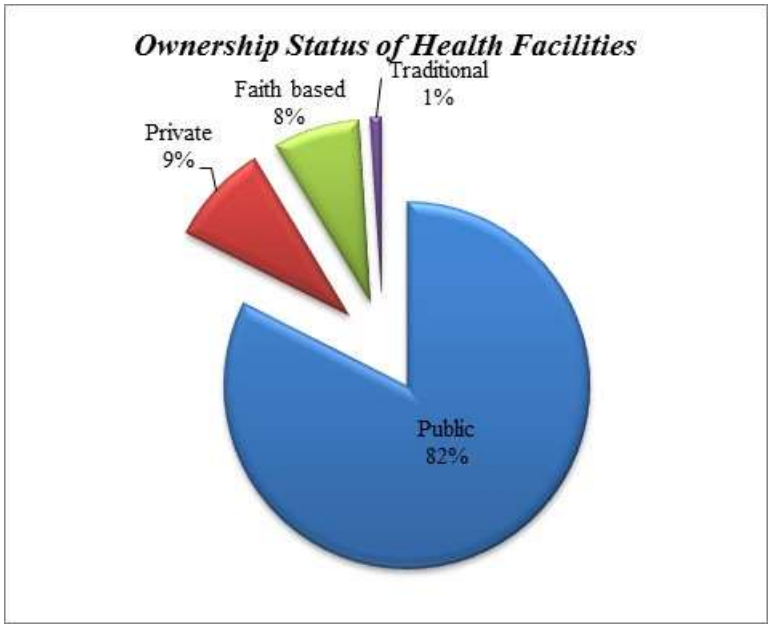

Figure 3-63: Ownership Status of Health Facilities

Source: Survey data.

62% of the respondents walk for 1-3km to the health facilities, 6% walk for 3-5 km, while 32% walk for less than 1km.

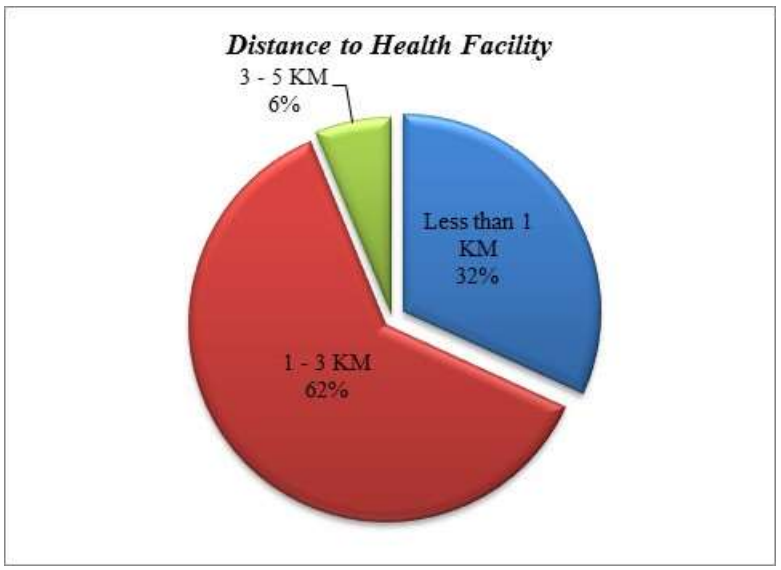

Figure 3-64: Distance to Health Facilities

Source: Survey data.

The level of HIV/AIDS awareness is high. 100% of the population are aware of HIV/AIDS and information about HIV/AIDS is mainly got from the media, family members and friends, health workers and religious leaders as shown in the figure below.

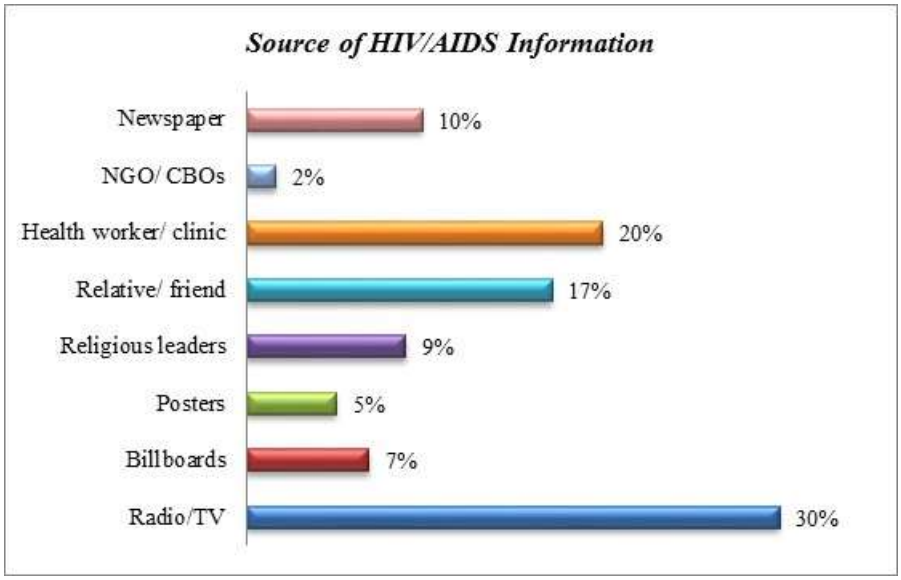

Figure 3-65: Source of Information on HIV/AIDS

Source: Survey data.

6% of the respondents have been affected by the disease whereas 94% hasn't been affected by Aids.

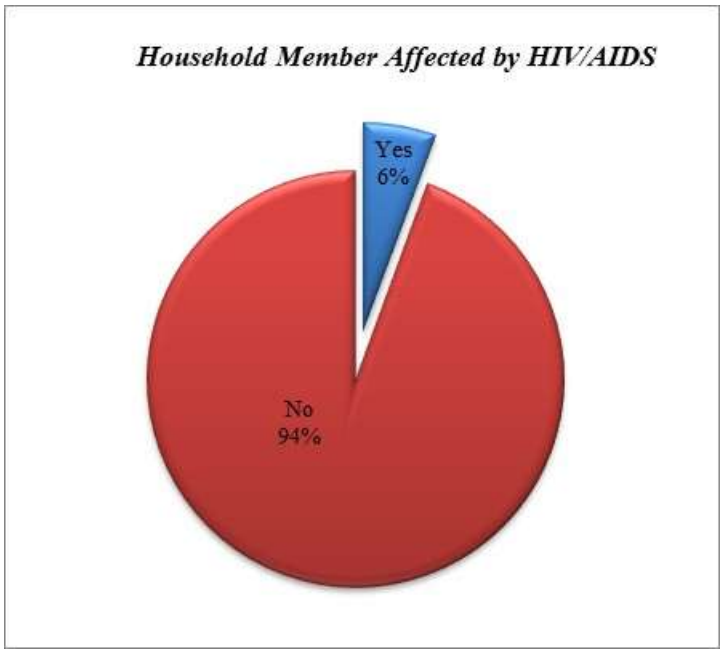

Figure 3-66: Household Members Affected by HIV/AIDS

Source: Survey data.

99% of the respondents feel that HIV/AIDS can be prevented while 1% either don't know, or believe that it can't be prevented.

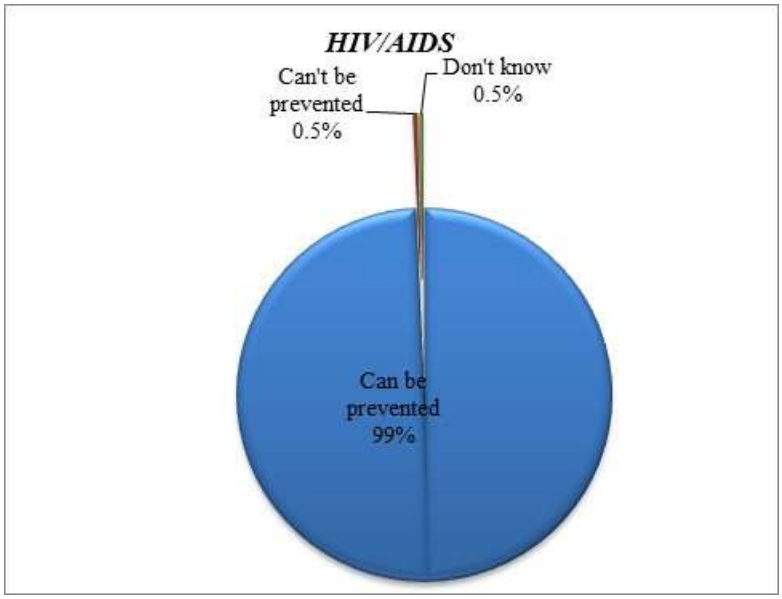

Figure 3-67: Knowledge on Whether HIV/AIDS Can Be Prevented

Source: Survey data.

100% the respondents know where to go for voluntary counselling and testing for HIV/AIDS.

6) Waste management

The methods used by the population to dispose refuse are by burying/use compost pit, burning, dumping in open areas, and collection by the county council as shown in the figure below.

Figure 3-68: Common Waste Disposal Methods

Source: Survey data.

There is an equal portion on the population that do and don't have toilets as that which has the facility.

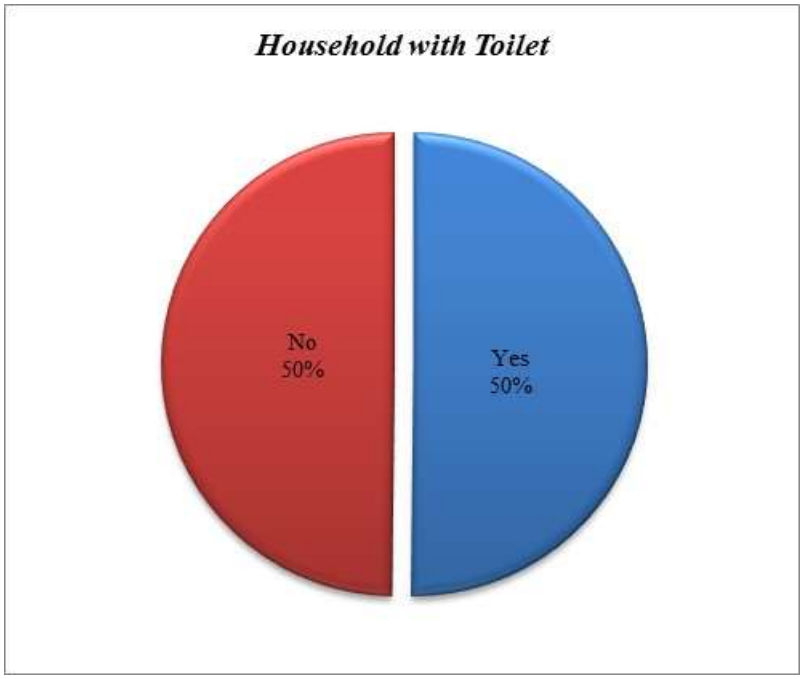

Figure 3-69: Respondents Who Have Toilets in Their Compound

Source: Survey data.

57% of the population with toilets apply the use of a pit latrine while 22% use flush system with septic tanks. Only 21% use the flush system connected to the sewer line.

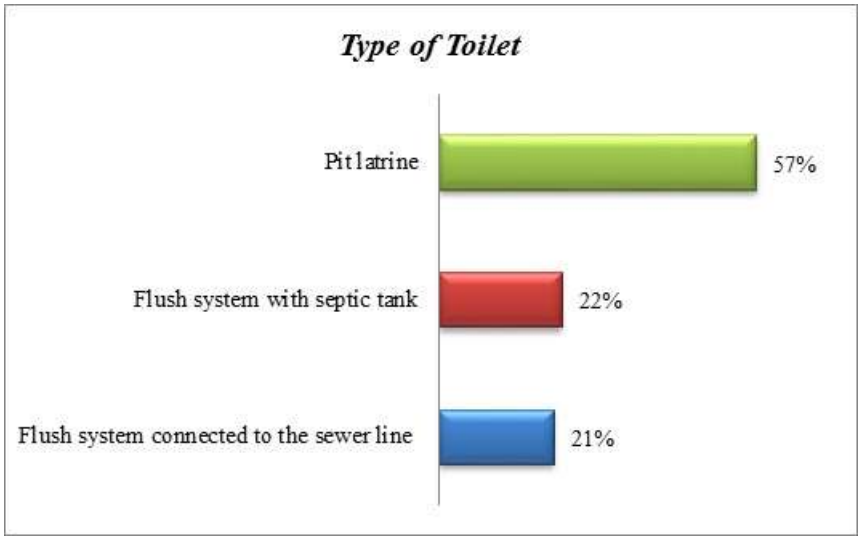

Figure 3-70: Types of Toilets Respondents Have in Their Compound

Source: Survey data.

7) The Coast Water Service board pipeline water supply

Most of the residents are aware of the intended construction of the pipeline as a paltry 5% were not aware.

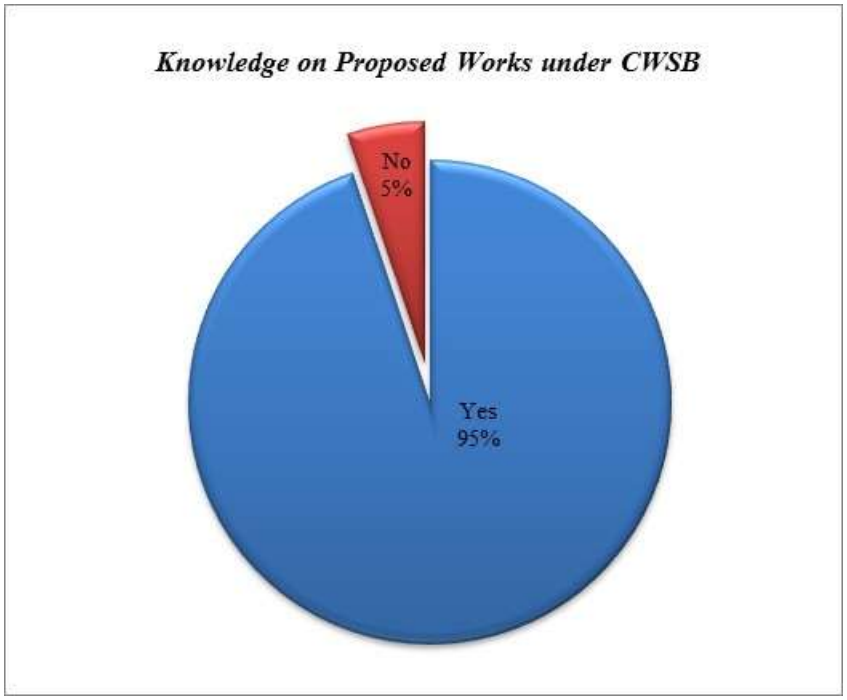

Figure 3-71: Public Awareness of the Intended Construction of the Pipeline

Source: Survey data.

83% of the respondents perceived that the construction of the pipeline will bring positive impacts while 17% percent perceived that it will bring about adverse impacts.

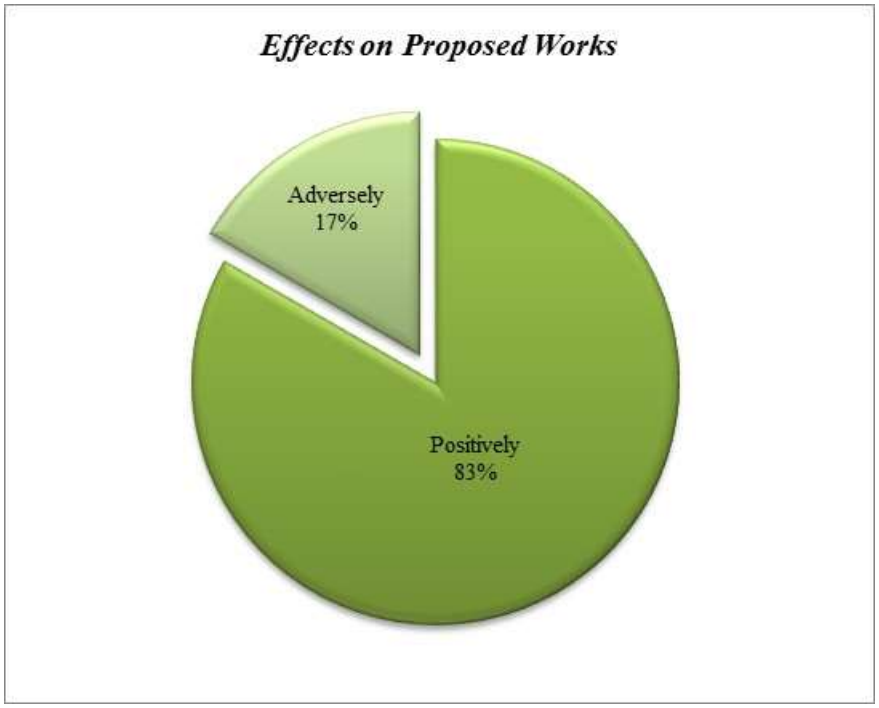

Figure 3-72: Perceived Impact of the Water Supply Project

Source: Survey data.

The positive impacts expected include reduced time and cost of travel to look for water, alleviate water shortages, improved hygiene, reduced cases of waterborne diseases, improved businesses, growth of town with the water supply, reduced livestock deaths and diseases, and employment for the youth.

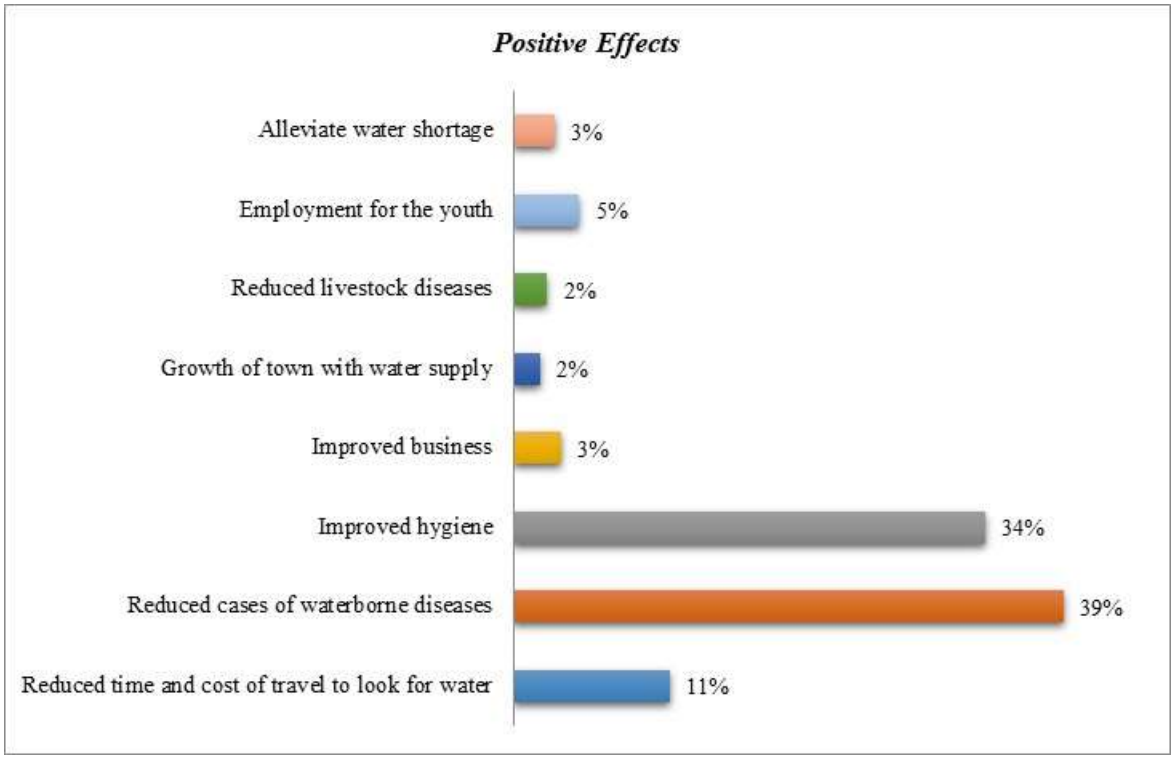

Figure 3-73: Positive Impact of the Proposed Project

Source: Survey data.

The negative impacts expected include loss of land/trees/crops, demolition of structures, interruption of services(electricity, water, transport), reduced water for downstream users, soil erosion, dust and noise and spread of diseases (STD, HIV/AIDS).

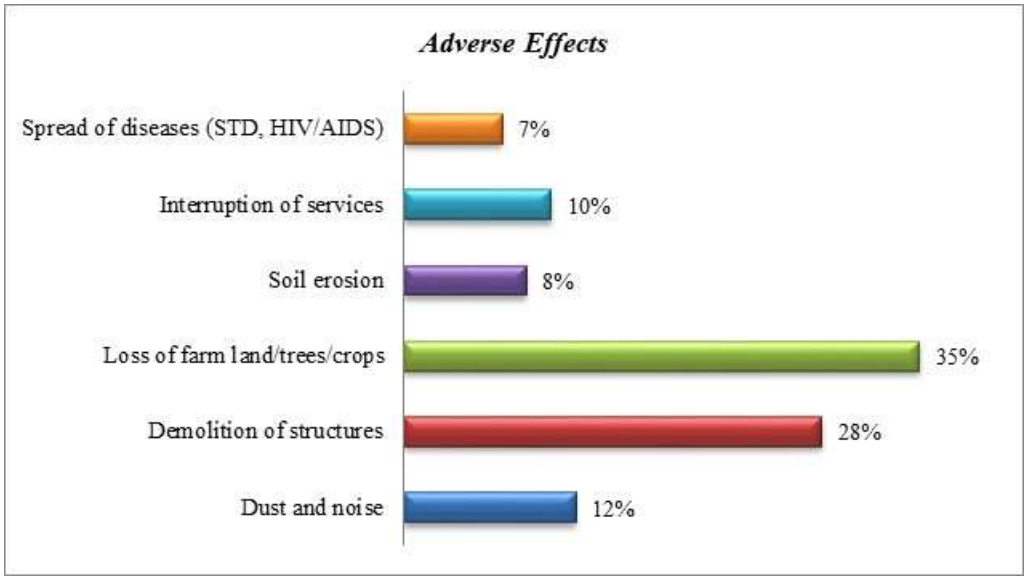

Figure 3-74: Negative Impact of the Proposed Project

Source: Survey data.

In order to mitigate the negative impacts, the respondents feel that compensation of all affected items such as structures and crops is the principal thing that should be carried out. Other minor portions of the population feel that night time construction should be avoided and the public awareness should be done on the proposed project as well as the interruption of services. 5% of the respondents feel that there should be the installation of storm water drains.

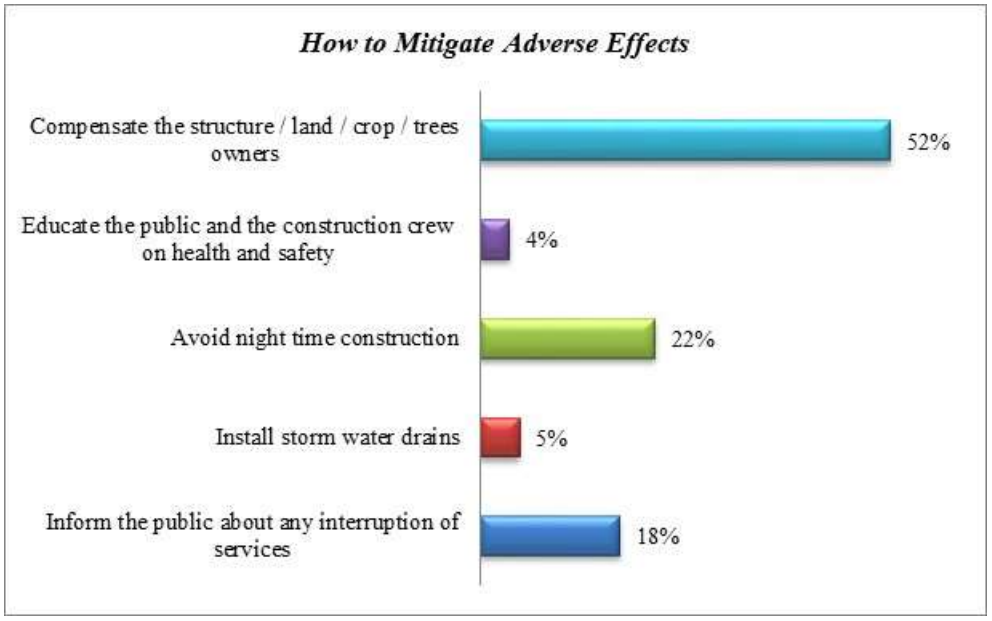

Figure 3-75: Mitigation Measures for Adverse Impacts of the Project

Source: Survey data.

3.2 PHYSIOGRAPHIC AND ENVIRONMENTAL CONDITIONS

3.2.1 Location

Kilifi County is one of the six counties in Coast region. It is situated in the southeast of the Coast region. It lies between latitudes 2°18' and 4°2' south of the equator and longitudes 39°5' and 40°15' east. The County borders Tana River County to the North, Taita-Taveta County to the West, Kwale County to the South-West, Mombasa County to the South, and Indian Ocean to the East.

The County covers an area of 12,245.90 km^2 (4,728.17 sq m.

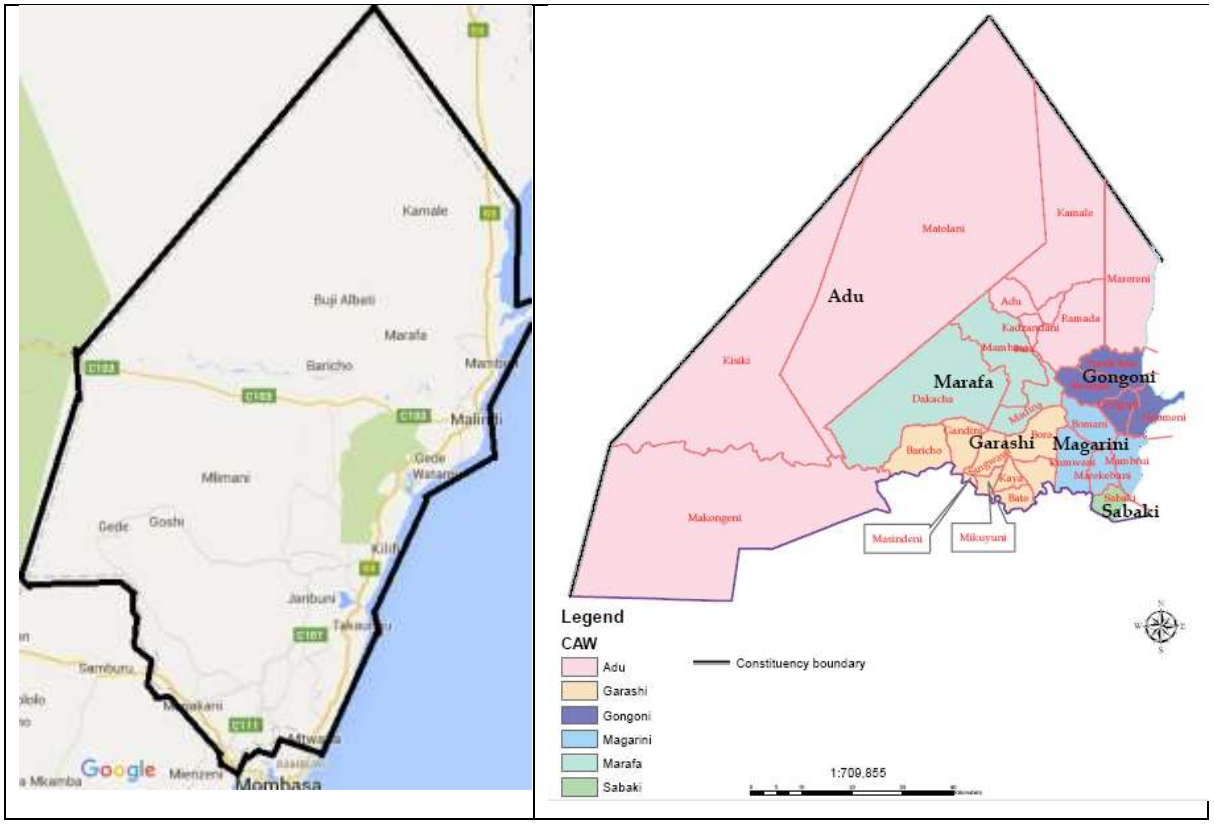

Figure 3-76: Kilifi County Map (Google maps) & Administrative divisions

The Kakuyuni Kilifi pipeline starts in Malindi Sub-County and then ends in Kilifi town in Kilifi Sub-County.

The Kakuyuni – Gongoni Pipeline also starts in Malindi Sub-County and ends in Gongoni in Magarini Sub-County.

3.2.2 Climate

The pattern of rainfall in the project area is bimodal. The long rains fall from April to June, with a peak in May. The county receives an average annual rainfall ranging from 300mm in the hinterland to 1,300mm at the coastal belt. The average annual rainfall at the coastal belt ranges between 900mm and 1100mm with notable decrease in intensity to the hinterland. The north of the coastal strip along the Arabuko Sokoke Forest is one of the areas that receive the highest rainfall. The area is flat in general leading to floods especially within the heavy rainy seasons.

The project area experiences the highest evaporation rates during the months of January to March. The annual temperatures experienced in the project area range between 21oC and 30oC in the Coastal belt, and between 30^{o}C and 34^{o}C in the hinterland. The area also receives relatively low wind speeds ranging between 4.8 km/hr and 12 km/hr.

3.2.3 Topography

The project area has three major topographical features with marked geological and rainfall characteristics which dictate the resource potential and land use patterns. These are the Coastal Plain, the Foot Plateau and the Coastal Range.

The Coastal Plain is a narrow belt, varying in width between 3 km and 20 km. It lies below 30 m above sea level. The zone is composed of Triassic sediments of marine and deltaic origin, and includes coral limestone, marble, clay stones and other alluvial deposits. It yields deep soils favourable to agriculture.

The Foot Plateau is located to the west of the Coastal Plain. The terrain is slightly undulating; its elevations vary between 60 m and 135 m in altitude. The plateau is characterised by a seaward-sloping pine plain. Under the dry water courses at the surface lie Jurassic sediments consisting of shell sandstone and impervious clays. The soils support grassland and stunted vegetation and are highly prone to erosion.

The Coastal Range Zone features a distinct range of sandstone hills, which are about 150 m to 420 m high. This zone has good rainfall rates and fertile soils, and therefore provides some of the best farming areas in the district. This hinterland forms the rangelands.

3.2.4 Biodiversity

The project area is located within the coastal belt region of the Kenyan Coast. The general flora and fauna found in this area include coconut and palm trees, cashew nuts, cassava and mango trees. The area is also home to various animals including elephants, snakes, butterflies and birds. The County and project (Kakuyuni – Kilifi pipeline) passes along the outer boundary of the renowned Arabuko Sokoke forest which is has a rich biodiversity, and is home to flora and fauna unique to coastal forests. It is considered the second most important area for bird conservation after the Congo rainforest. It is home to 230 bird species. 52 mammal species have been recorded in the forest including 150 elephants. There are also 250 butterfly species. The major tree species within the forest include; Brachistegia, Arborea and the Neem tree.

Of additional interest to the project, is the Mida Creek which is located across from the pipeline along the Mombasa – Malindi B8 highway. The creek is home to a mangrove forest which is home to several fish, birds and crabs, the area also provides a site for fish to lay their eggs.

The project will not affect the cutting of trees within each of the forest reserves, however due to the road reserve's proximity to the road reserve there is the growth of indigenous trees within the road reserve which will have to be cleared. In addition, some construction activities may negatively affect the forests and as such environmental mitigation measures will have to be put in place to ensure the safety of the biodiversity.

3.2.5 Geology and Soils

The soils in the project area include sedimentary rocks of venue types, such as consolidated sand, silts, clays and limestone. Most of the soil formations along the coast are of coral origin.

The sediments found in the project area were deposited throughout three geological eras Jurassic, Tertiary, and the Quaternary. Each of these units has several formations.

3.2.6 Hydrology and Drainage

The drainage pattern for the project area is characterized by seasonal rivers, which drain into the Indian Ocean. The only major river which flows through the area is the Sabaki (Galana) River which also drains into the Indian Ocean.

3.3 SOCIO ECONOMIC INFRASTRUCTURE

3.3.1 Administration

The Kakuyuni - Kilifi Pipeline passes through the following locations

- Kilifi Township
- Tezo
- Ngerenya
- Roca
- Matsangoni
- Gede
- Goshi

Whereas the Kakuyuni – Gongoni passes through the following locations:

- Goshi
- Ganda
- Malindi Township (Sabaki)
- Magarini

3.3.2 Transport

Being a Coastal region, the project area is generally flat with occasional changes in the topography. The B8, Mombasa-Malindi highway is the main mode of transport within the county, with an underdeveloped road network towards the interiors. The availability of the Malindi national Airport has improved accessibility to Malindi and promoted tourism in the area.

Table 3-1: Mombasa – Malindi B8 road at Matsangoni along which the pipeline passes

3.3.3 Land Use and Economic Activities

More than half the land in Kilifi County is arable. Despite this, only an estimated 31% of these farmers hold titles to their land. The main subsistence crops grown in the county are maize and cassava. The key cash crops on the other hand include coconuts, cashew nuts, sisal and fruits such as pineapples and mangoes.

The Arabuko-Sokoke Forest within the County is protected as a national Forest Reserve. It is approximately 420 km^2 and to the north western edge of the forest is the Arabuko-Sokoke National Park, which is only a few kilometres in size. It consists of three ecosystems: mixed forest, Brachystegia (tropical timber) forest and Gynometra forest. The forest was first gazetted in the 1960s, while the park in the late 1980s. The forest is threatened by the desire for land by the local people.

Maize and Coconuts grown in the low land areas

Indigenous tree species in the Arabuko Sokoke Forest

Mangrove Swamp in Mida Creek

3.3.4 Water Supply

Kilifi is currently served by an offtake from the Baricho – Mombasa Pipeline at Sokoke. This pipeline provides water to the Kilifi Tank located near the Kilifi Hospital. Water is then distributed to residents via a distribution network. Since the supply is an offtake from the Baricho – Mombasa Pipeline, priority is given to Mombasa, as such Kilifi often suffers water shortages due to lack of adequate water.

Gongoni on the other hand does not have a water supply with residents making use of shallow wells and water bowsers to get water.

Kilifi receives its water from the Baricho wellfield, where water is drilled from wells located near the Sabaki River, and treated at the water treatment works nearby. The treatment works is designed to meet the NEMA water quality standards. In order to meet the increased water demand by these new supply areas, 3 new wells are being drilled at the Baricho Wellfield and the treatment works capacity improved. A separate ESIA has been carried out to meet these requirements.

Majority of the residents by water from the public sources in jerry cans, however once the water is made available, a tariff system will have to be looked into by making use of WASREB's

tariff policy for providing sustainable and affordable water supply and sanitation services to the poor to cover basic human need while at the same time ensuring financial viability of the services provided. The block tariff structure by MAWASCO should incorporate the "pro-poor" policy through the provision of a lifeline tariff for poor households.

3.3.5 Power Supply

The Project Area is served by the national grid under the Kenya Power and Lighting Company (KPLC).

4 RELEVANT LEGISLATIVE/ REGULATORY FRAMEWORK

There are many laws and regulations governing issues of environmental concern in Kenya. The principal National legislation is the Environmental Management & Coordination (Amended) Act of 2015. The Act empowers stakeholders to participate in sustainable management of the natural resources. It calls for Environmental and Social Impact assessment (ESIA) to guide the implementation of environmentally sound decisions. Other local laws and regulations looked into include but are not limited to, the Constitution, the Water Act of 2002 among others.

In addition to the local legislation, the Consultant has identified some World Bank Policies of relevance to the project.

The following is an outline of the legislative, policy and regulatory framework for which the Proponent shall observe and implement in an effort to comply with Environmental Sustainability.

4.1 THE ENVIRONMENTAL MANAGEMENT AND COORDINATION (AMENDED) ACT OF 2015

This Act is an amendment of the Environmental Management and Co-ordination Act of 1999. The amended Act covers virtually all diverse environmental issues which require a holistic and coordinated approach towards its protection and preservation for the present generation without compromising the interests of the future generation to enjoy the same. Consequently, the amended act provides for the legal regime to regulate, manage, protect and conserve biological diversity resources and access to genetic resources, wetlands, forests, marine and freshwater resources and the ozone layer to name a few.

The Environmental Management and Coordination (Amended) Act, 2015 harmonizes the various requirements of the other existing laws and regulations by stipulating that where the provisions of any existing law conflicts with itself, then the provisions of the Environmental Management and Coordination (Amended) Act, 2015 shall prevail. This way, the act is able to minimize any conflicts in enforcement of the various environmental laws and regulations as applied to the relevant sectors. The Environmental Management and Coordination (Amended) Act, 2015 represents the culmination of a series of initiatives and activities coordinated by Government and stakeholders. It accentuates the right of every person in Kenya to live in a clean and healthy environment and obliges each and every one to safeguard and enhance the environment. It is the master plan for the environment in Kenya and contains a National Environment Policy, Framework Environmental Legislation and Environmental Strategy.

The Act gives power to the National Environment Management Authority (NEMA) which is a semi-autonomous government agency mandated to exercise general supervision and coordination over all matters relating to the environment and to be the principal instrument of the Government of Kenya in the implementation of all policies relating to the environment. NEMA is the body in charge of ensuring developments adhere to the policies and frameworks set out by the Authority.

The amended act highlights the need for an ESIA which is presented in this report.

4.2 THE ENVIRONMENT MANAGEMENT AND COORDINATION AMENDED ACT 2015 AND ITS TOOLS

The Act has several regulations that aid in its implementation the relevant regulations are highlighted in the sections below:

4.2.1 Environmental (Impact Assessment and Audit) Regulations 2003

These Regulations stipulate the importance of conducting an ESIA as well as the procedure necessary. The Regulations highlight the various reports and their contents to be submitted to NEMA for licensing. The regulations highlight the ESIA process which includes:

- Submission of a ESIA project report to NEMA for review or licensing
- In some cases the Authority will request for a full study report for some projects for which the applicant will be required to prepare a Terms of Reference and submit a study report.

The project and study reports will be conducted before the implementation of the development in question, the reports will be subject to approval by NEMA.

The regulations also calls for Environmental auditing and monitoring that will be carried out during the construction or operation of the enterprise, the regulations provide the format of the audit report which will be provided to NEMA.

In 2017, NEMA, via press release, announced the scrapping of the 0.1% NEMA license fee for review of EIA report.

4.2.2 Water Quality Regulations (2006)

Water Quality Regulations apply to water used for domestic, industrial, agricultural, and recreational purposes; water used for fisheries and wildlife purposes, and water used for any other purposes. Different standards apply to different modes of usage. These regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources.

The water provided by the water treatment plant should meet the requirements of these regulations. The standard of water is summarized in the table below:

Table 4-1: Water Quality Standards

Parameter	**Guide Value (Max Allowable)**
pH	6.5 – 8.5
Suspended solids	30 (mg/L)
Nitrate-NO_3	10 (mg/L)
Ammonia –NH_3	0.5 (mg/L)
Nitrite –NO_2	3 (mg/L)
Total Dissolved Solids	1200 (mg/L)
Scientific name (E.coli)	Nil/100 ml
Fluoride	1.5 (mg/L)
Phenols	Nil (mg/L)
Arsenic	0.01 (mg/L)
Cadmium	0.01 (mg/L)
Lead	0.05 (mg/L)
Selenium	0.01 (mg/L)
Copper	0.05 (mg/L)

Parameter	Guide Value (Max Allowable)
Zinc	1.5 (mg/L)
Alkyl benzyl sulphonates	0.5 (mg/L)
Permanganate value (PV)	1.0 (mg/L)

The treated water from the Baricho Treatment Works has been designed to meet the above requirements, and the pipeline has been designed to not interfere with the integrity of the water. In addition the water supplies must be maintained to ensure the water quality is not interfered with.

4.2.3 The Environmental Management and Coordination (waste management) Regulation, 2006

The Waste Management Regulations are meant to streamline the handling, transportation and disposal of various types of waste. The aim of the Waste Management Regulations is to protect human health and the environment. The regulations place emphasis on waste minimization, cleaner production and segregation of waste at source.

These regulations will be of great importance particularly during the construction phase of the project. During the Construction, the Contractor will have to meet the requirements of the regulations, by providing solid and liquid waste sorting, disposal and transportation using a licensed transporter who will dispose of the solid waste to the designated receptacle.

4.2.4 EMCA (Noise and Excessive Vibration Pollution Control) Regulations, 2009

These Regulations determine the level of noise that will permissible in particular during the construction of pipelines and associated structures, the following factors will be considered:

- Time of the day;
- Proximity to residential area;
- Whether the noise is recurrent, intermittent or constant;
- The level and intensity of the noise;
- Whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and,
- Whether the noise is subject to be controlled without unreasonable effort or expense to the person making the noise.

The Contractor will have to meet the requirements of these regulations particularly during the construction process, where some of the construction activities are bound to make some level of noise. These regulations are summarised in the table below:

Table 4-2: Table showing Permissible Noise Level for a Construction Site

Facility		Local Maximum Noise Level Permitted in Decibels	
		Day	**Night**
1.	Health facilities, educational institutions, homes for disabled etc.	60	35
2.	Residential areas	60	35

3.	Areas other than 1 and 2 above	75	65

In addition the IFC regulations for permissible noise levels are summarized in the table below:

Facility		**Maximum Noise Level Permitted in Decibels**	
		Day	**Night**
1.	Residential; institutional; educational	55	45
2.	Industrial; commercial	70	70

Comparatively both regulations are relatively similar, as such the local regulations will be used.

4.2.5 Draft Environmental Management and Coordination (Air Quality) Regulations, 2009

The objective of the Regulations is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. It provides for the establishment of emission standards for various sources such as mobile sources (e.g. motor vehicles) and stationary sources such as the improvements made to the storm water outlets. The Contractor will have to ensure all his machinery do not exceed the emissions made in the regulations (presented in the first schedule of the regulations). The Contractor's plant must meet the requirements of these regulations.

4.3 WATER ACT 2016

This Act is an update of the Water Act of 2002. It makes provision for the provision of clean and safe water in adequate quantities and to reasonable standards of sanitation for all citizens.

The Act gives power to Water Works Development Agencies which are charged with:

a) Undertaking the development, maintenance and management of the national public water works within its area of jurisdiction.
b) Operating the waterworks and providing water services as a water service provider, until such time as responsibility for the operation and management of the waterworks are handed over to a county government, joint committee, authority of county governments or water services provider within whose area of jurisdiction or supply the waterworks is located.
c) Providing a reserve capacity for purposes of providing water services where pursuant to section 103, the Regulatory Board orders the transfer of water services functions from a defaulting water services provider to another licensee.
d) Providing technical services and capacity building to such county governments and water services providers within its area as may be requested; and
e) Providing to the cabinet secretary technical support in the discharge of his/her functions under the constitution of this Act.

In accordance to Article 152 of the Act, CWSB under whose jurisdiction the project falls, will transition into a Water Works Development Agency. However this transition has not yet

occurred, as such the Consultant will still report to the CWSB and one of its service providers MAWASCO under whose jurisdiction the project falls.

4.4 THE PUBLIC HEALTH ACT (CAP. 242)

Part IX Section 8 & 9 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. The Act addresses matters of sanitation, hygiene and general environmental health and safety. This Act will govern the Contractor's activities on site including ensuring the health and safety of employees including providing health services when it comes to venereal diseases.

4.5 THE CONSTITUTION OF KENYA 2010

Article 42 states that every person has the right to a clean and healthy environment. The constitution provides guidance on steps that may be taken in case any of any infringement on these rights. In addition, the constitution provides for the establishment systems for carrying out environmental impact assessment, environmental audit and monitoring of the environment.

In addition to the protection of the environment, the constitution states that the land in Kenya belongs to the people of Kenya collectively as a nation. The constitution classifies the land in Kenya into different categories. These categories will dictate whether compensation will be required for the acquisition of a way leave. The categories include: public (including oceans, land between high and low water marks, all roads and thoroughfares).

The Constitution is critical in ensuring the project is carried out without infringing on the rights of the people, by carrying out an EIA which is provided in this report.

4.6 KENYA FOREST MANAGEMENT AND MANAGEMENT ACT, 2016

This Act makes provision for the protection and conservation of forests in the Country. The Kenya Forestry Services is mandated to conserve, protect and manage all public forests. The pipelines pass near two forests which are gazetted as public forests, thus making the forest services a major stakeholder within the project. This stakeholder is mandated by this law.

4.7 THE WILDLIFE (CONSERVATION AND MANAGEMENT) ACT (CAP 376)

This Act makes provision for the protection and conservation of wildlife in the Country. The Kenya Wildlife Services is mandated to conserve, protect and manage all national parks and reserves. The Araboko Sokoke doubles up as a national reserve and forest reserve, as such the Kenya Wildlife Services will also be a key stakeholder due to the proximity of the pipelines to the forest.

4.8 PHYSICAL PLANNING ACT (CAP 286)

The act state that while giving due considerations to the rights and obligations of landowners, there shall be compensation whenever a materials site, diversion or realignment results into relocation of settlement or any change of user whatsoever of privately owned land parcels.

Under the physical planning act, physical development activities are supposed to be carried out according to the physical plans. Accordingly the processes of physical planning involve two stages; the plan making stage and the development control stage. The former involves drawing up the actual plan to indicate the various activities and zones whereas the later involves the process of determining applications by developers to carry out specific development activities.

Section 36 states "if in connection with a development application a local authority is of the opinion that proposals for the pipelines or any other development activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an environment impact assessment report". This ESIA covers the proposed pipelines.

4.9 OCCUPATIONAL HEALTH AND SAFETY ACT

This legislation provides for protection of workers during construction and operation phases. This act will provide some of the mitigation measures for any negative impacts in particular those concerning the workers along the pipeline routes.

4.10 THE HIV AND AIDS PREVENTION AND CONTROL ACT

This is an Act of Parliament to provide measures for the prevention, management and control of HIV and AIDS, to provide for the protection and promotion of public health and for the appropriate treatment, counseling, support and care of persons infected or at risk of HIV and AIDS infection, and for connected purposes.

This Act will ensure that the Contractor makes provision for VCT services for employees and locals, as well as promotes public awareness. This will go a long way in ensuring stigmatization of HIV and AIDS is reduced as well as managed during the construction period.

4.11 NATIONAL GENDER AND DEVELOPMENT POLICY

The National Gender and Development Policy provide a framework for advancement of women and an approach that would lead to greater efficiency in resource allocation and utilisation to ensure empowerment of women.

The National Policy on Gender and Development is consistent with the Government's efforts of spurring economic growth and thereby reducing poverty and unemployment, by considering the needs and aspirations of all Kenyan men, women, boys and girls across economic, social and cultural lines. The policy is also consistent with the Government's commitment to implementing the National Plan of Action based on the Beijing Platform for Action (PFA).

The overall objective of the Gender and Development Policy is to facilitate the mainstreaming of the needs and concerns of men and women in all areas in the development process in the country. This law will be of relevance to the contractor in ensuring that all genders are given an equal opportunity during recruitment during the construction phase and operation phase of the project. The employers will also provide adequate facilities for all genders within the project site.

4.12 THE SEXUAL OFFENCES ACT, 2006

This Act protects people and employees from any unwanted sexual attention or advances by staff members. This act ensures the safety of women, children and men from any sexual offences which include: rape, defilement, indecent acts. This law will govern the code of conduct of the Contractor's staff and provide repercussions of any wrong doing.

4.13 THE CHILDREN ACT, 2001

This Act protects the welfare of children within the Country. The Act identifies Children as a person below the age of 18 years old and protects them from exploitation. Of particular importance to this project, is section 10, which protects the child from:

- Economic exploitation.
- Any work that interferes with his/ her education, or is harmful to the child's health or physical, mental, spiritual, moral or social development.

4.14 THE COUNTY GOVERNMENTS ACT, 2012

The promulgation of the 2010 Constitution brought about County Governments. This Act highlights the role of the County Government. The County Government will be in charge of all development activities within the County, as such will be a major stakeholder for the proposed project.

4.15 WORLD BANK SAFEGUARD POLICIES

4.15.1 Operational Policy (OP) 4.01: Environmental Assessment, 2001

Environmental Assessment is used in the World Bank to identify, avoid, and mitigate the potential negative environmental impacts associated with Bank lending operations. The purpose of Environmental Assessment is to provide guidance for environmental assessment of the WB financed projects, improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The pipelines are considered as Category B, as the project impacts are anticipated to be specific to the project site and reversible with implementation of the proposed mitigation measures.

4.15.2 Operational Policy 4.04: Natural Habitats, 2001

The policy seeks to ensure that World Bank-supported infrastructure and other development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water areas where most of the native plant and animal species are still present).

The pipelines in particular the Kakuyuni – Kilifi Pipeline will pass near the Arabuko Sokoke and Mida Creek (and mangrove forest) are major natural habitats identified by UNESCO as Biosphere Reserve. Although the pipelines will not affect the natural habitats directly, however some of the Contractor's works if not controlled can have a negative impact on these natural habitats, these impacts have to be mitigated in order to avoid contraventions with this policy.

4.15.3 The Bank's Operational Policy 4.12: Involuntary Resettlement

This is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts.

It promotes participation of displaced people in resettlement planning and implementation, and its key economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement.

The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.

The pipelines will pass along the road reserve, as such resettlement will be kept to a minimum, however a few structures, trees, crops and fences may be affected as such this operational policy will be triggered.

4.15.4 Operational Policy (OP/BP) 4.11: Physical Cultural Resources

The objective of this policy is to assist countries in preserving physical cultural resources and avoiding their destruction or damage. PCR are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious (including graveyards and burial sites), aesthetic, or other cultural significance. PCR may be located in urban or rural settings, and may be above ground, underground, or under water. The cultural interest may be at the local, provincial or national level, or within the international community. This policy applies to all projects requiring a category A or B environmental assessment, project located in, or in the vicinity of recognized cultural heritage sites. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The project has not affected any cultural sites, however, for projects involving substantial civil works (including this one) a set of "chance find" procedures are to be developed and included into the contracts to be used in case of accidental discovery of cultural objects during construction.

4.15.5 World Bank Policy on Access to Information, 2010

The World Bank policy on access to information sets out the policy of the World Bank on public access to information in its possession. This Policy supersedes the World Bank Policy on Disclosure of Information, and took effect on July 1, 2010.

This Policy is based on five principles:

- Maximizing access to information.
- Setting out a clear list of exceptions.
- Safeguarding the deliberative process.
- Providing clear procedures for making information available.
- Recognizing requesters' right to an appeals process.

In disclosing information related to member countries/borrower in the case of documents prepared or commissioned by a member country/borrower (in this instance, safeguards assessments and plans related to environment, resettlement, and indigenous peoples, OP/BP 4.01, Environmental Assessments, and OP/BP 4.12 Involuntary Resettlement); the bank takes the approach that the country/borrower provides such documents to the Bank with the understanding that the Bank will make them available to the public.

4.16 INTERNATIONAL FINANCE CORPORATION AND WORLD BANK ENVIRONMENTAL, HEALTH AND SAFETY (EHS) GUIDELINES

These are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are used in addition to the local guidelines in order to provide mitigation measures for the various environmental and social impacts that will be identified in this report.

5 CONSULTATIONS - PERSONS, AGENCIES & PUBLIC

5.1 LEGAL REQUIREMENTS

5.1.1 Government Policy on Public Consultation

The overall objective of the Government is to involve communities in policy formulation and implementation at the local level. More specifically, the Community Action Planning Programme objective is to put in place a durable system of intra-community co-operation through collective action, which creates communal discussion forums for the implementation of development activities.

5.2 PERSONS OR AGENCIES CONSULTED

The key issues associated with the installation of a water pipeline and related works will often relate to biodiversity, heritage, pollution, disruption of livelihoods, community safety, traffic management, communicable diseases and employment and trade opportunities.

Effort was not spared to contact all with information on the following issues:

- Assessment of the baseline environmental and social conditions
- Consideration of feasible and environmentally &socially preferable alternatives
- Requirements under Kenya country laws and regulations, applicable international treaties and agreements
- Protection of human rights and community health, safety and security (including risks, impacts and management of project's use of security personnel)
- Protection of cultural property and heritage
- Protection and conservation of biodiversity, including endangered species and sensitive ecosystems in modified, natural and critical habitats, and identification of legally protected areas
- Impacts on affected communities, and disadvantaged or vulnerable groups
- Impacts on indigenous peoples, and their unique cultural systems and values
- Cumulative impacts of existing projects, the proposed project, and anticipated future projects
- Consultation and participation of affected parties in the design, review and implementation of the project

As such a cross-section of persons were consulted in Malindi, Magarini and Kilifi Sub-Counties as indicated by the following consultation registers in tables 5-1.

Figure 5-1: Persons met during the ESIA study in planning the Proposed Water Supply Project

No.	Name	Office	Designation	Contacts
1	Mr Mwasaru	Ministry of Education Kilifi	Sub-County Education Officer	+254721459268
2	Mr Kahindi Fondo	Kenya Forest Service Kilifi	Sub-County Forestry Officer	+254722900230

5.2.1 Overview from the District Education officer, Kilifi North sub-county

The District Educational Officer was very pleased with the proposed project stating that schools within the area would be great beneficiaries of the project.

Current Education System

The list of the schools and its occupancy in the affected project area was gathered in the sub-county ministry of education office and was as follows:

Figure 5-2: Learning Institutions in the Area

Primary schools	117
Secondary schools	34

The ratio of boys to girls in the schools was generally lower in the lower education levels, while it was higher in the upper education levels. This is as a result of early marriages for the girls leading to school drop-outs. He pointed out that the girls generally performed better at school than the boys.

Some of the major causes of the aforementioned school dropouts were said to be:

- Child labour – Motorcycle, tuktuk Taxis
- Early pregnancies – Economic hardships
- Social – cultural – Poor Performance

The education officer from whom the information was acquired was of the opinion that the proposed works under coast water service board would affect the schools positively.

Problems faced by the Schools

The attendance in schools was marred by the lack of water and sanitation. He pointed out that school going children were used as a source of transporting water hence depending on the distance from the water source, they may or may not attend school at all.

Benefits of the Project

Some of the benefits of improving the water supply in the area are;

- It will lead to the improved health of the students as food will be adequate, water-borne diseases will be highly minimized and also the sanitation will drastically improve.
- There will be a higher school attendance since the distance of fetching water will be thoroughly reduced hence minimizing the time and energy wasted in fetching the water.

5.2.2 Overview from the Sub-County Forester

The sub county forester welcomed the consultants and proceeded to give provide a key informant interview. He pointed out that the major tree species in the Arabuko Sokoke forest which is the main natural forest in the project region include;

- Casuarina
- Blue Gum
- Brachistegia
- Arborea
- Neem tree

In addition to the trees in the forest the locals in the project area plant some species of trees including mango, cashew nuts as well as the coconuts. The forest area is approximately 420km^2.

The officer went ahead to explain some of the duties of the Kenya Forest Service which were to;

- Enhance and promote tree planting
- Offer seedlings to the public such as in public institutions (schools, dispensaries, chief's offices).

Environmental and issues

The Sub county forester stated that the major environmental issues faced were, illegal logging of trees by the locals, Pole cutting, as well as charcoal burning, he however pointed out that it was being done on a small scale, but if not taken care of, it may get out of hand. In some limited instances, there was solid waste disposal as well as encroachment into the forest area due to population pressure.

He also explained that solid waste disposal, tree cutting (mangrove forests are cut down for their firewood and the Lafarge for the wood carvings) and poor attitude from the dwellers about the importance of tree planting were other issues affecting the project area, these he felt would also be impacts felt during the proposed project.

Mitigation measures

The sub county forester said that some of the measures that would help conserve the environment included: public education on the importance of conserving the environment (the forest provides a natural environment for wildlife to thrive and hence brings tourism). Another measure was the hastened completion of the project so that the trenches dug could be filled.

The Sub-county forester concluded that the forestry department would benefit from the project due to increased water provision in the project area which would encourage tree nurseries and tree planting.

5.3 PUBLIC CONSULTATIONS

The Consultant carried out public consultation in the form of a consultative meetings along the pipeline route where, the Consultant presented the project to the local communities, comprised of stakeholders. The Consultant held meetings from the 24th of May to the 25th of May 2016 at the various centres along both pipeline routes, minutes, photos and an attendance sheet of the meetings are presented in appendix 11.2. The meetings were attended by the numbers summarized in the table below:

Table 5-1: Number of Attendees for each Public Consultation Meeting

Meeting Location	Number of Attendees
Kilifi Chief's Camp	26
Zowerani Chief's Camp	18
Gede Chief's Camp	50
Sabaki Primary	89
Gongoni DC's Office	63

5.3.1 Findings of the meetings

The meetings included a presentation by the Consultant on the proposed works, the various environmental and social impacts that may arise from the project including temporary resettlement along the connection from the treatment plant and the road where the distribution lines will remain within the provided 9m road reserve as provided in the design report. The consultant however pointed out that the Designers had tried their very best to minimize resettlement and that the proposed distribution lines would not permanently displace any persons. She highlighted the mitigation measures for all the impacts in accordance to the RAP. She also disclosed the features of the RAP including cut off dates.

Being a public consultation meeting, feedback from the stakeholders was obtained with majority of the stakeholders approving of the project. The findings of the meetings are summarized in the appendices.

In addition to the public consultation meetings, the Consultant conducted ad hoc interviews with some of the PAPs. This was to get the views of the PAPs to be included in the report. Some of the feedback from the PAPs includes:

i. Charo Mwando Kiyuge from the Kilifi PEFA church wanted to know when the construction would begin as well as wanted to know what the next step was. The consultant explained that the RAP was a precursor to the construction in order to ensure that all those affected by the pipeline were compensated and relocated with minimal disturbance. He thanked the Consultant and suggested that the PAPs be kept in the know on the progress of the project.
ii. Florence Nelly wanted to know if she could return to her business after the pipe had been laid. The consultant stated that no permanent construction could occur after the pipeline had been laid, and for safety purposes she should not place her temporary structure directly on top of the pipeline, however she could resume her business if she shifted it slightly within the road reserve.
iii. Katana Shillingi stated that the PAPs with crops should be allowed to harvest their crops since they relied on the crops. The consultant assured him that the PAPs would be given ample time to harvest crops and even after construction, they could continue growing crops that did not have deep roots. However the Consultant cautioned that they were farming along the road reserve and thus would be moved in case of any road construction.
iv. Josephine Kache expressed happiness in the fact that water was finally getting to Gongoni and stated that the people had been suffering with no water and had to travel long distances to fetch domestic water.

6 ENVIRONMENTAL AND SOCIAL EFFECTS OF THE PROPOSED PROJECT

The general environmental and social impacts which may result from the proposed project is presented in this chapter. The emphasis will be initially on the specific impacts that are likely to result from the nature of works (e.g. trenching, excavation, laying of pipelines and construction of water kiosks) and works category (e.g. water supply).

A vast range of environmental and social implications will surely arise from the Kakuyuni-Kilifi/Gongoni water supply project, notably along the pipeline routes.

In general, successful implementation of the project will have high socio and economic benefits to the people and will contribute to the health and wellbeing. Overall, expected negative impacts are related to pipeline and associated works such as construction of the valve chambers and washouts. These impacts are localized and not considered significant and long-lasting and can be mitigated through appropriate mitigation measures. The severity and duration of these impacts can be minimized by ensuring that the excavation and construction works are limited to short working sections, and that works are carried out rapidly and efficiently.

Table 6.1 presents a characterisation of expected impacts.

Aspect	Predicted Impact	Characterization of Impacts								
		Nature		Effect		Time Range			Reversibility	
		Positive	Negative	Direct	Indirect	Short Term	Medium Term	Long Term	Reversible	Irreversible
Traffic	Increased traffic along the project route		X	X		X				
Ambient Air Quality	Increased local pollutant emissions and trace constituents such as VOCs Increased GHG emissions such as CH_4 and CO_2		X	X		X			X	
	Increased levels of dust and particle emissions from construction vehicles and equipment		X	X			X		X	
soil/water pollution	Contamination of groundwater and ocean from oil spills during construction		X	X			X	X		X
	Surface water pollution from construction wastes		X	X			X	X	X	
	Leakage/ponding from the distribution network.		X	X		X			X	
Noise and vibrations	Increase of noise and vibration levels due to construction activities and traffic		X	X		X			X	

Aspect	Predicted Impact	Characterization of Impacts								
		Nature		Effect		Time Range			Reversibility	
		Positive	Negative	Direct	Indirect	Short Term	Medium Term	Long Term	Reversible	Irreversible
Health & Safety (Construction)	General construction related health and safety risks for workers		X	X		X			X	X
	HIV/AIDS and increased disease risks.		X	X	X	X	X	X		X
Socio-economics	Improvement of local and regional socio-economy	X			X			X		
	Employment and job creation during construction and operation phases	X		X		X	X	X		
solid and liquid waste	generation of both solid and liquid waste at the construction camps and along the project route		X	X		X	X	X	X	
Resettlement	loss of livelihood demolition of structures Loss of trees Loss of land for gongoni tank site		X	X				X		X

Aspect	Predicted Impact	Characterization of Impacts								
		Nature		Effect		Time Range			Reversibility	
		Positive	Negative	Direct	Indirect	Short Term	Medium Term	Long Term	Reversible	Irreversible
Health and safety (Operation)	Improvement in public health and sanitation through improved potable water supply.	X		X		X	X	X		
Water	Increased clean water supply to the target WSP areas which could reduce incidences of water borne diseases hence significant improvement on public health	X		X		X	X	X		
	Enhanced water quality, quantity and distribution.	X		X		X	X	X		
	Vandalism and illegal connections/tapping		X		X	X	X	X	X	

6.1 IMPACT CATEGORIES

First the likely significance of the potential issues of concerns has been determined and ranked according to the following:

- ❖ Potential environmental impacts which are deemed to be highly significant and need thorough investigation in the ESIA
- ❖ Potential environmental impacts that are deemed to be moderately significant, and will require reasonable investigation in the ESIA
- ❖ Potential environmental impacts that are deemed unlikely to be significant, and will need to be listed, and addressed in some way, but which will not require detailed assessment in the ESIA.

Secondly, the following characteristics have been defined for each impact:

Nature:

- ❖ Positive: applies to impacts that have a beneficial economic, environmental or social result, such as additional economic activity or enhancement of the existing environmental conditions.
- ❖ Negative: applies to impacts that have a harmful or economical aspect associated with them such as economical cost, loss or degradation of environmental resources.

Effect:

- ❖ Direct: applies to impacts which can be clearly and directly attributed to a particular impacting activity.
- ❖ Indirect: applies to impacts which may be associated with or subsequent to a particular impacting activity, but which cannot be directly attributed to it.

Time Range:

- ❖ Short Term: applies to impacts whose effects on the environment will disappear within a 1 year period, or within the construction phase.
- ❖ Medium Term: applies to impacts whose effects on the environment will disappear within a 5 year period following the construction phase.
- ❖ Long Term: applies to impacts whose effects on the environment will disappear in a period greater than 5 years following the construction phase.

Reversibility:

- ❖ Reversible: applies to impacts whose significance will be reduced and disappear over time (either naturally or artificially), once the impacting activity ceases.
- ❖ Irreversible: applies to impacts whose significance will not be reduced nor disappear over time (either naturally or artificially), once the impacting activity ceases.

6.2 IMPACTS EMANATING FROM THE PROPOSED PROJECT

The impacts are identified at three stages:-

- pre- construction/Planning Phase Impacts
- during construction and
- post-construction (operation phase)

6.2.1 Planning Phase Impacts

These are commonly associated resettlement of people along the pipeline routes. It should be noted that the pipelines will be located along road reserves as such land acquisition is not foreseen. However there will be land acquisition for the Gongoni tank site, the tank sites are existing and under the jurisdiction of CWSB. The project will mainly displace:

i. Structures along the pipeline way leave along the road reserve
ii. Trees and Crops along the pipeline way leave along the road reserve
iii. Fences along the pipeline way leave and
iv. Livelihoods along the pipeline route
v. Land owners at the Gongoni tank site

Mitigation measures
The pipeline runs along roads and footpaths, so as to minimise land acquisition in accordance to a Resettlement Action Plan report. The RAP identified 713 households to be affected. The only place with land acquisition will be at the proposed Gongoni tank site which will affect only 3 households which will lose out sections of their land. It should be noted that there would be no permanent displacement of PAHs as only uninhabited parts of the land will be affected. Majority of affected households that loose structures, trees and crop losses. As described in the RAP, CWSB agreed with the local community on the form of compensation for loss of structures, trees, crops, livelihood and land (such as water provision etc.). Only once the community is fully compensated the contractor may move to site for commencement of works. The mitigation measures for social impacts are to ensure that the affected persons' livelihood is at least maintained after implementation of the project.

6.2.2 Construction Phase Impacts

Most of the potential environmental and social impacts associated with the construction phase will be negative and temporary, and can be mitigated with the use of standard environmental management procedures. The potential social impacts or nuisance will be those typically associated with construction activities involving vehicles, equipment, and workers. The predicted impacts include the following:

1) Traffic Congestion

Traffic congestion is anticipated from site related traffic from Contractor vehicles. This may interfere with socio-economic activities which majorly rely on the transport network affected by the construction activities. The proposed project would have minor, short term impacts on transportation, as the sewer mains are anticipated to be installed within the shoulder of existing roads.

Mitigation measures

- The Contractor should provide temporary road signs or notices to indicate ongoing works;
- The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods;
- The Contractor should effect traffic controls and cleanliness to avoid congestion and truck accidents on roads;
- For the site traffic the Contractor has to ensure that they
  i. Only park in designated parking areas;
  ii. Don't block pedestrian routes;
  iii. Don't block traffic routes;
  iv. Obey the speed limit
  v. The resident Engineer has to ensure that the Contractor:
    - Introduces segregated pedestrian walkways;
    - Introduces speed limits;
    - Reduces the need for reversing vehicles, by introducing a one way system;
    - Uses a qualified BANKSMAN to control deliveries and reversing vehicles;
    - Designates loading/unloading areas.

2) Site Related Oil Spills

During construction, oil spills may result from construction site equipment and storage, which can make its way into natural habitats.

Mitigation Measures

- The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks from oil storage tanks e.g. using dispersants or adding biological agents to speed up the oil breakdown for the construction machinery though induction and safety training (the contractor will propose a method of cleanup which will be subject to approval);
- In case of spillage the Contractor should isolate the source of oil spill and contain the spillage to the source of leakage before it makes its way into the natural habitats, using sandbags, sawdust, absorbent material and/or other materials approved by the Resident Engineer;
- The Resident Engineer and the Contractor should ensure that there is always a supply of absorbent material such as saw dust on site during construction, readily available to absorb/breakdown spill from machinery or oil storage, this can be incinerated after use;
- All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications and stored in an area approved by the Resident Engineer;
- The Contractor should assemble and clearly list the relevant emergency telephone contact numbers for staff, and brief staff on the required procedures.

3) Soil-Related Impacts

All construction activities have some minor impacts on the soil. However, these are localised and restricted locally to the excavation of trenches for the water pipes. It is expected that these impacts are also short-lived during construction and mitigation measures are recommended. The key impacts will revolve around soil erosion, contamination, disturbance of the natural soil structure, piling of soil along public access routes, improper replacement of soil to its original position, mixing of layers and compaction thus reducing the ecological function of the soil.

Mitigation Measures
• The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna would be excavated separately and piled in an adequate manner for re-use. • In cases where it is identified that during construction there is a danger of increased run-off or erosion of trenches, temporary drainage channels or holding ponds can be employed • After completion of the construction works, immediate restoration spreading piled top soil and by sowing adequate grass cover and planting of trees will be followed, therefore the impact is temporary and reversible. • Plan emergency response measures in case of accidental oil spills.

4) Impact on Water Resources

The various construction activities may have a negative impact on the Indian Ocean, Mida Creek, and natural drainage channels. Solid as well as liquid waste if not properly disposed of, will make its way into the ocean, thus affecting the ocean ecosystem.

Mitigation Measures
• Ensure proper solid and liquid wastes disposal mainly from the contractor's camps, sites and offices. • Ensure proper measures are in place for collection and disposal of spilled oils and lubricants.

5) Socio - Economic Impacts

Enhancement

During construction the project will have clear benefits with regard to local employment opportunities. The project will additionally require various skills and services which may not be available on the local level but certainly on the regional level, e.g. masonry workers, plumbers, etc. for which appropriate personnel will be contracted.

The increase in employment will temporarily lead to an overall increase of income directly and indirectly (through increased demand of other local services). Consequently, farmers will also benefit from higher income levels as they sell their products. New businesses will grow such as food vending to construction workers.

Negative

In migration of people from different regions may lead to behavioural influences and this may increase the spread of diseases such as HIV/AIDS.

Mitigation Measures
• Unskilled construction and skilled (if available) labor to be hired from the local population as far as possible to minimize on influx of foreigners into the community. • Use of manual labor during trenching works where possible to ensure more employment of locals and hence ensure project support throughout the construction process. • Sensitize workers and the surrounding community on awareness, prevention and management of HIV / AIDS through staff training, awareness campaigns, multimedia, and workshops or during community Barazas. • Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members • The Contractor should enforce and maintain a code of conduct for his employees

6) Air Quality

Construction activities of bush clearing, materials delivery, trench excavation and construction traffic will generate a lot of noise and dust especially during the dry seasons. The area is predominantly dry thus dust is already a pre-existing problem.

Vehicular traffic to the proposed sites and contractor's camp is expected to increase especially during delivery of raw materials. Vehicular traffic emissions will bring about air pollution by increasing the fossil fuel emissions into the atmosphere. Most of the access roads, with the exception of the B8 highway, are earth roads. Trucks with heavy loads will further damage these earth roads.

Mitigation Measures
• Use of protective clothing like helmets and dust masks by construction crew. • Construction sites and transportation routes (those that are murram and earth standards) will be water-sprayed on regularly up to three times a day, especially if these sites are near sensitive receptors, such as residential areas or institutions (hospitals, etc.) • All the vehicles and construction machinery should be operated in compliance with relevant vehicle emission standards and manufacturer's specification to minimize air pollution. • Digging of trenches should be done manually so as to avoid too many trucks and machines in the area. The use of manual labor will also benefit the community socio-economically.

7) Construction Noise and vibration

Noise and vibration generated during construction by heavy construction machinery, such as excavators, bulldozers, concrete mixers, and transportation vehicles.

Generally, construction noise exceeding a noise level of 70 decibels (dB) has significant impacts on surrounding sensitive receptors within 50m of the construction site, including the Arabuko Sokoke Forest, Schools, Churches and Mosques near the highway.

Mitigation Measures

- Avoid night time construction when noise is loudest. Avoid night-time construction using heavy machinery, from 2200 to 0600hrs near residential areas.
- No discretionary use of noisy machinery within 50 m of residential areas and near institutions such as schools
- Good maintenance and proper operation of construction machinery to minimize noise generation.
- Where possible, ensure non mechanized construction to reduce the use of machinery

8) Loss of Flora and Fauna

Removal of vegetation as well as thickets and trees will lead to loss of plants and animal habitats. The bio-diversity affected includes insects such as butterflies and worms, small mammals, reptiles and birds. Water contamination with cement will cause it to be highly alkaline and toxic to plants and animals living along the pipelines.

Improper disposal of solid and liquid waste from the Contractor's camp will have a negative impact on the biodiversity surrounding the camp.

Mitigation Measures

- Re-plant the indigenous vegetation as much as practical once work is completed.
- Spare the vegetation that must not necessarily be removed such as trees.
- Minimize the amount of destruction caused by machinery by promoting non-mechanized methods of construction.
- The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks from oil storage tanks e.g. using dispersants or adding biological agents to speed up the oil breakdown for the construction machinery though induction and safety training (the contractor will propose a method of cleanup which will be subject to approval);
- Provision of dustbin and sanitation facilities within the Contractor's camp to prevent seepage into the natural environment.

9) Public Health and Safety

Construction staff and the general public will be exposed to safety hazards arising from construction activities. The pipelines are to be placed primarily along the major B8 highway and have a few kilometers along rural access roads these roads have pedestrian and vehicular traffic and this may cause an increase in the number of accidents.

The project works will expose workers to occupational risks due to handling of heavy machinery, construction noise, electromechanical works etc.

Construction activities of bush clearing, materials delivery, trench excavation and concrete mixing and construction traffic will generate a lot of dust and this may affect the respiratory system.

The high temperatures in the area will expose the workers to difficult working conditions.

Construction sites may be a source of both liquid and solid wastes. If these wastes are not well disposed these sites may become a breeding ground for disease causing pests such as mosquitoes and rodents.

At the concrete mixing plant the exposure of human skin to cement may lead to damage of the skin.

Mitigation Measures
Ensure that all construction machines and equipment are in good working conditions and to manufacturer's specifications to prevent occupational hazards. Establish a Health and Safety Plan (HASP) for both civil and plumbing work. Appoint a trained health and safety team for the duration of the construction work. Provide workers with adequate and appropriate personal protective equipment (PPE). Provide workers with adequate drinking water and breaks. Provide workers training on safety procedures and emergency response such as fire, oil and chemical spills, pipe bursts and other serious water loss risks. Roads passing through population centers will be water sprayed to reduce dust. Work to minimize or altogether eliminate mosquito breeding sites. Provide appropriate human and solid waste disposal facilities e.g. Toilets and dustbins at strategic points Cordon off the trenches being worked on to prevent potential injuries, in addition provide crossing points for locals across trenches to avoid accidents. Provide clean toilets for workers, these toilets will be to World Health Organisation standards.

10) HIV & AIDS Impacts

In migration of people from different regions may lead to behavioural influences which may increase the spread of diseases such as HIV/AIDS.

Mitigation:
Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS through staff training, awareness campaigns, multimedia and workshops or during community Barazas. Provide information, education and communication about safe uses of drinking water. Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members

11) Service Delivery Impacts

The construction activities will cause disruption of services such as water supply and transportation within the project area. Where the water pipe crosses the road, excavation of trenches and laying down of the water pipes may cause disruption of transport within the project area. Trucks with heavy loads of construction materials may damage murram roads

during the construction process. The trucks may get stuck on bad road sections (sandy soil is difficult to negotiate through) and these may cause disruption of transport.

Mitigation Measures
Provide appropriate signage to warn motorists and other road users of the construction activities, diversion routes to ward off traffic accidents. The contractor should communicate any intended disruption of the services to enable the people to prepare e.g. by having emergency water storage and provision facilities. Areas being trenched to be temporarily cordoned off to avoid people and animals accidentally falling into open trenches. In the event that delivery trucks damage parts of the road, repair the spots in consultation with the local authorities.

12) Gender Empowerment Impacts

There is need to promote gender equality in all aspects of economic development and more so in construction. Women roles in construction are mainly confined to supply of unskilled labour and vending of foodstuffs to the construction workers. Where available skilled women will be used.

Mitigation Measures
Ensure equitable distribution of employment opportunities between men and women Provide toilets and bathrooms for both male and female workers on site

13) Impacts on Cultural Heritage

Although the ESIA or RAP did not identify any cultural sites, the project is located within a culture rich area, which may uncover unknown cultural resources. These sites may be of importance to the local community. These sites may include and not limited to, archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction.

Mitigation:
Use of "chance find" procedures by the contractor _ See Appendix 11.3 for "Chance Find" procedures

14) Child Labour and Protection

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

Mitigation:
Ensure no children are employed on site in accordance with national labor laws Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police

15) Gender Equity, Sexual Harassment

Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community. A large influx of male labour may also lead to an increase in exploitative sexual relationships and human trafficking whereby women and girls are forced into sex work

Mitigation:
The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law where applicable. The contractor should prepare and implement a gender action plan, to include at minimum: • Gender mainstreaming in employment at the worksite with opportunities provided for females to work, in consonance with local laws and customs • Gender sensitization of workers (this could be done by the HIV/AIDS services provider; see above) • Provision of gender disaggregated bathing, changing, sanitation facilities • Grievance redress mechanisms including non-retaliation.

16) Liability for loss of life, injury or damage to private property

Some of the Construction activities may lead to accidents that may be mild or fatal depending on various factors. During the implementation of the proposed project, accidents could be due to negligence on part of the workers, machine failure or breakdown or accidental falls into the trenches. These incidents can be reduced through proper work safety procedures.

In addition, during Construction, there may be damage to private property that may not be foreseen by the RAP.

Mitigation:
Provision of PPE. The workers should receive requisite training especially on the operation of the machinery and equipment There should be adequate warning and directional signs. Ensuring that the prepared code of conduct for staff is followed to prevent accidents.

- Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel responsible for safety inspections and controls.
- Cordon off unsafe areas
- Provide first Aid kit within the construction site.
- Recording of all injuries that occur on site in the incident register, corrective actions for their prevention are instigated as appropriate.
- Contractor to ensure compliance with the Workmen's Compensation Act, ordinance regulations and union agreements.
- The Contractor to repair any damage done to private property.

6.2.3 Impacts during Operation & Maintenance

During the operation of the constructed water supply project no substantial negative environmental and social impacts and risks are anticipated.

1) Socio - economic potential positive or beneficial impacts

Numerous socio-economic potential positive or beneficial impacts from successful implementation of the project will include:

- Better access to safe drinking water leading to improved standard of living; and changes in exposure to both communicable and non-communicable diseases;
- Improvements in domestic hygiene and a reduction in health risks that were associated with poor water quality or inadequate access to services, as a result of improvements in drinking water quality and its availability;
- The program will contribute to increase in local development and employment as the local population are likely to be employed during the construction phase and after construction due to water related investments;
- Increase in tourism in the area. The project area has many tourist attractions and destinations such as the hotels, as well as the Indian Ocean. The increase in water will allow for a more lucrative business opportunity in terms of hotels and tourist related activities.
- Increase in Land value within the project area, due to availability of water.
- Improved general hygiene in the areas served.
- Promote a more sustainable use of water resources with improvements in the infrastructure to reduce losses and introduction of better metering and billing procedures to encourage more efficient use of water;
- A comprehensive metering program (of production and consumers) is expected to keep the Non-Revenue Water (NRW- technical and commercial losses) at an acceptable level;
- Sanitation will also be promoted with its attendant improvement in the health of the people such as reduced incidence of water borne diseases.
- Improvements in metering and administrative billing procedures;
- The program is expected to contribute to poor communities well-being associated with improved services, stability, and health.

- ❖ Employment creation will be the key positive environment impact as operation and maintenance personnel will be required for the rest of the project life. The availability of water and easy access will trigger other developments and businesses.

Other potential impacts typically associated with operation and maintenance activities are such as:

2) Generation of both solid and liquid waste

The establishment of an adequate water distribution system will be mostly beneficial to the local community, however with the provision of water comes the increase in the generation of solid and liquid waste. Kilifi and Gongoni towns and their environs currently have few sewerage or sanitation facilities. Majority of the stakeholders within the project area, use septic tanks.

Water supply will lead to an increase in the generation of solid and liquid waste, and with the area's proximity to the ocean the risk of untreated sewage making its way into the ocean.

Mitigation Measures
Provide adequate waste disposal facilities. Ensure collection of all solid waste from generation points, safe transportation to a central point where they are sorted out and safely disposed according to type to protect the environmental resources. Put in place adequate and efficient sanitary facilities for handling liquid waste especially waste water to protect the ocean from pollution. This should be included in sanitation plans for the county. In the long term the respective WSPs should invest in a waste water collection and treatment system for Kilifi County to ensure proper handling of waste water. This would also help in protecting local environment from possible contamination with direct sewage.

3) Noise

Noise nuisance from vehicles and repair equipment. During O&M activities vehicles are required for inspection of pipelines to detect any leakage and repair equipment is required in case need arises and in the process of these activities undesirable noise will be generated.

Mitigation Measures
During normal operations the noise generated from vehicles has insignificant impact. However during major repairs the equipment used can generate unacceptable levels of noise and mitigation measures similar to those applied during construction to be used.

4) Impact on Water Resources

As mentioned earlier the generated solid and liquid waste from the project area will make itself through its natural water courses, including ground water, back to the Indian Ocean. Thus the entire water system and as a result the ecological system will be negatively affected.

Mitigation Measures
Wastewater will be channeled to the sewerage system if available or constructed septic tanks. Pit latrines can be used where sewerage system is not available or where construction of septic tank is not feasible. All solid waste will be collected from generation points, safely transported to the central place where it is sorted out by type and then safely disposed according to type.

5) Socio - Economic Impacts

The expected improvements in metering and administrative billing procedures are likely to cause social and economic impact as this may result in the introduction of water bills in some areas and higher water bills in others

Mitigation Measures
A tariff system will have to be looked into by making use of WASREB's tariff policy for providing sustainable and affordable water supply.

6.2.4 Impacts during De-commissioning

De-commissioning of the Project is not envisaged. Project components, however, will be rehabilitated over time having served their useful life.

Before decommissioning of the Contractor's camp, the Client will have a meeting with and the community on what should be done with the camp and if it can be used to serve the community. If it is agreed that the camp should be decommissioned, the contractor will prepare an ESMP for decommissioning that will include waste utilization and removal, and landscaping on site.

7 ENVIRONMENTAL AND SOCIAL MITIGATION AND MANAGEMENT PLAN (ESMMP)

By design, the potential positive impacts of the project can readily be optimised while the potential negative environmental and social impacts are mostly restricted to the planning and construction period. These are assessed and considered as minor to medium, being reversible and short-term and can be managed through well-defined mitigation and monitoring measures.

7.1 POSSIBLE ENHANCEMENT MEASURES

Possible enhancement measures of beneficial impacts would include the following:

- Construction should adhere to recommended best construction practices that make effective and economical use of locally available resources including materials, expertise and labour.
- Ensure that the poor and other vulnerable groups adjacent or along the pipeline route will be catered for by the project to safely satisfy their basic water needs in future.
- Ensure that social services provide education on appropriate hygienic conditions and water conservation, taking into consideration gender particular roles and responsibilities.
- Carrying out periodic assessment of different components of the water production, transmission and distribution system to initiate immediate rehabilitation whenever problems are identified to reduce system leakage and bursts losses.

7.2 MITIGATION MEASURES

Mitigation measures for negative environmental impacts include the following:

- Construction site environmental and social management plans, prepared by the contractor, will be required for all works. This plan will include a waste management plan for all activities during the construction period.
- Air pollution due to dust when excavated material is stockpiled, should be limited by working in small sections so that the trenches are backfilled with excavated materials within shortest possible period.
- Avoid hampering drainage of surface water and plan for restoration measures after construction.
- Construction activities should be scheduled appropriately to reduce high noise levels particularly at night from noisy activities.
- Avoid areas sensitive to erosion.
- Avoid establishing temporary access roads along steep slopes
- At the end of construction works, level off the soils and facilitate vegetation regeneration.
- Minimize land clearing areas by employing mechanization only when necessary. Most of the work should be done by hand.
- Prevention of work place injuries during construction is taken care of by the contractors, e.g. by means of signs, signals, fencing, etc.
- Carry out specific Environmental Assessment and preparation of a hazardous material management plan for handling such materials that will be identified during the construction stage of the Project.

- Employ occupational Safety and Health measures as required by law.

Mitigation measures have already been discussed in Chapter 6. However, a brief summary is included in the Environmental and Social Mitigation and Management Plan (ESMMP) in Table 7 1: The Proposed Environmental and Social Mitigation and Management Plan (ESMMP). Also considered in this management and monitoring plan are the persons responsible for implementation.

Table 7-1: The Proposed Environmental and Social Mitigation and Management Plan (ESMMP)

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
Land acquisition for laying of pipeline	The pipelines will be laid within the existing road reserves thus there will be no need for land acquisition. However the Gongoni Tank will require land acquisition which has been provided for in the RAP	Design/preparation	CWSB
Loss of structures	As a first step, the owners, type of structures and businesses are identified. The compensation will be done at replacement cost. RAP to be conducted and implemented in full before beginning of works	Design/preparation	CWSB
Loss of livelihoods	Loss of livelihoods to be valued and compensated to ensure that project affected persons (PAPs) continue with their normal lives (or better) as before the project. RAP to be conducted and implemented in full before beginning of works	Design/preparation	CWSB
Traffic Congestion	The Contractor should provide temporary road signs or notices to indicate ongoing works; The Contractor together with the Resident Engineer should Plan itineraries for site traffic on a daily basis and avoid peak traffic periods; The Contractor should effect traffic controls and cleanliness to avoid congestion and truck accidents on roads; Control of onsite traffic the Contractor has to ensure that they	Construction	Contractor Supervising Engineer
Site Related Oil Spills	The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks from oil storage tanks In case of spillage the Contractor should isolate the source of oil spill and contain the spillage to the source of leakage Ensure that there is always a supply of absorbent material such as saw dust on site during construction, readily available	Construction	Contractor Supervising Engineer

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	to absorb/breakdown spill from machinery or oil storage, this can be incinerated after use; All vehicles and equipment should be kept in good working order, serviced regularly in accordance to the manufacturers specifications The Contractor should assemble and clearly list the relevant emergency telephone contact numbers for staff, and brief staff on the required procedures.		
Soil Related Impacts	The valuable top soil containing organic material, nutrients as well as seeds and the soil fauna would be excavated separately and piled in an adequate manner for re-use. In cases where it is identified that during construction there is a danger of increased run-off or erosion of trenches, temporary drainage channels or holding ponds can be employed After completion of the construction works, immediate restoration spreading piled top soil and by sowing adequate grass cover and planting of trees will be followed, therefore the impact is temporary and reversible. Plan emergency response measures in case of accidental oil spills.	Construction	Contractor Supervising Engineer
Impact on water resources	Ensure proper solid and liquid wastes disposal mainly from the contractor's camps, sites and offices. Ensure proper measures are in place for collection and disposal of spilled oils and lubricants.	Construction	Contractor, Supervising Engineer Local WSP Sub-County Water Officer
Socio – Economic Impacts	Unskilled construction and skilled (if available) labor to be hired from the local population. Use of manual labor during trenching works where possible. Sensitize workers and the surrounding community on awareness, prevention and	Construction	Contractor, Supervising Engineer Local Chiefs

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	management of HIV / AIDS through staff training, awareness campaigns, multimedia, and workshops or during community Barazas. Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members The Contractor should enforce and maintain a code of conduct for his employees		
Air pollution	Vehicles and other equipment emissions would be kept to a minimum by servicing and maintaining the equipment to manufacturer's specification. In, addition the contractor to be encouraged to use unleaded and low sulphur content petrol and diesel respectively for all equipment and vehicles The Contractor should also make use of the readily available labour for carrying out construction activities.	Construction	Contractor Supervising Engineer
Noise and Dust	Avoid night time construction when noise is loudest. Avoid night-time construction using heavy machinery, from 2200 to 0600hrs near residential areas. No discretionary use of noisy machinery within 50 m of residential areas and near institutions such as schools Good maintenance and proper operation of construction machinery to minimize noise generation. Where possible, ensure non mechanized construction to reduce the use of machinery	Construction	Contractor Supervising Engineer CWSB
Loss of flora and fauna	Re-plant the indigenous vegetation as much as practical once work is completed. Spare the vegetation that must not necessarily be removed such as trees.	Construction	Contractor Supervisor – project Engineer to consult

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	Minimize the amount of destruction caused by machinery by promoting non-mechanized methods of construction. The Contractor should ensure that the employees on site are aware of the company procedures for dealing with spills and leaks from oil storage Provision of dustbin and sanitation facilities within the Contractor's camp.		KFS on appropriate replanting seedlings Sub-County Environmental officer
Public Health and Safety	Ensure that all construction machines and equipment are in good working conditions and to manufacturer's specifications. Establish a Health and Safety Plan (HASP) for both civil and plumbing work. Appoint a trained health and safety team for the duration of the construction work. Provide workers with appropriate personal protective equipment (PPE). Provide workers with adequate drinking water and breaks. Provide workers training on safety procedures and emergency. Roads passing through population centers will be water sprayed to reduce dust. Work to minimize or altogether eliminate mosquito breeding sites. Provide appropriate human and solid waste disposal facilities e.g. Toilets and dustbins at strategic points Cordon off the trenches being worked on to prevent potential injuries, in addition provide crossing points for locals across trenches to avoid accidents. Provide clean toilets for workers, these toilets will be to World Health Organisation standards.	Construction	Contractor Supervising Engineer CWSB

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
HIV and AIDS impacts	Sensitize workers and the surrounding communities on awareness, prevention and management of HIV/AIDS. Use of existing clinics to provide VCT services to construction crew and provision of ARVs for vulnerable community members	Construction	Contractor Local Administration Public Health Officer
Service Delivery Impacts	Provide appropriate signage to warn motorists and other road users of the construction activities, diversion routes to ward off traffic accidents. The contractor should communicate any intended disruption of the services to enable the people to prepare. Areas being trenched to be temporarily cordoned off to avoid people and animals accidentally falling into open trenches. In the event that delivery trucks damage parts of the road, repair the spots in consultation with the local authorities.	Construction	The Contractor
Gender empowerment impacts	Ensure equitable distribution of employment opportunities between men and women Provide toilets and bathrooms for both male and female workers on site	Construction	The contractor The Supervising Engineer CWSB
Cultural Heritage	Use of "chance find" procedures by the contractor _ See Appendix 11.3 for "Chance Find" procedures	Construction	The Contractor County Government
Child Labour and Protection	Ensure no children are employed on site in accordance with the law Ensure that any child sexual relations offenses among contractors' workers are promptly reported to the police	Construction	Contractor Supervising Engineer Local Administration
Gender Equity, Sexual Harassment	The works contractor should be required, under its contract, to prepare and enforce a No Sexual Harassment and Non-Discrimination Policy, in accordance with national law where applicable. The contractor should prepare and implement a gender action plan,	Construction	Contractor Supervising Engineer Local Administration

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
Liability for loss of life, injury or damage to private property	Provision of PPE. The workers should receive requisite training especially on the operation of the machinery and equipment There should be adequate warning and directional signs. Ensuring that the prepared code of conduct for staff is followed to prevent accidents. Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restriction on site, frequency and personnel responsible for safety inspections and controls. Cordon off unsafe areas Provide first Aid kit within the construction site. Recording of all injuries that occur on site in the incident register, corrective actions for their prevention are instigated as appropriate. Contractor to ensure compliance with the Workmen's Compensation Act, ordinance regulations and union agreements. The Contractor to repair any damage done to private property.	Construction	Contractor Supervising Engineer
Generation of solid and liquid waste	Provide adequate waste disposal facilities. Ensure collection of all solid waste from generation points, safe transportation to a central point where they are sorted out and safely disposed according to type to protect the environmental resources. Put in place adequate and efficient sanitary facilities for handling liquid waste especially waste water to protect the ocean from pollution. Come up with regular trash collection system in the site areas so as to avoid accumulation of waste.	Operation and Maintenance	Local WSP

Environmental / Social Impact	**Mitigation Action Plan**	**Project stage**	**Responsibility**
	In the long term the respective WSPs should invest in a waste water collection and treatment system for Kilifi County to ensure proper handling of waste water. This would also help in protecting local environment from possible contamination with direct sewage.		
Impact on Water Resources	Wastewater will be channeled to the sewerage system if available or constructed septic tanks. Pit latrines can be used where sewerage system is not available or where construction of septic tank is not feasible. All solid waste will be collected from generation points, safely transported to the central place where it is sorted out by type and then safely disposed according to type.	Operation and Maintenance	Local WSP
Socio-Economic Impacts	A tariff system will have to be looked into by making use of WASREB's tariff policy for providing sustainable and affordable water supply.	Operation and Maintenance	Local WSP
Decommissioning of Contractor's Site	After Consultation with the local administration and Client, identify the best use for the Contractor's Camp	De-Commissioning	Contractor CWSB Local Administration

7.3 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

The purpose of the Environmental and Social Monitoring Plan (ESMP) for the proposed project is to initiate a mechanism for implementing mitigation measures for the potential negative environmental impacts and monitor the efficiency of these mitigation measures based on relevant environmental indicators. The Environmental and Social Mitigation and Management Plan in Chapter 7.2 above identified certain roles and responsibilities for different stakeholders for implementation, supervision and monitoring. The objectives of the ESMP therefore are:

- To ensure that the recommendations in the approved ESIA report are adhered to by the various institutions
- To ensure that the environmental and social mitigation and their enhancement actions are well understood and communicated to all involved stakeholders.
- To ensure that the proposed environmental and social remedial measures are implemented during the project execution stage
- To evaluate the effectiveness of environmental and social remedial measures
- To evaluate the effectiveness of various evaluation techniques and procedures

- To provide the Proponent and the relevant Lead Agencies with a framework to confirm compliance with relevant laws and regulations.

Conversely, environmental monitoring provides feedback about the actual environmental impacts of the project. Monitoring results help judge the success of mitigation measures in protecting the environment.

They are also used to ensure compliance with environmental standards, and to facilitate any needed project design or operational changes. A monitoring program, backed up by powers to ensure corrective action when the monitoring results show it necessary, is a proven way to ensure effective implementation of mitigation measures. By tracking the project's actual impacts, monitoring reduces the environmental risks associated with the project, and allows for project modifications to be made where required.

Table 7-2 presents the indicators that will be used to monitor the implementation of the pipeline project. The indicators are selected based on the project and major anticipated impacts.

A quarterly monitoring report will be prepared in compliance with NEMA standards and regulations, based on the monitoring carried out as specified in Table 7-2 below:

Table 7-2: Proposed Environmental and Social Monitoring Plan

Area	**Environmental /Social Component**	**Performance Indicators**	**Monitoring Requirements**	**Responsibility**	**Frequency of Monitoring**
Contractors campsite	Land take	The land acquired for each component Number of structures demolished Number of complaints on compensation.	Number of people compensated for land, structures and livelihood. Compensation details Meetings with affected communities	CWSB	Biweekly
	Noise	Number of complaints Distance from human settlements Limit of acceptable noise standard issued by NEMA	Liaise with other stakeholders. Documentation on complaints about noise	Environmental Supervisor Contractor	Monthly
	Air pollution	Number of complaints on dust nuisance Distance from human settlements	Physical inspection Interview residents including workers Liaise with other stakeholders	Environmental Supervisor	Monthly
	Water pollution	Number of complaints on pollution of water by downstream users Obstruction of waterways	Level of complaints Physical inspection	Environmental Supervisor	Monthly
	Occupational Health and Safety	Healthy and safety awareness among staff	Documentation Interviews with workers and management	Contractor	Weekly

Area	Environmental /Social Component	Performance Indicators	Monitoring Requirements	Responsibility	Frequency of Monitoring
		Number of accidents and fatalities Number of HIV awareness campaign meetings held Outpatient attendance register First aid facilities in place Compliance with Occupational Health and Safety Act (OSHA)	Liaise with other stakeholders		
	Solid and liquid wastes	Presence or absence of scattered litter. Flow of wastewater on the ground surface Level of complaints on hygienic conditions and pollution of water sources.	Physical inspection of site and sanitation facilities Documentation in grievance register	Environmental Supervisor Contractor	Monthly
	Child Labour and Protection	Presence of Minors on Site Complaints raised in this regard	Physical inspection of campsite Interviews with local administration and schools on any attendance discrepancies as a result of site visits	Environmental Supervisor Contractor	Monthly

Area	**Environmental /Social Component**	**Performance Indicators**	**Monitoring Requirements**	**Responsibility**	**Frequency of Monitoring**
	Gender Equity, Sexual Harassment	Complaints logs on with regards to any harassment Police/chief reports on any sexual harassment cases	Interview residents including workers Review of any cases of sexual harassment	Environmental Supervisor Contractor	Monthly
Contractor's Camp	Public health and safety	Prevalence rates of common diseases. Provision of condoms, contraceptives and mosquito nets. Conduction of campaign meetings on transmission of diseases like HIV/AIDS and other STDs. Availability of adequate solid waste bins. System of safe disposal of both solid and liquid waste in place. Availability of first aid facilities. Outpatient attendance registers. Compliance with the Health and Safety Act.	Physical inspection Documentation Number of complaints, on accumulation of solid and liquid waste. Interview with residents	Environmental Supervisor	Monthly

Area	**Environmental /Social Component**	**Performance Indicators**	**Monitoring Requirements**	**Responsibility**	**Frequency of Monitoring**
		Log of Accidents on site			
	Solid and liquid wastes	Presence of scattered litter. Signs of obstruction of water courses.	Physical inspection Number of complaints.	Environmental Supervisor Contractor	Monthly
	Child Labour and Protection	Presence of Minors on Site Complaints raised in this regard	Physical inspection of campsite Interviews with local administration and schools on any attendance discrepancies as a result of site visits	Environmental Supervisor Contractor	Monthly
	Gender Equity, Sexual Harassment	Complaints logs on with regards to any harassment Police/chief reports on any sexual harassment cases	Interview residents including workers Review of any cases of sexual harassment	Environmental Supervisor Contractor	Monthly
Pipeline route	Solid and liquid wastes	Scattered litter Signs of obstruction of water ways. Flow of wastewater on the ground surface. Provision of sanitary facilities to the construction crews.	Physical inspection Number of complaints	Environmental Supervisor Contractor	Monthly

Area	Environmental /Social Component	Performance Indicators	Monitoring Requirements	Responsibility	Frequency of Monitoring
	Land, Population growth, Migration and settlements	Changes in the value of land. Changes in type of housing. Population growth and ethnic composition. New settlements established and migration closer to the pipelines.	Physical inspection Liaise with other stakeholders	CWSB	Quarterly
	Noise	Level of noise generated. Provision of PPE. Compliance with existing noise standard issued by NEMA.	Liaise with other stakeholders. Documentation on complaints about noise	Contractor Environmental Supervisor	Monthly
	Air pollution	Level of dust generated. Provision of PPE.	Physical inspection Interview residents including workers Liaise with other stakeholders	Environmental Supervisor	Monthly
All	Social and Economy	School dropout rate. Employment created directly and indirectly for men and women. New businesses established.	Physical inspection Records from the ministry of Education Employment records	Environmental Supervisor	Monthly

Area	Environmental /Social Component	Performance Indicators	Monitoring Requirements	Responsibility	Frequency of Monitoring
		Prevalence of unplanned new developments Increased income leading to better living standards. Improved health due to access to potable water. Reduction of water borne diseases. Increase in school enrolment of school going age children. Improved school attendance by pupils and student			

7.4 GRIEVANCE REDRESS MECHANISMS

Table 7-2 above, shows the performance indicators as part of the monitoring plan. Some of these indicators will be as a result of grievances raised by stakeholders. This section identifies the procedures in which stakeholders can present their grievances for redress.

The Consultant proposes that the Supervising Engineer's office be in charge of collecting and forwarding the grievances to the relevant authority of redress.

The filing of grievances for accurate record keeping is important. If the complainant is not able to express his/her complaint in writing, he/she can be assisted by a local leader (Area Chief) to file the complaint at the complaints desk in the project office. To ease follow-up, each complaint will be registered and assigned a unique reference number. The office will then evaluate the application and determine what implementing agency will resolve the issue. The figure below shows a sample of a complaint form:

Figure 7-1: Table Showing a Sample Grievance Form

Grievance Form					
Ref. No.	**PAP Name**	**Date**	**Description of Grievance**	**Proposed Redress Measure**	**Issue Resolved (Y/N)**

These records will be reviewed by the environmental supervisor who will ensure grievances have been redressed.

8 ENVIRONMENTAL MITIGATION COST ESTIMATES

The cost of some of the proposed mitigation measures will have been included in the main engineering Bills of Quantities and therefore need not be included in the Environmental mitigation costs. These costs will also include cost of supervision for implementation of mitigation measures.

Table 8-1 shows cost estimates for environmental mitigation. The brief description of the items is for identification purposes and does not supersede or modify the detailed descriptions of works in other sections of this report.

Table 8-1: Cost Estimates for Environmental Mitigation

S/No.	Item description	Unit	Quantity	Unit Price (KES)	Item Cost (KES)
1	Emergency measures in case of accidental oil spill	LS	1	300,000.00	300,000.00
2	Emergency measures in case of accidental water contamination	LS	1	1,000,000.00	1,000,000.00
3	On completion of construction works, reinstatement of ground for vegetation regeneration	Ha	10	200,000.00	2,000,000.00
4	Provide waste collection bins at strategic points within the Contractor's camp, and along the pipeline to ensure that all solid wastes are transported to a place of safe disposal	No.	100	2,000.00	200,000.00
5	Provide Personal Protective Equipment (PPE) to the construction crew – helmets, overalls, gum boots, earplugs and dust masks.	set	800	5,000.00	4,000,000.00
6	Sensitize workers and the surrounding community on awareness, prevention and management of HIV/AIDS and other STDs through staff training, awareness campaign, media, and sign boards in local languages, workshops and during public Barazas.	LS	1	4,000,000.00	4,000,000.00
7	In collaboration with the Ministry of Health fund existing VCT centres located nearby	No.	4	500,000.00	2,000,000.00
8	Provide condom dispensers at appropriate locations within the Contractor's camp	LS	1	1,000,000.00	1,000,000.00
9	Provide both male and female toilets at strategic points within the site	No.	20	100,000.00	2,000,000.00

S/No.	Item description	Unit	Quantity	Unit Price (KES)	Item Cost (KES)
10	Spraying Mosquito breeding sites	LS	1	500,000.00	500,000.00
11	Provide signage at construction sites to control traffic to avoid accidents	LS	1	2,500,000.00	2,500,000.00
12	Formulate a Healthy and Safety Management Plan, train workers on health and safety procedures and emergency response in case of a fire outbreak, and other risks	LS	1	2,000,000.00	2,000,000.00
13	Environmental supervision, monitoring, and evaluation over a period of 18 calendar months	Months	18	300,000.00	5,400,000.00
14	Provisional sum to be spent as directed by the Engineer on miscellaneous environmental issues like sampling and testing	LS	1	3,000,000.00	3,000,000.00
	TOTAL				**29,900,000.00**

These costs should be included to the Bill of Quantities of the project and should be made available to the Contractor for implementation of the mitigation measures. In order to ensure the ESMMP is implemented, provision has been made for this supervision. The Client can either carry out the works in house or engage the services of an Environmental Auditor to monitor the works.

.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 CONCLUSION

As has been alluded in this report, the following can be said in summary.

The implementation of the proposed Water Supply Project has the following benefits:

There will be an increased supply of clean water to Kilifi and Gongoni towns and along the pipeline routes. This will in turn lead to an improvement in the public health of the population due to the reduction of water related ailments.

The water supply to communities through off-takes and pipeline extension will reduce the time required and distance travelled to fetch water. This time so availed can be used in other economic activities thus enhancing the quality of life and living standards in the project area.

Employment and skills transfer opportunities will be created for the local population; this will improve the general socio-economic wellbeing of the community

The negative environmental impacts identified are mostly confined to the construction phase of the project. Mitigation measures proposed are adequate and will be monitored and evaluated during project implementation.

9.2 RECOMMENDATIONS

The recommendations and issues which arose from public participation and consultation in terms of questionnaires have been effectively highlighted and incorporated in the report after the said public participation and consultation meetings were held.

The ESIA concludes that the project will have substantial positive environmental benefits. It will supply sufficient potable water to meet projected future demands of domestic and other uses in the project area.

The adverse impacts on the physical and natural environment will be “in sum total,” not significant, and can be handled through the recommended mitigation measures. There are incremental costs required to achieve these. Compensation for direct land take, demolition of structures and livelihood will be done through a detailed Resettlement Action Plan.

10 REFERENCES

Republic of Kenya (2004), State of Environment Report, NEMA, Nairobi

Republic of Kenya (2004), District Environment Profile, NEMA, Nairobi

Republic of Kenya, Environmental Management and Coordination Act (EMCA, 1999), Government Printer, Nairobi

Republic of Kenya, Water Act (2002), Government Printer, Nairobi

Republic of Kenya, Water Supply Design Manual (MWI, 2005), Government Printer, Nairobi

Republic of Kenya, Public Health Act, Cap 242, Government Printer, Nairobi.

Republic of Kenya, Environmental Impact Assessment/Audit Regulations 2003, (Legal Notice No.101) Government Printer, Nairobi

The Government Fisheries Protection Act

The Constitution of Kenya 2010

The Land Act, No. 6 of 2012

World Bank Operational Policies

11 APPENDICES

11.1 ESIA HOUSEHOLD QUESTIONNAIRE

Zamconsult Consulting Engineers

PROPOSED WORKS CONTRACTS UNDER COAST WATER SERVICES BOARD

ENVIRONMENTAL AND SOCIAL IMPACT ASSESMENT SURVEY QUESTIONNAIRE

An Environmental and Social Impact Assessment Survey is being carried out for the proposed **KAKUYUNI – KILIFI AND KAKUYUNI – GONGONI PIPELINES** on behalf of the Coast Water Services Board (CWSB). The aim of this survey is to form a realistic and up to date picture of the Environmental and Social situation in the area. We need your honest and accurate information during this discussion. Your inputs will assist in the understanding of your needs for improvement. The answers you provide will be kept confidential.

SECTION 1 DETAILS

1.1 Name of the Enumerator: .....

1.2 Signature of the Enumerator: .....

1.3 Name of the Respondent.....

1.4 Telephone number of the respondent..... ID Number of the respondent.....

1.5 Date: ..... Time of Interview: .....

1.4 Respondent place of resident: (1) Village..... (2) Location .....

(3)Sub-County -..... (4) County.....

SECTION 2 BASIC HOUSEHOLD SETUP

2.1 Name of the household head? .....

2.2 ID Number of the household Head..... Telephone Number of the Household Head.....

2.3 How many members do you have in this household.....

2.4 How many members of your household fall under each of the following age groups? (tick)

(1) 0 – 5yrs..... (2) 5 – 18yrs..... (3) 19-35yrs..... (4) 36-49yrs.....

(5) 49-65yrs..... (6) Over 65yrs .....

2.5 How many of your household members have attained each of the following education levels? (tick)

(1) None ..... (2) Primary ..... (3) Secondary ..... (4) College/university .....

2.6 What is the occupation /economic activity of the household head

(1) Crop farming ..... (2) Livestock farming ..... (3) Formal employment .....

(4)Business ..... (5) Fishing ..... (6) Others (specify) .....

2.7 If crop farming what type of crops? (1) Maize..... (2) Cashew nuts ..... (3) Cassava.....

(4) Mangoes ..... (5) Beans..... (6) Coconut..... (7) Others.....

2.8 If livestock farming how many?

(1) Cow..... (2)Sheep ..... (3)Goats..... (4) Donkeys ..... (5) Others .....

Proposed Works Contracts under Coast Water Services Board Page 1

Zamconsult Consulting Engineers

2.9 If business what kind of business? (tick) (1) Shop ..... (2) Bodaboda (bicycle /motorbike).....
(3) M-Pesa..... (4) Jua kali ..... (5) Grocery ..... (6) Others (specify) .....

2.10 What is the average combined household income per month? (tick) (1)Less than 15,000.....
(2) 15,000-30,000..... (3)30,000-50,000..... (4) Above 50,000 .....

2.11 What's the religion of the Household Head? (tick) (1)Christian..... (2) Muslim.....
(3) Hindu..... (4) Traditionalist ..... (5) Others Specify .....

2.12 Type of fuel mostly used for cooking: (tick)
(1)Firewood ..... (2)Charcoal ..... (3) Kerosene ..... (4) LPG(Gas) .....
(5)Electricity ..... (6) Others (specify) .....

SECTION 3 WATER AND SANITATION

3.1 What is the common source of water in this area?
(1) Private tap ..... (2) Public Tap ..... (3) Bore hole ..... (4) Shallow well .....
(5) Protected spring /river ..... (6) Water pan ..... (7) Others (specify) .....

3.3 What is the general quality of the water? (Tick)
(1) Good ..... (2) Fair ..... (3) Bad .....

3.4 How often do you Fetch water?
(1) Every day ..... (2) Every alternate day of the week ..... (3) Once a week .....

3.5 Is the water Supply source adequate (Tick)
(1) YES..... (2) NO.....

3.6 How far is this water source in km? .....
(1) Less than 0.2km ..... (2) 0.2 -1km..... (3) 1– 2km ..... (4) Above 2km.....

3.7 What is the ownership status of the water source? (Tick)
(1)Public ..... (2) Faith based ..... (3)Private ..... (4) NGO ..... (5) Other (specify) .....

3.8 Do you pay for water (1) Yes..... (2)No.....

3.9 If yes how much per 20 litre jerrican in Ksh.
(1) Ksh. 2..... (2) Ksh. 5 ..... (3) Ksh. 10..... (4) Above Ksh. 10 .....

3.10 What is the common mode of transporting water in this area?
(1) Carrying on the head ..... (2) Hand driven carts/wheelbarrow.....
(3) Bodaboda (bicycle/motorbike)..... (4) Pack animals (Donkeys/Camels) .....
(5) Animal drawn carts ..... (6) Trucks ..... (7)Others (specify) .....

3.11 What challenges do you face in transporting water
(1) Loss of time ..... (2) Physical fatigue due to travelling for long distances .....
(3) Others (specify) .....

3.12 How do you dispose of your household waste? (Tick)

(1)Compost pit/burying ..... (2) Collection by the council ..... (3) Recycling .....

(4) Burning ..... (5) Dumping in open areas ..... (6) Others (specify) .....

3.13 Does the household have a toilet?

(1)Yes ..... (2) No .....

3.14 If yes, type of toilet: (tick)

(1) Flush system connected to the sewer line ..... (2) Flush system with Septic tank .....

(3)Pit latrine ..... (4) Mobile toilet ..... (5)Any other (Specify) .....

(5)Any other (Specify) .....

3.15 Are you aware of the proposed Works under Coast Water Services Board?

(1) YES ..... (2) NO .....

3.16 How will proposed Works under Coast Water Services Board affect the community here? (Tick)

(1) Positively ..... (2) Adversely (negatively).....

3.17 If positively, in what way? (Tick)

(1) Reduced time and cost of travel to look for water.....

(2) Reduced cases of waterborne diseases..... (3) Improved hygiene.....

(4) Improved business ..... (5) Growth of town with water supply .....

(6) Reduced livestock diseases..... (7) Employment for the youth ..... (8)Alleviate water shortages..... (9) Others (please specify) .....

3.18 If negatively, in what ways? (Tick)

(1) Dust and noise ..... (2) Demolition of structures ..... (3) Loss of farm land/trees/crops ..... (4) Soil erosion ..... (5) Interruption of services (water, electricity, transport) ..... (6) Spread of diseases (STD, HIV/AIDS)..... (7) Others (specify) .....

3.19 What do you think should be done to minimize or mitigate these negative impacts?

(1) Inform the public about any interruption of services .....

(2) Install storm water drains ..... (3) Avoid night time construction ..... (4) Educate the public and the construction crew on health and safety..... (5) Compensate the structure/Land /crop/trees owners..... (6)Others (specify).....

SECTION 4 HEALTH,

4.1 Which diseases have members of your household suffered from in the past six months? (Tick)

(1)Malaria ..... (2)Malnutrition ..... (3)Measles ..... (4)HIV/AIDS .....

(5)Eye problems ..... (6)Diarrhea ..... (7) Cholera ..... (8) Intestinal worms .....

(9)Respiratory infections ..... (10)Skin rashes ..... (11)Others (specify) .....

4.2 What do you do when you are sick?

(1)Seek medical attention from a health centre..... (2)Prayed for ..... (3)Take herbs.....

(4) Visit a traditional doctor..... (5)Others (specify) .....

4.3 What is the ownership status of the health facilities attended by your household members? (Tick)

(1)Public ..... (2) Private ..... (3) Faith based ..... (4) NGO ..... (5) Traditional .....

4.4 How far is the health facility visited by your household members in km?

(1) Less than 1km ..... (2) 1 -3km..... (3) 3 – 5km ..... (4) Above 5km.....

SECTION 5 KNOWLEDGE AND ATTITUDE ON HIV/AIDS

5.1 Have you ever heard of HIV/AIDS? (1) Yes ..... (2) No .....

5.2 If yes, what source did you hear it from? (Tick)

(1) Radio/TV ..... (2) Billboards ..... (3) Posters ..... (4) Religious leaders .....

(5) Relative/friend ..... (6) Health worker/Clinic..... (7) NGO/CBOs .....

(8) Newspaper ..... (9) Other (Specify) .....

5.3 Has any of your household members been affected by HIV/AIDS? (1)Yes..... (2)No .....

5.4 Do you think HIV (AIDS) can be prevented? (1)Yes ..... (2) No ..... (3) Do Not Know .....

5.5 Do you know where to go for voluntary counseling and testing for HIV/AIDS?

(1)Yes ..... (2) No .....

SECTION 6 ENVIRONMENTAL

6.1 What environmental issues are of concern to the people of this area?

(1) Water shortage ..... (2) Invasive species ..... (3) Overgrazing ..... (4) Extinction of endangered species ..... (5) Mosquitoes and malaria spread ..... (6) Solid waste .....

(7) Deforestation ..... (8) Drought ..... (9) Others (please specify).....

6.2 What are the environmental conservation initiatives in the area?

(1) Tree planting ..... (2) Educating the public ..... (3) Cleaning of mosquito breeding sites .....

(4) Collection of solid wastes..... (5) Others (please specify) .....

6.3 Who are carrying out these activities?

(1) Women groups ..... (2) County council..... (3) Non-governmental organization .....

(4) Community based organizations..... (5) Youth groups..... (6) Others (please specify) .....

6.4 Will the completion of the proposed Works under Coast Water Services Board help in the conservation of the environment in the area? (1) Yes ..... (2) No .....

6.5 If yes in what ways? .....

11.2 PUBLIC CONSULTATION SUMMARY

11.2.1 Public Consultation Minutes

1) *Minutes of the Public Consultation Meeting Held at Kilifi Chief's Camp On 24th May 2016 at 9.45am*

Present

- Eng. Dr. Zablon Oonge – Zamconsult Consulting Engineers (Consultant)
- Marion Orina - Zamconsult Consulting Engineers (Consultant)
- Francis Moturi - Zamconsult Consulting Engineers (Consultant)
- Hope Makalo – CWSB representative
- Simon Mwakudza – Kilifi Water and Sewerage Company
- Dickson Mae – Senior Chief Tezo
- Kahindi Benjamin Kopi – Chief Kilifi Township
- General Public

Introductions

The meeting started at 9.45 am with a word of prayer from one of the participants and both chiefs chaired the meeting. The Chief of Kilifi Township welcomed the team to Kilifi and introduced the Consultants, CWSB representative and Kilifi Water and Sewerage Company representative to the attendees. He then invited the consultant to give his presentation.

Presentation on Project by the Consultant

The Consultant gave a presentation of the proposed project, its scope, and the laws governing the Environmental and Social Process as well as the need to conduct public consultation meetings.

The Consultant explained the various impacts that may result from the project, throughout the project duration (planning, construction, operation and decommissioning), including displacement of PAPs. He explained that there would be two pipelines that would start at the Kakuyuni Water tank, the first one would end at Kilifi Town via the B8 road, whereas the other line would end at Gongoni via the same road. He further added that they had visited the site in order to carry out a RAP and ESIA, citing that the meeting was now being held to disseminate information on the findings of the ESIA and RAP, including the fact that resettlement had been minimized due to the fact that the pipelines would use the existing road reserves. He further explained all the mitigation measures put in place in view of the anticipated disturbances and assured the public that in case the contractor fails to adhere with the regulations put in place, they could address their complaints to the resident engineer in place for relevant action to be taken.

Presentation by the Kilifi Water and Sewerage Company

Mr. Mwakudza stated that he had been working with the water sector throughout the country. He stated that even he, who was a resident of Kilifi would greatly benefit from the project since Kilifi currently does not have a dedicated pipeline to serve its residents. He stated that Kilifi currently relies on an offtake pipe from the main Baricho – Mombasa Pipeline, thus they were not the priority in the water supply and hence have their flows throttled on occasion when Mombasa needed more water.

Questions, Answers and Feedback

The Consultant then invited the attendees to raise whatever issues they had, in order to have full knowledge on the project.

Q1. Kazungu Kahindi from Kibaoni stated that he was happy with the project, adding that it was a step towards was progress. He also expressed joy at the fact that the project would have minimal resettlement. He asked how far the pipeline was from the centre of the road, stating that the road reserve was initially 40m and is now 60m. He asked if that would affect the people along the roadside.

The Consultant explained that the B8 had a road reserve of 60m adding that reserve was to ensure all public services were housed within it. Thus the pipeline would not encroach into any private land, however a few shops within the road reserves would be affected. However the design ensured minimal resettlement.

Q2. Rukia Raphael Thoya from Kibaoni – thanked CWSB for the project and stated that Kilifi is water scarce. She wanted to know if sewerage services would be provided to deal with the increased waste water that would be as a result of the increased water supply.

The Consultant stated that the sewerage was a future project and a new consultant would be hired to design the system. He just stated that with the improved water services, there would be a need for the provision of sewerage services, for which a consultant needed to be procured.

Q3. Mama Agnes Ngamba (Village Elder) from Kamwango - raised concern over the sewage problem that would arise from the increased water. She wanted to know what services would be provided.

The Consultant again stated that the sewerage was a future project and a new consultant would be hired to design the system. He just stated that with the improved water services, there would be a need for the provision of sewerage services, for which a consultant needed to be procured.

Q4. Robert Thoya from Mwezangombe – expressed relief that the project would avoid resettlement of PAPs however wanted to know if there would be compensation for any affected land.

The Consultant stated there would be compensation for those affected by the project, however the pipelines would be located within the road reserve in order to minimize resettlement and land acquisition. The road reserve was adequate to house the project.

Q5. Kazungu Kahindi from Kibaoni thanked the consultant for his proposal to employ the local youth to work on the project. He stated that it was a very important point to note, and urged that the proposal be implemented during the construction supervision.

The Consultant concurred with the point.

Conclusion and Closing Remarks

The Consultant then asked the participants if they approved of the project and were willing to allow it to proceed, and by a show of hands the participants approved of the project. The Consultant thanked them for their attendance and their feedback and assured them that their opinions would be forwarded to the Client for action.

The Senior Chief of Tezo thanked the participants for attending the meeting stating his happiness that the government had taken an initiative of disseminating information to the locals who may not have had engineering education. This dissemination he added was important in ensuring the locals bought into the project and owned it.

The MCA's PA reiterated the chief's comments and stated that water would greatly help the people in Tezo.

The meeting ended with a word of prayer at 11.00 am.

2) *Minutes of the Public Consultation Meeting Held at Zowerani Chief's Camp Zowerani On 24th May 2016 At 12 Noon*

Present

- Eng. Dr. Zablon Oonge – Zamconsult Consulting Engineers (Consultant)
- Marion Orina - Zamconsult Consulting Engineers (Consultant)
- Francis Moturi - Zamconsult Consulting Engineers (Consultant)
- Hope Makalo – CWSB representative
- Tecla Chai – Senior Assistant Chief Zowerani
- Lawrence Maitha – Chief Roca
- General Public

Introductions

The meeting started at 12.00 noon with a word of prayer from one of the participants and was chaired by the Senior Assistant Chief who welcomed the team to Zowerani and introduced the Consultants and the CWSB representative to the attendees. She then invited the consultant to give his presentation.

Presentation on Project by the Consultant

The Consultant gave a presentation of the proposed project, its scope, and the laws governing the Environmental and Social Process as well as the need to conduct public consultation meetings.

The Consultant explained the various impacts that may result from the project, throughout the project duration (planning, construction, operation and decommissioning), including displacement of PAPs. He explained that there would be two pipelines that would start at the Kakuyuni Water tank, the first one would end at Kilifi Town via the B8 road, whearas the other line would end at Gongoni via the same road. He further added that they had visited the site in order to carry out a RAP and ESIA, citing that the meeting was now being held to disseminate information on the findings of the ESIA and RAP, including the fact that resettlement had been minimized due to the fact that the pipelines would use the existing road reserves. He further explained all the mitigation measures put in place in view of the anticipated disturbances and assured the public that in case the contractor fails to adhere with the regulations put in place, they could address their complaints to the resident engineer in place for relevant action to be taken.

Questions, Answers and Feedback

The Consultant then invited the attendees to raise whatever issues they had, in order to have full knowledge on the project.

Q1. Ngala Mwangangi from Zowerani asked if the pipeline would be on both sides of the road.

The Senior Assistant Chief stated that the pipeline would be on the Left Hand Side of the B8 highway from Gede towards, Kilifi.

Q2. Chigiri Kiti from Zowerani asked if land owners bordering the pipelines would be given an allowance protect the pipe from illegal connections and vandalism. He also asked if the PAPs should benefit with direct water.

The Consultant explained that the pipelines were located entirely within the road reserve and that the water would benefit all thus there was no need to vandalise it, adding that it was the role of every resident to ensure proper care of public assets. He further added that there would be offtakes from the main pipeline to serve communities along the pipeline, pointing out that individual connections could not be connected to the main line.

Q3. Mr. Jambo Sadi from Zowerani wanted to know if there would be notices for recruitment for jobs for the locals. He also wanted to know when the project would start.

The Consultant stated that a Contractor had already been appointed to carry out the works, the only issues that were pending were the release of funds from the Financier as well as a permit from NEMA. Those issues were out of the hands of CWSB, however as soon as the issues were dealt with the project construction would start. Concerning Job notices, the Consultant explained that the Job opportunity notifications, were the prerogative of the Contractor, however he stated that good contractors would employ the services of the local administration (Chiefs) in sourcing for labour, so as to ensure a good working relationship with the locals.

Q4. Jacob Kazungu from Wesa wanted to know if the residents within the affected location away from the main pipeline would get water. He urged CWSB to consider them in the provision.

The CWSB representative stated that CWSB would provide the main infrastructure, however distribution networks would have to be provided through the local water service provider company to provide distribution networks to the locals.

The Senior Assistant Chief added that the locals should let the main line be constructed then they would lobby for distribution lines once water had been provided.

Conclusion and Closing Remarks

The Consultant then asked the participants if they approved of the project and were willing to allow it to proceed, and by a show of hands the participants approved of the project. The Consultant thanked them for their attendance and their feedback and assured them that their opinions would be forwarded to the Client for action.

The Chief of Roca apologized for arriving late, however expressed joy in the project and CWSB listening to the opinion of the people.

The meeting ended with a word of prayer at 1.30 pm.

3) *Minutes of the Public Consultation Meeting Held at Gede Chief's Camp On 24th May 2016 At 3.00 pm*

Present

- Eng. Dr. Zablon Oonge – Zamconsult Consulting Engineers (Consultant)
- Marion Orina - Zamconsult Consulting Engineers (Consultant)
- Francis Moturi - Zamconsult Consulting Engineers (Consultant)
- Hope Makalo – CWSB representative
- Renson Baya –Assistant Chief Gede
- Lenny K. Shauri – Assistant Chief Gede
- Farida Gharama – Assistant Chief Kakuyuni
- Samson Mwarimbo – Assistant Chief Majaoni
- Arnold Masha – Ward Representative Gede
- General Public

Introductions

The meeting started at 3.00pm with a word of prayer from one of the participants and was chaired by Renson Baya (Assistant Chief Gede) who welcomed the team to Gede and introduced the Consultants and the CWSB representative to the attendees. He then invited the consultant to give his presentation.

Presentation on Project by the Consultant

The Consultant gave a presentation of the proposed project, its scope, and the laws governing the Environmental and Social Process as well as the need to conduct public consultation meetings.

The Consultant explained the various impacts that may result from the project, throughout the project duration (planning, construction, operation and decommissioning), including displacement of PAPs. He explained that there would be two pipelines that would start at the Kakuyuni Water tank, the first one would end at Kilifi Town via the B8 road, whearas the other line would end at Gongoni via the same road. He further added that they had visited the site in order to carry out a RAP and ESIA, citing that the meeting was now being held to disseminate information on the findings of the ESIA and RAP, including the fact that resettlement had been minimized due to the fact that the pipelines would use the existing road reserves. He further explained all the mitigation measures put in place in view of the anticipated disturbances and assured the public that in case the contractor fails to adhere with the regulations put in place, they could address their complaints to the resident engineer in place for relevant action to be taken.

Questions, Answers and Feedback

The Consultant then invited the attendees to raise whatever issues they had, in order to have full knowledge on the project.

Q1. Lawrence Karissa Shindo (Athman Mohammed Shindo) from Kakuyuni stated that he was a PAP from a previous pipeline project under Coast Water Services Board. With the commencement of a new project he requested that grievances should be addressed in a timely and amicable manner to ensure seamless implementation of the project.

The Consultant noted the concern and stated that he would forward the participant's concern to CWSB.

Q2. Immanuel Baha from Kakuyuni stated that there was a meeting at the end of 2015 to emphasize the importance of grievance redress mechanisms, in participation was a team from CWSB. He added that feedback on progress of any issues raised during public consultation meetings critical for amicable solutions to be arrived at.

The Consultant stated that he would forward the participant's observation to CWSB.

Q3. Immanuel Kalama from Mida stated that water was important to the community and proceeded to ask the following questions. Firstly, he raised the concern that many of the residents at water sources were rarely considered in the water supply with the water supply being concentrated on the supply urban centres, he wanted to know if the design of the Kakuyuni Kilifi pipeline was intended only for the people of Kilifi or to supply the people of the rural areas enroute to Kilifi. Secondly he raised concern over the fact that he had a title deed that stated that his land overlapped with the current road reserve, he asked if he would be compensated for land based on this issue. Finally, he asked if there would be compensation for trees and crops.

The Consultant explained that the new pipeline was designed to serve both the urban and rural population in Kilifi and surrounding areas. He further explained when the roads were delineated at 60m, he should have been compensated at that time to make up for the land take, and advised the participant to take up the issue with KeNHA and the ministry of lands. Finally the Consultant assured the participants that there would be compensation for affected trees and crops, based on the age and type of the crops.

Q4. Morris Thoya Ndolo, Joachim Sulubu Thoya and Halima Mohammed Issa from Kakuyuni all expressed the same concerns as the first and second participants and urged the Consultant to forward their observations to CWSB in order to ensure quick grievance redress in the new project.

The Consultant stated their concerns would be forwarded to CWSB for quick resolution.

Q5. Nelson Kahindi Mwiru from Mida asked if the pipeline would be located within the 60m road reserve or a new reserve would be needed for the pipeline.

The Consultant explained that the proposed pipeline would be located within the 60m road reserve.

Q6. Dama Angore stated that she had two parcels of land at Gede Majaoni and Mida Majaoni, which were along the road, she wanted to know if she would be compensated for both.

The Consultant reiterated that the project would be located within the road reserve and not on private land, however if any structure, tree, crop, etc. were affected and were within the road reserve, she would be compensated.

Q7. Mohammed Ibrahim from Mida wanted to know if the road reserve was 40m or 60m, also wanting to know what some red markings along the road indicated. He also echoed that grievances be redressed in a timely manner with feedback from the board getting to the people. Finally, he wanted to know which side of the road the pipeline would be.

The Consultant explained that the markings were to assist in the road surveys and the beacons on the side of the road were the true mark of the end of the road reserve. He also explained that the main Malindi Highway was 60m and that the pipeline would be on the right hand side of the road and cross over to the left hand side of the road at Matsangoni in the direction of Kilifi.

Conclusion and Closing Remarks

The Assistant Chief from Kakuyuni apologized for arriving late, but was content that all issues had been raised and urged the Consultant to inform CWSB that grievance redress mechanisms must be put in place.

The Consultant then asked the participants if they approved of the project and were willing to allow it to proceed. The participants stated that they had approved the current project on condition that their grievances redress mechanisms be implemented in the project. Thus the Consultant stated that he would forward their observations to CWSB for quick action.

The meeting ended with a word of prayer at 5.00 pm.

4) Minutes of the Public Consultation Meeting Held at Sabaki Primary on 25th May 2016 at 10.00 am

Present

- Eng. Dr. Zablon Oonge – Zamconsult Consulting Engineers (Consultant)
- Marion Orina - Zamconsult Consulting Engineers (Consultant)
- Francis Moturi - Zamconsult Consulting Engineers (Consultant)
- Hope Makalo – CWSB representative
- Francis Fondo – Assistant Chief Sabaki
- General Public

Absent with Apologies

- Bartholomew Kitunga – Chief Ganda

Introductions

The meeting started at 10.00am with a word of prayer from one of the participants and was chaired by the Assistant Chief of Sabaki who welcomed the team to the area and introduced the Consultants and the CWSB representative to the attendees. He then invited the consultant to give his presentation.

Presentation on Project by the Consultant

The Consultant gave a presentation of the proposed project, its scope, and the laws governing the Environmental and Social Process as well as the need to conduct public consultation meetings.

The Consultant explained the various impacts that may result from the project, throughout the project duration (planning, construction, operation and decommissioning), including displacement of PAPs. He explained that there would be two pipelines that would start at the Kakuyuni Water tank, the first one would end at Kilifi Town via the B8 road, whearas the other line would end at Gongoni via the same road. He further added that they had visited the site in order to carry out a RAP and ESIA, citing that the meeting was now being held to disseminate information on the findings of the ESIA and RAP, including the fact that resettlement had been minimized due to the fact that the pipelines would use the existing road reserves. He further explained all the mitigation measures put in place in view of the anticipated disturbances and assured the public that in case the contractor fails to adhere with the regulations put in place, they could address their complaints to the resident engineer in place for relevant action to be taken.

Questions, Answers and Feedback

The Consultant then invited the attendees to raise whatever issues they had, in order to have full knowledge on the project.

Q1. Elijah Ewinji Mae from Sabaki wanted to know how the people would show their support for the project. He also wanted to know how far the pipeline was from the road, and also wanted to know if there would be employment opportunities for locals.

The Consultant explained that the people would show their support for their project by a show of hands at the end of the meeting. The engineer explained that the road reserve was 40m and that the pipeline would be within the 40m, while trying not to affect too many structures. Concerning the jobs, the Consultant explained that the Contractor would source the local authorities.

Q2. Alex Mungao Ngundo wanted to know what the source of water would be, he asked if the new wells would be located at Lango Baya or throughout the Sabaki and Ganda areas.

The Consultant explained that the additional wells to provide water would be located at Lango Baya, and the water directed to the Kakuyuni water tanks for transmission to Kilifi and Gongoni while serving the surrounding areas.

Q3. Daniel Mukare was worried about the fact that majority of the people in the area did not have title deeds and enquired if they would they be compensated. He also wanted to know if he could get a water kiosk during the implementation of the project.

The Consultant explained that the local leaders (chiefs, village elders, etc.) would corroborate the ownership of any structure/tree/crop/business, etc. and compensation would occur, adding that the pipelines would not pass within private land. The Chief also explained that MAWASCO was in charge of assigning water kiosks.

Q4. Ngoha Mwariga stated that he was there representing his employer who was a PAP, and wanted to know if his affected wall would be demolished.

The Consultant assured him that if any development was affected it would be compensated before construction began.

Q5. Omar Gabo stated that he was a caretaker of a parcel of land for over 20 years with his employer being very far away and had been making developments on the land, he enquired if he would be compensated or his employer would be compensated.

The Consultant explained that if the employee had made any development and the area Chief corroborated the information, the employee would be compensated, however if the developments were carried out by the land owner, the land owner would be compensated.

Q6. Mwaringa Ngoa stated that if the PAP in Q4's wall was within the road reserve, it should be taken down instead of avoiding it to save costs.

The Chief explained any development that was within the pipeline route would have to be brought down to accommodate the pipeline.

Conclusion and Closing Remarks

The Assistant Chief thanked the stakeholders for attending the meeting and making it a success. He expressed his satisfaction with the fact that the project organizers came and talked to the locals and seek their approval for the project. He hoped that all the stakeholders would benefit from the project.

The Consultant then asked the participants if they approved of the project and were willing to allow it to proceed, and by a show of hands the participants approved of the project. The Consultant thanked them for their attendance and their feedback and assured them that their opinions would be forwarded to the Client for action.

The meeting ended with a word of prayer at 11.30am.

5) *Minutes of the Public Consultation Meeting Held at Gongoni DC's Office on 25th May 2016 at 12.30 pm*

Present

- Eng. Dr. Zablon Oonge – Zamconsult Consulting Engineers (Consultant)
- Marion Orina - Zamconsult Consulting Engineers (Consultant)
- Francis Moturi - Zamconsult Consulting Engineers (Consultant)
- Hope Makalo – CWSB representative
- Julius Hiribai – Senior Chief Gongoni
- Basheikh Hussein – Senior Assistant Chief Gongoni
- General Public

Introductions

The meeting started at 12.30pm with a word of prayer from one of the participants and was chaired by the Senior Assistant Chief who welcomed the team to the area and introduced the Consultants and the CWSB representative to the attendees. He then invited the consultant to give his presentation.

Presentation on Project by the Consultant

The Consultant gave a presentation of the proposed project, its scope, and the laws governing the Environmental and Social Process as well as the need to conduct public consultation meetings.

The Consultant explained the various impacts that may result from the project, throughout the project duration (planning, construction, operation and decommissioning), including displacement of PAPs. He explained that there would be two pipelines that would start at the Kakuyuni Water tank, the first one would end at Kilifi Town via the B8 road, whearas the other line would end at Gongoni via the same road. He further added that they had visited the site in order to carry out a RAP and ESIA, citing that the meeting was now being held to disseminate information on the findings of the ESIA and RAP, including the fact that resettlement had been minimized due to the fact that the pipelines would use the existing road reserves. He further explained all the mitigation measures put in place in view of the anticipated disturbances and assured the public that in case the contractor fails to adhere with the regulations put in place, they could address their complaints to the resident engineer in place for relevant action to be taken.

Questions, Answers and Feedback

The Consultant then invited the attendees to raise whatever issues they had, in order to have full knowledge on the project.

Q1. Paul Mwandoye from Dodoma wanted to know if the pipeline that was done the previous year was the same project as this one.

The Consultant explained that that was a different pipeline and the proposed Kakuyuni Gongoni Pipeline was a whole different project.

Q2. Samuel Yaa Baya from Dodoma wanted to know why the pipeline was passing along the road instead of cutting across through private land to Gongoni, which would shorten the distance of the pipeline.

The Consultant explained that the road reserve would be used for the pipeline instead of private land due to reduced land acquisition. Thus ensuring reduced project stalling due to way leave acquisition.

Q3. James Mramba from Borabora stated that he lived near Marereni and wanted to know if he would have access to the water.

The Consultant explained that the pipeline was a main pipeline from which a gravity distribution network would be established.

Q4. Nasir Auni from Gongoni wanted to know where the tank would be located and if it would be on private land, would the Board acquire it. He also made an enquiry about the poor quality of water currently being received in the area, where the water was sometimes red and caused water borne diseases, he wanted to know the cause of the contamination. He wanted to know if forms of consent of the project would be taken around or their opinions of the attendees would be adequate. He added that the attendees of the meeting should be considered for free connections to water.

The Consultant explained that a site had been found for the tanks, and thus the process for acquiring was on going. The Consultant further added that the water coming from Baricho would be treated before distribution to the people, as such the people would receive clean and potable water. A participant also explained that the pipe had some bursts and thus soil was entering the pipes and could be causing the pollution. The engineer noted the issue.

Q5. Abdalla Salim Dodoni A wanted to know what would happen to those who have land agreements and haven't gotten their title deeds yet. Would there be compensation?

The Consultant explained that the local administration would be there to verify land ownership, however with the exception of the tank site, there would be no land acquisition since the pipelines would be located within the existing road reserve.

Q6. Omar Fondo from Dodoma requested that a water supply be provided in Dodoma.

The Consultant stated that he would forward the request to MAWASCO after the establishment of the main line. The Assistant chief also added that the CDF had plans of providing water to the said area as soon as funds were available.

Q7. Jilo Onoto from Kokotoni stated that the locals did not have full knowledge on the extents of the road reserve, and had encroached on the road reserve. During the construction of the CDF line people lived in fear of the fact that their structures may be demolished. He asked if the new pipeline would demolish their shops. He further wanted to know if the design was done before or after the CDF project, stating that people had already made applications to MAWASCO, he wanted to know if that would interfere with the current project.

The Consultant assured the locals that the current Design Engineer had instructed the Contractor to avoid permanent structures, however advised them to maintain the road reserve, since the governing body KeNHA would police their reserve. The Engineer

explained that the current project was bulk supply and individual connections would not be made from it, thus no conflict with the other project.

Q8. Shehe Kazungu from Borabora asked if women would have a fair employment opportunity.

The Consultant stated that recommendations in the ESIA report had been made for equal gender employment, and further informed that many of the construction projects in the country now were being done equally by women.

Q9. Agnes Katana from Majengo Mapya asked if there would be water kiosks in the project. She also wanted to know when the project would start.

The Consultant explained that MAWASCO would provide the distribution services including water kiosks to the people after the establishment of the main line and water tank. Concerning the commencement of construction, the Consultant stated that all that remained was for finances to be released as well as NEMA certificate. As soon as the two conditions were met, construction would begin.

Q10. Benjamin Kahindi Nzingo raised concern over the fact that the pipeline passed near a cemetery, he wanted to know if it would be affected.

The consultant clarified that the pipeline wouldn't affect the cemetery.

Q11. Fadhili Jelani requested that the pipeline use rural roads to access the tank sites.

The Consultant noted the observation and stated that he would forward the request to CWSB who would discuss it with the Design Engineer.

Q12. John Mweni asked if the project was only for Gongoni or for the entire Magarini as well. He expressed skepticism at the fact that areas higher than Gongoni would get water. He suggested that the hill at Magarini be used instead or Gongoni since it was very high and could serve a wider area.

The Consultant explained the project had several tees to serve the local communities. He added that the project would provide a tank from which water will gravitate to the entire Magarini. The Consultant also explained that the design engineer must have looked at all possible options before arriving at his/her decision. He however noted the recommendation and would forward it to the Board.

Conclusion and Closing Remarks

The Senior Chief apologized for arriving late for the meeting stating that he had been dealing with an urgent matter. He then pointed out that Gongoni was water scarce and was in great need of water and as such everyone was in support of the project. He expressed happiness at the fact that those that were near the river (Sabaki) were finally benefitting from it

The Consultant then asked the participants if they approved of the project and were willing to allow it to proceed, and by a show of hands the participants approved of the project. The Consultant thanked them for their attendance and their feedback and assured them that their opinions would be forwarded to the Client for action.

The meeting ended with a word of prayer at 2.15pm.

11.2.2 Public Consultation Attendance Lists

PUBLIC CONSULTATION ATTENDANCE LIST
KILIFI TOWNSHIP 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
1	KAZUNGU KAHINDI	BUSINESSMAN	KIBAONI	TOWNSHIP	0722354410
2	ROWA RAPHAEL THOYA	BUSINESSMAN	KIBAONI	TOWNSHIP	0723754358
3	MIKE KARISA LEWA	BUSINESSMAN	KIBAONI	TOWNSHIP	
4	MARY K. MLANDA	BUSINESSMAN	KOROSHONI	TOWNSHIP	0715080858
5	NZINGO GOHU	VILLAGE ELDER	SOKONI	TOWNSHIP	0711571637
6	KADZI KIDHII	BUSINESSWOMAN	KOROSHONI	TOWNSHIP	
7	KATANA CHANGAWA KAZOMBA	BUSINESSMAN	KOROSHONI	TOWNSHIP	0705105022
8	JOHNSON KOPI	BUSINESSMAN	KOROSHONI	TOWNSHIP	0718097181
9	EDWARD KAHINDI	BUSINESSMAN	KOROSHONI	TOWNSHIP	0718875348
10	CRISPER KABIBI KITHI	BUSINESSMAN	KIWANDANI	TOWNSHIP	0723556705
11	HILDA KUVUNA	BUSINESSWOMAN	KIWANDANI	TOWNSHIP	0702254489
12	LOICE B. CHAI	ADULT EDUCATION TEACHER	MKOROSHONI	TOWNSHIP	0712562248
13	ROBERT T. THOYA	BUSINESSMAN	MWEZANG'OMBE	TOWNSHIP	0772168905
14	ISSA M. NDAGO	EMPLOYED	BOFA	TOWNSHIP	0786394429
15	STEPHEN BIDII	C.H.W	DERA	TOWNSHIP	0725595875
16	KAZUNGU KAMANGA	VILLAGE ELDER	MUJIBU	TOWNSHIP	0717025206
17	AGNES NGAMBA	VILLAGE ELDER	KWAMWANGO	TOWNSHIP	0731010800
18	NATHANIEL S. KATANA	VILLAGE ELDER	KISUMUNDOGO	TOWNSHIP	0729653009
19	KAHINDI BENJAMIN KOPI	BUSINESSMAN	KISUMUNDOGO	TOWNSHIP	0711854646
20	DICKSON MAE	SENIOR CHIEF	BLOCK 10	TOWNSHIP	0716740382
21	BIDII RENSON KOMBE	P.A. TEZO WARD	TEZO	NGERENYA	0714940959

PUBLIC CONSULTATION ATTENDANCE LIST
KILIFI TOWNSHIP 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
22	HOPE MAKALO	CWSB	MOMBASA	MOMBASA	0720714708
23	MARION ORINA	ZAMCONSULT	NAIROBI	NAIROBI	0733806583
24	SIMON N. MWAKUDZA	SUB-COUNTY WATER OFFICER	KILIFI	KILIFI	0727313931
25	JUSTIN HAMISI		KILIFI	KILIFI	0719402762
26	KONGO MATANO		KILIFI	KILIFI	0718749712

PUBLIC CONSULTATION ATTENDANCE LIST
ZOWERANI 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
1	NGALA KAZUNGU MWAGANDI	CARPENTER	TEZO	NGERENYA	0725483655
2	KARISA KOMBE	MASON	ZOWERANI	NGERENYA	0728256553
3	OLIVER MTENGO	FARMER	WESA	NGERENYA	0702352706
4	KENNETH S. KIDZUNGU	BODABODA	ZOWERANI	NGERENYA	0701182233
5	CHIGIRI K. CHAPA		ZOWERANI	NGERENYA	0726926991
6	ALBERT MRIMA	FARMER	WESA	NGERENYA	0732610105
7	JAMBO JADI	BUSINESSMAN	ZOWERANI	NGERENYA	0735527147
8	ALI H. MOHAMMED	BUSINESSMAN	ZOWERANI	NGERENYA	0718749641
9	MWAMU MWAMBUNA	BUSINESSMAN	ZOWERANI	NGERENYA	0729871255
10	JAMES M. NYANJE	BUSINESSMAN	ZOWERANI	NGERENYA	0712996884
11	KARISA FESTUS THOYA	DRIVER	ZOWERANI	NGERENYA	0732472283
12	CLEMENCE MRIMA	BUSINESSMAN	ZOWERANI	NGERENYA	0725059436
13	SOPHIA MATOLE	CRAFTSWOMAN	ZOWERANI	NGERENYA	0718195717
14	BENSON SHUKRANI				
15	JACON KAZUNGU	COMMUNITY VOLUNTEER	WESA	NGERENYA	0726780927
16	TECLA CHAI	ASSISTANT CHIEF	ZOWERANI	NGERENYA	0729870168
17	LAWRENCE MAITHA	ASSISTANT CHIEF	CHUMANI	ROKA	0725805832

18	HARRY SHOKA	AMBASSADOR	CHUMANI	ROKA	0728138701

PUBLIC CONSULTATION ATTENDANCE LIST
GEDE 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
1	PAUL NYOKA	FISHERMAN	MIDA	MAJAONI	0792219560
2	JOHN B. BATILA	FARMER	MIDA	GEDE	0736813539
3	MOHAMMED I. HUSSEIN	FARMER	MIDA	GEDE	0723637669
4	MOHAMMED OMARI	FARMER	MIDA	GEDE	0791983250
5	SAMUEL N. JACKSON	FARMER	MIDA	GEDE	0717432251
6	FATUMA CHIVATSU	FARMER	MIDA	GEDE	0792658247
7	DAMA ZIRO WANJE	FARMER	MIDA	GEDE	
8	ALI SALIM MWARARA		KAKUYUNI	GOSHI	0713478408
9	JUMA KIBWANA JUMA		KAKUYUNI	GOSHI	0725001526
10	SAID OMAR	FARMER	MKANGANI	GEDE	0726055283
11	CHARO KADZOMBA	FARMER	MKANGANI	GEDE	0711893835
12	ATHMAN SALIM ATHMAN	FARMER	KAKUYUNI	GOSHI	0707012895
13	MARTIN K. RITETE	FARMER	KAKUYUNI	GOSHI	0739930981
14	JOHN K. NDORO	FARMER	KAKUYUNI	GOSHI	0716654601
15	HALIMA CATHENA	FARMER	MIDA	GEDE	
16	DAMA ANGORE MRANJA	FARMER	MIJOMBONI	GEDE	0722586689
17	HALIMA MOHAMMED	FARMER	KAKUYUNI	GEDE	0791782148
18	KIBWANA MOHAMMED		KAKUYUNI	GEDE	0724936306
19	EMMANUEL P. RAHA		BAGOO	GEDE	0723711632
20	MERCILYNE R. MENZA	FARMER	MKANGANI	GEDE	0723759556
21	SARAH D. CHONDO	FARMER	MKANGANI	GEDE	0722568206
22	SAUMU MENZA KITHI	FARMER	MKANGANI	GEDE	0702216777

PUBLIC CONSULTATION ATTENDANCE LIST
GEDE 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
23	RACHEL CHENGO KARISA	FARMER	MKANGANI	GEDE	0716787780
24	AMBROSE KALAMA	FARMER	MKANGANI	GEDE	0720817934
25	VINCENT BAYA	FARMER	KAKUYUNI	GOSHI	0731421163
26	FRANCIS C. SHINDO	FARMER	KAKUYUNI	GOSHI	0705039538
27	MAURICE T. NDORO	FARMER	KAKUYUNI	GOSHI	0706425235
28	JOAKIM SULUHU	FARMER	KAKUYUNI	GOSHI	0703772824
29	ROBERT ALI KARISA	FARMER	KAKUYUNI	GOSHI	
30	JOSEPH K. KALU	FARMER	MIDA	GEDE	0725682898
31	DONALD S. MWATETE	MECHANIC	MIDA	GEDE	0725750661
32	NELSON K. MWIRU	V. ELDER	MIDA	GEDE	0714101861
33	STEPHEN M. SHOKA		MIDA	GEDE	0710843220
34	EMMANUEL K. KALAMA	APIARIST	MIDA	GEDE	0720678921
35	JULIUS KATANA	FARMER	MIDA	GEDE	
36	MWAMUNGA KAE KANYAMA	V. ELDER	MKANGANI	GEDE	0710374713
37	MUMBA NGUMBAO	FARMER	MKANGANI	GEDE	0712577262
38	FAIZ SALIM	DESIGNER	KAKUYUNI	GOSHI	0725718824
39	FELIX FIKIRI CHARO	FARMER	MIJOMBONI	GEDE	0720075757
40	SAID KAPEMBE RUWA		KAKUYUNI	GOSHI	0734973306
41	BAKARI AZIZI OMAR		KAKUYUNI	GOSHI	
42	LAWRENCE KARISA SHINDO	FARMER	KAKUYUNI	GOSHI	0713784777
43	ABDALLA SALIM ATHAMN	BUSINESSMAN	KAKUYUNI	GOSHI	0720470061
44	NURU BAKAR	FARMER	KAKUYUNI	GOSHI	0732544291
45	MICHAEL BAYA YAA	ECO TOUR GUIDE	MIDA	GEDE	0790187841

PUBLIC CONSULTATION ATTENDANCE LIST
GEDE 24TH MAY

No.	Name	Designation	Village	Location	Phone Number
46	ARNOLD MASILA	WARD ADMINISTRATOR	MKENGE	GEDE	0729065459
47	LENNY K. SHAURI	ASS. CHIEF	MKENGE	GEDE	0724017750
48	RENSON BAYA	ASS. CHIEF	MIDA	GEDE	0735362414
49	SAMSON MWARIMBO	ASS. CHIEF	MIJOMBONI	GEDE	0710799530
50	FARIDA GHARAMA MAZRUI	ASS. CHIEF KAKUYUNI	KAKUYUNI	GOSHI	0731582888

PUBLIC CONSULTATION ATTENDANCE LIST
SABAKI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
1	HENRY JOSHUA MALINGI	V. ELDER	SABAKI	SABAKI	0724806711
2	MNTAPARA NAJORO	V. ELDER	SABAKI	SABAKI	0729464741
3	KALAMA MNGELA EMMANUEL	BODA	SABAKI	SABAKI	0727749142
4	SHADRACK CHAMO ZIMDI	EX V. ELDER	SABAKI	SABAKI	
5	ANDERSON KINGI		SABAKI	SABAKI	0700179004
6	ANDERSON KIBOHE KONDO	V. ELDER	SABAKI	SABAKI	0725097536
7	FRANSISCO KARISA DHURI		SABAKI	SABAKI	0735087720
8	ALBERT		SABAKI	SABAKI	
9	ROBERT GONA		SABAKI	SABAKI	0715921379
10	LEVIS KAHINDI CHENGO		SABAKI	SABAKI	0725006850
11	ALEX M. NGUMBO	BALOZI	SABAKI	SABAKI	0724665772
12	THOMAS KASENA		SABAKI	SABAKI	0714608312
13	ELVIS MWALIMU SAFARI		SABAKI	SABAKI	0719356278
14	EVANS SHIDA CHENGO		SABAKI	SABAKI	0705510427
15	JONATHAN MAITHA SIRYA		SABAKI	SABAKI	0727769313
16	JUSTUS MTAWALI		SABAKI	SABAKI	0710207321
17	THOYA NDIMBU		SABAKI	SABAKI	0718848503

PUBLIC CONSULTATION ATTENDANCE LIST
SABAKI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
18	JONATHAN MBUI		SABAKI	SABAKI	0716418449
19	GEORGE KAPOMBE		SABAKI	SABAKI	0715033732
20	COLLINS KIRAGA		SABAKI	SABAKI	0704542288
21	SAFARI KITSAO		SABAKI	SABAKI	0732366820
22	JOSEPH KALUNGO	MASONRY	SABAKI	SABAKI	0710905437
23	NELSON KALUGO	MASONRY	SABAKI	SABAKI	0714748215
24	FADHILI HUSSEIN		SABAKI	SABAKI	0735511120
25	MORRIS KAZUNGU	FARMER	KATSANGANI	SABAKI	0728467043
26	SAFARI MWAKONDE	FARMER	SABAKI	SABAKI	0710181404
27	KAZUNGU KATANA	FARMER	SABAKI	SABAKI	0701040700
28	JACOB KALUME KATANA	FARMER	SABAKI	SABAKI	0714260325
29	KINGI KAHINDI TETE	EMPLOYED	SABAKI	SABAKI	0713160086
30	SHADRACK M. MUTHOKA	BUSINESSMAN	SABAKI	SABAKI	0721685485
31	MICHAEL R. GAFAA	D. HEADTEACHER	SABAKI	SABAKI	0726335240
32	MORRIS K. MLANDA	FARMER	SABAKI	SABAKI	0725141943
33	ZIRO WANJE	FARMER	SABAKI	SABAKI	0738161502
34	BONIFACE M. NDURE	FARMER	SABAKI	SABAKI	0739553265
35	HAMIS SOUD	FARMER	MGURULENI	GANDA	0710729457
36	HELEN MAKUTHA	FARMER	MGURULENI	SABAKI	0728343821
37	LILIAN MAPENZI	FARMER	MGURULENI	CENTRAL	0714483940
38	DAMA THETHE	FARMER	SABAKI	SABAKI	
39	JUMWA KESI	FARMER	SABAKI	SABAKI	
40	MARY T. NDIRO	FARMER	MGURULENI	CENTRAL	
41	DAWA MOHAMMED	FARMER	MGURULENI	CENTRAL	
42	KAFEDHA KARISA	FARMER	MGURULENI	SABAKI	
43	DHAHABU WAMBUA	FARMER	SABAKI	SABAKI	
44	MULUO CHARO	FARMER	SABAKI	SABAKI	0714635640
45	DAMA MAKUTHA	FARMER	MGURULENI	CENTRAL	
46	ZAWADI KADENGE	FARMER	MGURULENI	CENTRAL	
47	ZAWADI NGALA	FARMER	MGURULENI	CENTRAL	
48	HIDAYA IDD	FARMER	MGURULENI	CENTRAL	

PUBLIC CONSULTATION ATTENDANCE LIST
SABAKI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
49	AGNESS K. MWAMBIRE	FARMER	MGURULENI	GANDA	
50	SALAMA KHAMIS	FARMER	MGURULENI	SABAKI	
51	DAVID C. BAYA	V. ELDER	KIKOMBETELE 'B'	SABAKI	0717362749
52	KHALIFA HILAM		KASANGANI	SABAKI	
53	MORRIS CHARO	FARMER	KIKOMBETELE	SABAKI	0732299761
54	ABDI SAID	FARMER	SABAKI	MALINDI	0724326628
55	MASHA SALIM	FARMER	KIKOMBETELE	SABAKI	0731256587
56	ROBERT KATANA	FARMER	KIKOMBETELE	SABAKI	0792717221
57	DICKSON CHARO	FARMER	KIKOMBETELE	SABAKI	
58	CHRISTOPHER K.K.	FARMER	KIKOMBETELE	SABAKI	
59	ALI SALIM MOHAMMED ZIRO	FARMER	KIKOMBETELE	SABAKI	0711413776
60	SALIM KAHINDI KWICHA	FARMER	MGURULENI	CENTRAL	0712217541
61	PHILIP KAHINDI KAZUNGU	FARMER	KIKOMBETELE	SABAKI	0720493840
62	PHILEMON ZIMBA	FARMER	KIKOMBETELE	SABAKI	0725109743
63	MARGI KITSAO	WATCHMAN	KILIFI	TEZO	0732299340
64	SIMEON MASHA WANJE	COOK	SABAKI	SABAKI	0715598736
65	HARRISON KALUME KAREMA	PHOTOGRAPHER	SABAKI	SABAKI	0723742790
66	JOHN KENGA TERI	V. ELDER	MGURULENI	SABAKI	0723642037
67	JULIUS KENGA KALUGO	MASON	SABAKI	SABAKI	0713102172
68	NASSER HASSAN	ENTREPRENEUR	MGURULENI	SABAKI	0719655677
69	DANIEL MUKARE		MICARANI	SABAKI	0705992998
70	FURAHA CHARO	FARMER	SABAKI	SABAKI	0711490298
71	ANDREW FURAHA KARISA	TEACHER	SABAKI	SABAKI	0728840415
72	FATUMA MOHAMMED	FARMER	MGURULENI	SABAKI	
73	SOFIA IDD	FARMER	MGURULENI	SABAKI	
74	REHEMA OMMAR	FARMER	MGURULENI	SABAKI	
75	DAMA NGONYO	FARMER		SABAKI	
76	ESHA ABDHALLA	FARMER		SABAKI	
77	KABII KOMBE	FARMER		SABAKI	
78	REHEMA SONGORO	FARMER	MGURULENI		
79	JOSEPH MWADUMA	FARMER	SABAKI		0728048686

PUBLIC CONSULTATION ATTENDANCE LIST
SABAKI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
80	KELVIN KALUME	FARMER	SABAKI	SABAKI	
81	REOPHENSE MAPENZI	FARMER	SABAKI	SABAKI	0718741356
82	BAHATI CHARO	FARMER	SABAKI	SABAKI	
83	BENSON T. KAPOMBE	FARMER	SABAKI	SABAKI	
84	KADZO KITSAO	FARMER	MGURULENI	SABAKI	
85	JUMWA IHA	FARMER	MGURULENI	SABAKI	
86	KALUME KAMBI	FARMER	SABAKI	SABAKI	
87	ISCA KADHILI	FARMER	SABAKI	SABAKI	
88	KINYALU KANJE	FARMER	SABAKI		0735479478
89	WILLIAM KINYALU	CONSTRUCTION TECH.	SABAKI	SABAKI	0735170615

PUBLIC CONSULTATION ATTENDANCE LIST
GONGONI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
1	EDWARD K. KADENGE	FARMER	MIDODONI	GONGONI	0728849712
2	CHARO K. RANDO	FARMER	MIDODONI	GONGONI	0700343566
3	PAUL NJERU NDWIGA	CONSTRUCTION TECH.	MIDODONI	GONGONI	0722621810
4	MARY YAA	FARMER	DODOMA	GONGONI	
5	KAZUNGU BAYA	FARMER	MARERENI	MARERENI	
6	SAMUEL BASHORA	EX. CHIEF	MAJENGO	GONGONI	0701302342
7	KAHINDI K. KITI	WATCHMAN	MIDODONI 'A'	GONGONI	0707736808
8	KARISA NZIMBA	FARMER	GONGONI	GONGONI	0719336274
9	MICHAEL KAZUNGU	DRIVER	MIDODONI	GONGONI	0731844961
10	KENGA SARDA THOYA	GATE ATTENDANCE	MIDODONI	GONGONI	0725624130
11	NGUA MZUNGU	FARMER	DODOMA	GONGONI	
12	CLARIS MWATSUMA	V/ MOTHER	KOKOTONI	GONGONI	0719128188
13	KAHASO KITSAO	FARMER	MIDODONI 'B'	GONGONI	

PUBLIC CONSULTATION ATTENDANCE LIST
GONGONI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
14	CHARO KENGA MWAGANDI	FARMER	SABA-SABA	GONGONI	
15	SHEHE KAZUNGU THOYA	FARMER	BORABORA	GONGONI	0713973867
16	TOYOTA KAZUNGU	TOUR GUIDE	CENTRAL	GONGONI	0735920801
17	JUDE MAATHAI	FARMER	MAJENGO MAPYA	GONGONI	0710135132
18	SAID BAKAR OMAR	V. ELDER	GONGONI	GONGONI	0724337734
19	STEPHEN MWENI KATISHO	BUSINESSMAN	MAJENGO MAPYA	GONGONI	0703418575
20	OMAR K. FONDO	V. ELDER	GONGONI	GONGONI	0735234017
21	LIBERTINE SAIDI	VICE V. ELDER	MIDODONI 'B'	GONGONI	0703872345
22	JOSEPH KIRIBAI	BUSINESSMAN	MIDODONI 'A'	GONGONI	0719732189
23	OMAR BAKAR		GONGONI	GONGONI	0731130251
24	ISHMAEL C. KATANA	FARMER	GONGONI	GONGONI	0701068215
25	ALFRED J. MWAGONA	CARPENTER	MAJENGO MAPYA	GONGONI	0723484457
26	KAHINDI M. FILO	FARMER	MIDODONI 'B'	GONGONI	0729752173
27	KITSAO K. GOMBO	FARMER	MAJENGO MAPYA	GONGONI	0710748327
28	NICODEMUS KAINGU	MJUMBUWANYIO	MAJENGO	GONGONI	0710498052
29	ABDALLA SALIM THOYA	ASST/HMAN	MIDODONI 'A'	GONGONI	0712545348
30	JAMES KATANA MULINGE	V/ASSISTANT	MIDODONI	GONGONI	0727436117
31	JOHN MDUFI	V/MIDONDOA	MIDODONI 'A'	GONGONI	0705372520
32	EMMANUEL SHINDO		KOKOTONI	GONGONI	0711697565
33	ESTHER BOKOLE		MSAMBWENI	GONGONI	

PUBLIC CONSULTATION ATTENDANCE LIST
GONGONI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
34	FRANCIS THOYA	V. ELDER	MAJENGO MAPYA	GONGONI	0727364143
35	ERASTUS K. MWAGANDI	FARMER	MIDODONI	GONGONI	0715105291
36	SAMUEL YAA BAYA	CHAIRMAN MIDONDONI	MIDODONI 'B'	GONGONI	0723997323
37	SANITA BENJAMIN TUVA	CDF MAGARINI	GONGONI	GONGONI	0716722121
38	MWAGONA NDAHUMA PANDE	V. ELDER	MAJENGO MAPYA	GONGONI	0723992280
39	MRAMBA WA NYEVU	FARMER	DODOMA	GONGONI	
40	KADINYANJE MWAGANDI	SALT PRODUCER	MAJENGO	GONGONI	
41	LOURENT PIRI	PASTOR	MIDODONI 'B'	GONGONI	0723970613
42	WILSON BABATI	FARMER	DODOMA	GONGONI	0726552596
43	HIDAYA ALI	FARMER	MOROTO	GONGONI	0700438182
44	MWANASOMO ALI	FARMER	MOROTO	GONGONI	0717362776
45	AMINA VALOTO	FARMER	MOROTO	GONGONI	0711484208
46	AMINA ALI	FARMER	MOROTO	GONGONI	0727956207
47	ELHINA KASIWA	FARMER	MOROTO	GONGONI	0713597522
48	AGNES KATANA	FARMER	MAJENGO MAPYA	GONGONI	0712728237
49	LUCY MWARUA	FARMER	MAJENGO MAPYA	GONGONI	0710231922
50	CONSTANCE MENZA	FARMER	DODOMA	GONGONI	0735237080
51	LAWRENCE KENGA NZAI	FARMER	MAJENGO MAPYA	GONGONI	0724976040
52	EUNICE KADZO SAMSON	FARMER	MAJENGO MAPYA	GONGONI	0701678589
53	MAKKA ALY	FARMER	MAJENGO MAPYA	GONGONI	
54	KANZE MWAROWA	FARMER	SABA-SABA	GONGONI	
55	JAMES MKAMBA	MASON	BORABORA	GONGONI	0718773631

PUBLIC CONSULTATION ATTENDANCE LIST
GONGONI 25TH MAY

No.	Name	Designation	Village	Location	Phone Number
56	JUSTIN KAZUNGU	FARMER		GONGONI	0717607830
57	WILLIAM ANGORE	FARMER	GONGONI	GONGONI	0727292936
58	JAMES C. MRAMBA	PWD LEADER	GANDIKANI	GONGONI	0715173903
59	NICKSON M. MWARINGA	MASON	MIDODONI	GONGONI	0717761659
60	NASSIR AUNI MSELLEM	SALESMAN	GONGONI	GONGONI	0722871899
61	BENJAMIN KAHINDI	FARMER	KOKOTONI	GONGONI	
62	JILO ONOTTO	RTD TEACHER	KOKOTONI	GONGONI	0722224947
63	PAUL M. MWANDOE	BUSINESSMAN	DODOMA	GONGONI	0722935031

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KARUYUNI - KILIFI PIPELINE

VENUE (1) KILIFI TOWNSHIP CHIEF'S OFFICE

DATE 24th MAY 2016.

No.	Name	Designation	Village	Location	Phone No.	Signature
1	KAZUNGU KAHINDI	Businessman.	Kibaoni	Township.	0722354410	[illegible]
2	[illegible] RAPHAEL THOYA	" "	KIBAONI	TOWNSHIP	0723754358	[illegible]
3	Mike Karisa Lenga	" "	Kibaoni	Township	0783754355	[illegible]
4	MARY K. MLANDA	" " "	Koroshoni	Township	07[illegible]5080858	[illegible]
5	Njingo Gonu	Village Elder	Sokoni	Township	0711571637	[illegible]
6	Kadzo Kidhi	Business woman	Koroshoni	Township	—	[illegible]
7	Katana Changawa Kazungu	Businessman.	"	"	0705105022	[illegible]
8	Johnson C Kopi	Businessman.	"	"	0718097181	[illegible]
9	Edward Kahindi	Business	K	T	0718875348	[illegible]
10	Crisper Kabibi Kithi	E	Kiwandani.	"	0723856708	[illegible]
11	HILDA KUVUNA	B	K	"	0707254489	
12	LOICE R. CHA	ADULT ED. TEACHER	MKOROSHONI	"	0712567248	[illegible]
13	ROBERT T. THOYA	BUSINESS MAN	MWEZANEOMBE	"	0772168905	[illegible]
14	ISSA M. NDAGO	EMPLOYED	BOFA	"	0786394429	[illegible]
15	STEPHEN RIDO	C.H.W.	DERA	"	0725555875	[illegible]
16	KAZUNGU KAMANGA	V- ELDER	MUJIBU	"	0717025206	[illegible]
17	Agnes Ngamba	V- ELDER	Kwamwango	Township	0731010800	[illegible]
18	NATHANIEL S. KATANA	V- ELDER	KISUMUNDOGO	TOWNSHIP	0729653009	[illegible]
19	KAHINDI BENJAMIN Kopi	BUSINESS	"	"	0711854646	[illegible]
20	DICKSON TIMAE	SNR CHIEF	BLOCK 10	TEZO	0716740382	[illegible]
21	Bibi DENSON KOMBE	P.A - TEZO WARD	TEZO	NGERENYA	0714940959	[illegible]
22	HOPE MAKANO	COAST WATER S BOARD	MSA	MSA	0720714704	[illegible]
23	Marion Oming	Zamconsult Consulting	Nairobi	Nairobi	0733806583	[illegible]
24	SIMON H. MWAKUZA	Sub-county water officer	KILIFI	KILIFI	0727313931	[illegible]
25	JUSTIN HAMISI		KILIFI		0719402262	[illegible]
26	KOMBO MATANO		KILIFI	KILIFI	0718749712	[illegible]

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI – KILIFI PIPE/WATER SUPPLY

VENUE (2) ZOERANI S. LOCATION

DATE 24th May 2016.

No.	Name	Designation	Village	Location	Phone No.	Signature
1	NGALA KAZUNGU MWAGANDI	Carpenters	TEZO	NGERENYA	0725083655	
2	KARISA KOMBE	MASON	ZOWERANI	NGERENYA	0728256553	
3	OLIVER MWENGO	FARMER	WESA	NGERENYA	0702352706	
4	Lenoch S. Kidzunga	boda boda	Zowerani	ngerenya	0701182233	
5	Chigiri K. Chapo		ZOWERANI	Ngerenya	0722926791	
6	MBCRI MRIMA	PEASANT FARMER	WESA	NGERENYA	0732-610105	
7	JUMA BO SADI	BIASHARA	ZOIRANI	ZORANI	0735527147	
8	ALI H. MOHAMED	BIASHARA	ZOWERANI	ZOWERANI	0718749641	
9	Mwamu Mwaguba	Biashara	ZOWERANI	ZOWERANI	0729 871255	
10	JAMES M NYAMETO	BIASHARA	ZOWERANI	NGERENYA	0712998884	
11	KARISA FESTUS THOYA	DRIVER	ZOWERANI	ZOWERANI	0732472283	
12	CLEMENCE SHEMA	Biashara	"	ZOWERANI	0725059436	
13	SOPHIA MATOLE	Fundi (Business)	Zowerani.	Zowerani	0718195717	
14	BENSON SAUCRANI					
15	JACOB KAZUNGU	COMMUNITY VOLUNTEER	WESA	NGERENYA	0726780927	
16	TECLA CHAI	A/CHIEF	ZOWERANI	NGERENYA	0729870168	
17	LAURENCE MATHA	A/ CHIEF	CHUMANI	ROKA	0725 805832	
18	HARRY SHOKA	BALOZI	"	"	0728138701	
19						
20						
21						
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI - KILIFI WATER SUPPLY
VENUE GEDE
DATE 24th / 5 / 2016.

No.	Name	Designation	Village	Location	Phone No.	Signature
1	PAUL NYOKA	FISHERMAN	MIDA	MAJIBONI	0792219560	[illegible]
2	[illegible] B. BAYA	FARMER	MIDA	GEDE	0736 813539	[illegible]
3	MOHAMMED I. HUSSEIN	FARMER	MIDA	GEDE	0723637669	[illegible]
4	Mohamed OMARI	FARMER	MIDA	GEDE	0791483250	[illegible]
5	SAMUEL N. JACKSON	FARMER	MIDA	GEDE	0717435251	[illegible]
6	FATUMA CHIVATSI	FARMER	MIDA	GEDE	0792658247	–
7	DAMA ZIRO MANTE	FARMER	MIDA	GEDE	—	–
8	ALI SALIM MUBARAK	—	KAKUYUNI	GOSHI	0713478406	[illegible]
9	JUMA KIBWANA JUMA	—	KAKUYUNI	GOSHI	0725001526	[illegible]
10	SAID OMAR	FARMER	MKANGAGANI	GEDE	0776055283	[illegible]
11	CHARO KADZOMBA	FARMER	MKANGAGANI	GEDE	0711893835	[illegible]
12	AHMAD Salim Ahmad	FARMER	KAKUYUNI	GOSHI	0707042895	[illegible]
13	MARTIN K. RITCHIE	FARMER	KAKUYUNI	GOSHI	0739930981	[illegible]
14	John K. Ndoro	FARMER	KAKUYUNI	GOSHI	0716654601	[illegible]
15	Halima Saidi	FARMER	MIDA	GEDE	—	[illegible]
16	DAMA ANGORE NRANJA	FARMER	MIJOMBONI	GEDE	0729586689	HALMA
17	HALIMA MOHAMED	FARMER	KAKUYUNI	GEDE	0791762148	[illegible]
18	KIBWANA MOHMED	–	KAKUYUNI	GEDE	0724036300	[illegible]
19	Emmanuel P. BAHA	— " —	BAGDO	GEDE	0723711632	[illegible]
20	MERYLINE R. MENZA	FARMER	MKANGAGANI	GEDE	0728759556	Rehema
21	SARAH D. CHONDU	FARMER	MKANGAGANI	GEDE	0722568206	SARAH
22	SAUMU. MENZA. KITHI	FARMER	MKANGAGANI	GEDE	0702210777	[illegible]
23	RACHEL. CHENGO. KARISA	FARMER	MKANGAGANI	GEDE	0716787790	[illegible]
24	AMBROSE. KALAMA	FARMER	MKANGAGANI	GEDE	0720817934	[illegible]
25	VINCENT BAYA	FARMER	KAKUYUNI	GOSHI	0721421163	[illegible]

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI KILIFI PIPE/WATER SUPPLY
(3)
VENUE GEDE CHIEF'S OFFICE
DATE 24th X5/2016

No.	Name	Designation	Village	Location	Phone No.	Signature
1	FRANCIS. C. SHINDO	FARMER	KAKUYUNI	GOSHI	0705039578	[illegible]
2	MAURICE T. NDODO	FARMER	KAKUYUNI	GOSHI	0706425325	[illegible]
3	JOACHIM Sululu	FARMER	KAKUYUNI	Goshi	0702772824	[illegible]
4	ROBERT ALI KARISA	FARMER	KAKUYUNI	GOSHI		[illegible]
5	JOSEPH K. KALU	FARMER	MIDA	Gede	0725682898	[illegible]
6	Donald .S. Mwatete	mechanic	MIDA	Gede	0725160661	[illegible]
7	NELSON K. MWARV	V. ELDER	MIDA	GEDE	071410361	[illegible]
8	STEPHEN M SHAKA	P. COMMENT	MIDA	GEDE	0710848220	[illegible]
9	EMMANUEL K. KALAMA	APIARIST	MIDA	GEDE	0720678921	[illegible]
10	Julius Katana	FARMER	MIDA	GEDE	—	[illegible]
11	MWAMUNGA KAE KANYAMA	V. ELDER/FARMER	MKANGAGANI	DABASA	0712374713	[illegible]
12	MUMBA NGUMBAO	FARMER	MKANGAGANI	GEDE	0712577262	[illegible]
13	FAIZ SALIM	DESIGNER	KAKUYUNI	GOSHI	0725719829	[illegible]
14	FELIX FIKIRI CHARO	FARMER	MIJOMBONI	GEDE	0720075757	[illegible]
15	SAID KAPEMBE RUWA		KAKUYUNI	KAKUYUNI	0734973306	[illegible]
16	BAKARI AZIZI OMAR		KAKUYUNI	GOSHI		BAKARI
17	LAURENCE KARISA SHINDO	FARMER	KAKUYUNI	GOSHI	0713784777	[illegible]
18	Abdalla Salim Athman	Biashara M...	"	"	0720674061	[illegible]
19	NURU BAKARI	[illegible]	"	"	0712554491	[illegible]
20	MICHAEL BAYA YAA	ECO T. GUIDE	MIDA	GEDE	0790187841	[illegible]
21	Dama Anaore Mwanja	Farmer	MIDA	GEDE	0722586689	Dama
22	ARNOLD MARIIA	WARD ADMINISTRATOR	MKENGE	GEDE	0729065455	[illegible]
23	LENNY H. SHAIM	ASST. CHIEF	MIJOMBONI	GEDE	0712407150	[illegible]
24	Rusaa Baya	"	MIDA	Gede	0735362414	[illegible]
25	SAMSON MWABIMBO	"	MIJOMBONI	GEDE	0710299530	[illegible]

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI KILIFI PIPELINE
VENUE (3) GEDE CHIEF'S OFFICE
DATE 24th/May/2016

No.	Name	Designation	Village	Location	Phone No.	Signature
1	FARIDA GARANG MAZRUI	ASST CHIEF KAKUYUNI	KAKUYUNI	GEDE	0731582888	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI - GONGONI WATER SUPPLY

VENUE SABAKI SECONDARY

DATE 25th MAY 2016.

(4)

No.	Name	Desigaation	Village	Location	Phone No.	Signature
1	HENRY JOSHUA MALINGI	V. ELDER	SABAKI	SABAKI	0724806711	[signature]
2	MINTAPARA NAJOR	L.V.L.A.C.D.	SABAKI	SABAKI	0729444751	[signature]
3	Kalama Mazola Emmanuel	BODA BODA Rider	SABAKI	SABAKI	0727749142	[signature]
4	SHADRACK Chara Ziaka	EX. V. ELDER	SABAKI	SABAKI		[signature]
5	ANDERSON KINGA	—	SABAKI	SABAKI	0700179004	[signature]
6	ANDERSON KIBONYE KONDE	V. ELDER	SABAKI "B"	SABAKI	0725097536	[signature]
7	FRANCISCO KAHAKA BAHURI	—	SABAKI	SABAKI	073508772	[signature]
8	ALBERT	—	SABAKI	SABAKI		[signature]
9	ROBERT GONA	—	SABAKI	SABAKI		[signature]
10	LEVIS KAHINDI CHENGO	—	SABAKI	SABAKI	0715921379	[signature]
11	ALEX M. NGUNDO	BALOZI	SABAKI	SABAKI	0725006850	[signature]
12	THOMAS KASENA	—	SABAKI	"	0724665772	[signature]
13	ELVIS MWALIMU SAFARI	—	SABAKI	SABAKI	0714608812	[signature]
14	EVANS SHIDA CHENGO	—	SABAKI	SABAKI	0719356278	[signature]
15	JONATHAN MAICHA SIRYA	SABAKI ROAD	SABAKI	SABAKI	0705510427	[signature]
16	Justus Mtawali	—	SABAKI	SABAKI	0727769313	[signature]
17	THOYA NDIMBU	—	SABAKI	SABAKI	0710207321	[signature]
18	JONATHAN MBUI	—	SABAKI	SABAKI	0718848503	[signature]
19	GEORGE KAPOMBE	—	SABAKI	SABAKI	0716418449	[signature]
20	COLLINS KIRAGA	—	SABAKI	SABAKI	0715033732	[signature]
21	SAFARI KIISA	—	SABAKI	SABAKI	0704542288	[signature]
22	JOSEPH Kaingu	—	SABAKI	SABAKI	0733366520	[signature]
23	NELSON Kalugo	MEASONARY / Marsonery	SABAKI	SABAKI	0710905437	[signature]
24	FADHILI 100 / HUSSEIN	[illegible]	SABAKI / SABAKI	SABAKI / SABAKI	0714748215 / 0475611120	[signature]
25	MWAURA KAZUNGU	[illegible] FARMER	KATSANGANI	SABAKI	07354[illegible]	Kaunga

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI GONGONI WATER SUPPLY
VENUE SABAKI SECONDARY (4)
DATE 25th May 2016

No.	Name	Designation	Village	Location	Phone No.	Signature
1	SAFARI MWAKONDE	FARMER	SABAKI	SABAKI	0710814404	
2	KAZUNGU KACHAI	FARMER	SABAKI	SABAKI	0701104407	
3	JACOB KALUME-KAJANA	FARMER	SABAKI	SABAKI	0714260325	Kalama
4	KINGI KAHINDI JETE	TRANSPORT	SABAKI	SABAKI	0713-160085	
5	SHADRAK M. MUTHAKA	BUSINESS MAN	SABAKI	SABAKI	0721685485	
6	MICHAEL R GAFAA	HEADTEACHER	SABAKI	SABAKI	0726335240	
7	MARVIS K. MLIANDA	FARMER	SABAKI	SABAKI	0725141945	
8	ZIRO WANJE	FARMER	SABAKI	SABAKI	0738161502	
9	BONFERSM NDURA	FARMER	SABAKI	SABAKI	0739553265	
10	HAMISI SOUD	FARMER	MGURULENI	GANDA	0710729457	
11	HELEN MAKUTHA	FARMER	MGURULENI	SABAKI	0728343821	
12	KILUMI MAPENZI	FARMER	MGURULENI	CENTRAL	0714683940	
13	DAMA THETHE	FARMER	SABAKI	SABAKI	-	DAMA
14	JUMWA KESI	FARMER	SABAKI	SABAKI	-	
15	MERY T NDIRO	FARMER	MGURULENI	CENTRAL		IN
16	DAMA MOHAMED	FARMER	MGURULENI	CENTRAL		
17	KAFEDHA KARISA	FARMER	MGURULENI	SABAKI	-	Kasedha
18	DHAHABU WANJIRU	FARMER	SABAKI	SABAKI		
19	MULUD CHANO	FARMER	SABAKI	SABAKI	0714535640	
20	DANA MAKUTHA	FARMER	MGURULENI	CENTRAL		
21	Zawadi Kadenge	FARMER	MGURULENI	CENTRAL		
22	Zawadi Ngala	FARMER	MGURULENI	CENTRAL		
23	HADMA IDD	FARMER	MGURULENI	CENTRAL		
24	AGNESS K MUAMBIRE	FARMER	MGURULENI	GANDA		
25	SALAMA KHAMIS	FARMER	MGURULENI	SABAKI		Salama

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI GONGONI WATER SUPPLY

VENUE SABAKI SECONDARY

DATE 25th May 2016

(4)

No.	Name	Designation	Village	Location	Phone No.	Signature
1	DAVID C. BAYA	VILLAGE ELDER	KIKOMBETELE B	SABAKI	0717362749	[illegible]
2	KHAMED HUBBU		KASANGANI	SABAKI		[illegible]
3	MORRIS CHARO	FARMER	KIKOMBETELE	SABAKI	0732299761	[illegible]
4	ABDI SAID	FARMER	SABAKI	MALINDI	0724326628	[illegible]
5	MISHA SALIM	FARMER	KIKOMBETELE	SABAKI	0731256587	[illegible]
6	ROBERT KATANA	FARMER	KIKOMBETELE	SABAKI	0792717221	[illegible]
7	DICKSON CHARO	FORMER	KIKOMBETELE	SABAKI		[illegible]
8	CHRISTOPHER K.K.	FORMER	KIKOMBETELE	SABAKI		
9	ALI SALIM MOHAMED ZIRO	FORMER	KIKOMBETELE	SABAKI	0711412776	[illegible]
10	Salim Edward Kwicha	FARMER	MGULURENI	CENTRAL	0712247541	[illegible]
11	Philip Kah. N Kazungu	Farmer	KIKOMBETELE	Sabaki	0770643840	[illegible]
12	Philemon Zimba	Farmer	KIKOMBETELE	SABAKI	0728109747	[illegible]
13	MARGI KITSAO	ASKARI	KILIFI	TEZO	0732299340	[illegible]
14	SIMEON MASHA WANJE	COOK	SABAKI	SABAKI	0715598786	[illegible]
15	Harrison Kalume Kazungu	Photographer	Sabaki Kikombetele	Sabaki	0723742790	[illegible]
16	JOHN KENGA TERI	WELDER	MBURUKENI	SABAKI	0723642037	[illegible]
17	JULIUS KENGA KALUGO	MASON	SABAKI	SABAKI	0713102172	[illegible]
18	NASSER HASSAN	ENTREPRENEUR	MGURURENI	SABAKI	0719655677	[illegible]
19	DANIEL MUKARE		MICHAKANI	SABAKI	0705492998	[illegible]
20	FURAHA CHARO	FAMER	SABAKI	SABAKI	0711490298	[illegible]
21	ANDREW FURAHA KARISA	TEACHER	SABAKI	SABAKI	0728840415	[illegible]
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI GONGONI WATER SUPPLY
VENUE SABAKI SECONDARY
DATE 25th MAY 2016.

(4)

No.	Name	Designation	Village	Location	Phone No.	Signature
1	FATUMA MOHAMED	FARMER	MGURULENI	SABAKI	~~Fatuma~~	Fatuma
2	SOFIA IDA	FARMER	MUGURULENI	SABAKI	–	SOFIA
3	REHEMA OMMAR	FARMER	MUGURULENI	SABAKI	–	Rehema
4	DAMA NGONYO	FARMER		SABAKI	–	Dama
5	ESHA ABDHALLA	FARMER		SABAKI	–	esha
6	KADII KOMBE	FARMER		SABAKI	–	Kadii
7	REHEMA SONGORO	FARMER.	MUGURULENI		–	REHEMA
8	Joseph mwadune	FARMER	Sabaki		0728048686	[illegible]
9	KELVIN KALUME	FARMER	Sabaki	Sabaki		
10	Reuphence Mopenzi	Farmer	Sabaki	Sabaki	0718741356	[illegible]
11	Bahati Charo	farmer	Sabaki	Sabaki		
12	BENSON KAROMBE	FARMER	Sabaki	Sabaki	–	[illegible]
13	KADZO KITSAO	FARMER	MUGURULENI	Sabaki	–	
14	JUMAA IHA	FARMER	MUGURULENI	Sabaki		
15	KALUME KAMBI	FARMER	Sabaki	Sabaki		
16	ISSA KATANA	FARMER	Sabaki			
17	KINYALU WANJE	FARMER	Sabaki	SABAKI	0735479478	[illegible]
18	William Kinyanju	controller	Sabaki	Malindi	0735-170615	[illegible]
19						
20						
21						
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI GONGONI WATER SUPPLY
VENUE GONGONI SUB-COUNTY OFFICE
DATE 25th MAY 2016.

(5)

No.	Name	Designation	Village	Location	Phone No.	Signature
1	EDWARD K. KADZIC	FARMER	MIDODONI	GOGONI	0728849712	[signature]
2	CHARO K. RANDU	FARMER	MIDODONI	GONGONI	0700 843566	[signature]
3	Paul Njiru Ndwiga	CONSTRACTION TECK	MIDODONI	GONGONI	0722621810	[signature]
4	MERY YAA	FARMER	DODOMA	GONGON	-	[signature]
5	KAZUNGU BAYA	FARMR	MARERENI	MARERENI		[signature]
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT: KARUYUNI GONGONI WATER SUPPLY

VENUE: GONGONI SUB-COUNTY OFFICE

DATE: 25th May 2016

(5)

No.	Name	Designation	Village	Location	Phone No.	Signature
1	SAMUEL BASHORA	EX-CHIEF (ADD)	MAJENGO	GONGONI	0701302342	[illegible]
2	KAHINDI K. KITI	WATCHMAN	MBOGONI-A	GONGONI	0707736808	Kahingoli
3	Kariga [illegible]	[illegible]	Gongoni	Gongoni	07[illegible]	[illegible]
4	Michael [illegible]	[illegible]	Midodoni	Gongoni	0731[illegible]	[illegible]
5	KENGA SAFARI [illegible]	Gate attendance	Midodoni	Gongoni	072[illegible]	[illegible]
6	NGUA MZUNGU	FARMER	DODOMA		–	[illegible]
7	CLARIS MWATSUMA	V/MOTHER	KOKOTONI	GONGONI	0719125188	[illegible]
8	KAHASO KITSAO	FARMER	MIDODONI B	GONGONI	–	[illegible]
9	CHARO KENGA MWAGANDI	FARMER	Sabo-Sabo	GONGONI	–	Charo
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

PUBLIC CONSULTATION ATTENDANCE LIST

PROJECT KAKUYUNI GONGONI WATER SUPPLY

VENUE GONGONI SUB-COUNTY OFFICE

DATE 25th MAY 2016.

No.	Name	Designation	Village	Location	Phone No.	Signature
1	SHEHE KAZUNGU [illegible]	FARMER	BORA-BORA	GONGONI	0713978867	[illegible]
2	LOYOTX KAZUNGU	TOUR GUIDE	CENTRAL	GONGONI	0735920801	[illegible]
3	JUDE MAATHAI	FARMER	Majengo Mapya Gongoni	GONDONI	0710 135 132	Maathai
4		VIELDER	V GONGONI	GONGONI	0724337734	[illegible]
5	SAID BAKAR OMAR					
6	Stephen [illegible] Kahindi	Businessman	Majengo Mapya	Gongoni	0702418575	[illegible]
7	Omar. H. Fondo	VIELDER GONGONI	VIELDER	GONGONI	0735234017	[illegible]
8	Libertine Saidi	vice Village elder	midodoni B	Gondoni	0703 872745	[illegible]
9	JOSEPH KIRIBAI	BUSINESSMAN	MIDODONI A	GONGONI	0719782199	[illegible]
10	OMAR BAKAR		GONGONI	GONGONI	0731130251	OMARI
11	Ishmael G. Katana	P/Farmer	GONGONI	GONGONI	0701058215	[illegible]
12	ALFRED J. MWAGONA	carpenter	Majengo MP	GONGONI	0723484457	[illegible]
13	Kahindi M. Fue	[illegible] Farmer	Midodoni	Gongoni	0729752173	[illegible]
14	Kitsao K. Gombo	P. Farmer	Majengo Mapya	Gongoni	0710749327	[illegible]
15	NICODEMUS KAINGU	mjumbe wa NYUMBA KUMI	MAJENGO	GONGONI	0710498052	[illegible]
16	ABDALLA SALIM THOYA	ASS. [illegible]	MIDODONI 'A'	GONGONI	0712545348	[illegible]
17	JAMES R. KATANA MULINGE	V/ASSISTANT	MIDODONI	GONGONI	0727436117	Katana
18	Zaka [illegible]	V/midodoni	GONGONI	midodoni A	0705372520	[illegible]
19	Emmanuel Simba		KOKOTONI	GONGONI	0711697565	[illegible]
20	ESTER Bakale		Msumbweni	[illegible] G.		
21	FRANCIS THOYA	V/ELDER	M. MAPYA	GONGONI	0727364143	[illegible]
22	ERASTUS K. MWANGANGI	FARMER	MIDODONI	GONGONI	0715105891	[illegible]
23	Samuel Yaa Baya	Chairman midodoni school	MIDODONI B	GONGONI	0723997323	[illegible]
24	SANITA BENJAMIN TUVA	CAF MAGARINI	GONGONI	GONGONI	0716722721	[illegible]
25	MUSAGONA NDAHUMA CANDE	V/E	MAGENGO MASHA	GONGONI	0722399228	[illegible]

PUBLIC CONSULTATION ATTENDANCE LIST

(5)

PROJECT KARUYUNI GONGONI WATER SUPPLY
VENUE GONGONI SUB-COUNTY OFFICE
DATE 25th May 2016

No.	Name	Designation	Village	Location	Phone No.	Signature
1	MRAMBA WA NYEVU	FARMER	DODOMA	GONGONI	—	
2	KADINYANE MWAGANDI	SALT	MAJENGO	"	—	
3	LOURENT PIRI	PASTOR	MWABONI B	"	0723970618	
4	Willson Kahaki	FARMER	Dodoma	"	0726552596	
5	Hidaya Ali	FARMER	MOYOTO	"	0700438182	
6	Mwanaguma Ali	FARMER	MOYOTO	"	0717362776	
7	Amina Valoto	FARMER	MOYOTO	"	0711484208	
8	Amina Ali	FARMER	MOYOTO	"	0727956207	
9	ELHINA KASIWA	FARMER	MOYOTO	"	0713597522	
10	AGNES KATANA	FARMER	Majengo MAPYA	"	0712723239	
11	LUCY MWABUA	FARMER	MAJENGO MPYA	"	0710231922	Lucy
12	CONSTANCE MENZA	FARMER	DODOMA	"	0735227050	
13	LAWRENCE KENGANZAI	FARMER	MAJENGO MAPYA	"	0724976040	
14	EUNICE KADZO SAMSON	FARMER	MAJENGO MAPYA	"	0701687589	
15	MAKKA ALY	FARMER	MAJENGO MAPYA	"	—	
16	KAZE MWAYOWA	FARMER	SABAKABA	"	—	
17	JAMES MKAMBA	MASONRY MAN	BORA BORA	"	0718773631	
18	Justin Kazungu	FARMER	Mwasakato (A)	Songosoni	0717602830	
19	WILLIAM ANGORE	FARMER	GONGONI	"	0727292936	
20	JAMES C. MKAMBA	PWD LEADER	GANDIKANI	GONGONI	0715773903	
21	NICKSON N. MWADINGA	MASON	MIBOBONI	GONGONI	0717761669	
22	NASSIR AUNI MSELLEM	SALESMEN	GONGONI	GONGONI	0722871899	Nassir
23	BENJAMIN KAHINDI	FARMER	KONGONI-KATSEMERINI	GONGONI		
24	JULIO ONOTTO	RTD TEACHER	KONGONI	GONGONI	0722224947	
25	PAUL M. MWANDOE	BUSSINESSMAN	DODOMA	"	0722933031	

11.2.3 Public Consultation Meeting Photos

6) *Meeting at Kilifi Chief's Camp*

Consultant's Presentation

Introduction and comments by CWSB representative

Introduction and Comments by KIWASCO representative

Comments by Senior Chief Tezo

Feedback from a Participant

Feedback from a Participant

	
Feedback from a Participant	Participants show their support of the project via raised hands

7) *Meeting at Zowerani Chief's Camp*

	
Consultant's Presentation	Comments by Chief Roca
	
Comments by Senior Assistant Chief Zowerani	Feedback from a Participant

	
Feedback from a Participant	Participants show their support of the project via raised hands

8) *<u>Meeting at Gede Chief's Camp</u>*

	
Introduction and comments by Assistant Chief Gede	Consultant's Presentation
	
Feedback from a Participant	Feedback from a Participant

	
Feedback from a Participant	Feedback from a Participant

9) <u>Meeting at Sabaki Primary</u>

	
Consultant's Presentation	Comments by Assistant Chief Sabaki
	
Feedback from a Participant	Feedback from a Participant

Feedback from a Participant

Participants show their support of the project via raised hands

10) Meeting at DC's Office Gongoni

Consultant's Presentation

Comments by Senior Chief Gongoni

Comments by Senior Assistant Chief Gongoni	Feedback from a Participant
	
Feedback from a Participant	Participants show their support of the project via raised hands

11.3 "CHANCE FIND" PROCEDURES

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

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry of State for National Heritage and Culture take over;
- Notify the supervisor, Project Environmental Officer and Project Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less);

Responsible local authorities and the Ministry of State for National Heritage and Culture would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.

Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.

Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.