

## PROPOSAL

### WfL project in Kenya

#### *Improving Water & Sanitation coverage and hygiene awareness in Western zone (Nakuru)*



<b>Version</b>	1	<b>Status</b>	Final
<b>Sponsor</b>	Water for Life WaterWorx	<b>Project manager</b>	To be recruited RPM
<b>Date</b>	October 2018	<b>VEI Project</b>	WWX-KE-17-5002 WOP Nakuru
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## OVERVIEW

Title	Improving Water & Sanitation coverage and hygiene awareness in Western zone (Nakuru)
Location	Nakuru Kenya
VEI Project	WWX-KE-17-5002 WOP Nakuru
Local Water Utility	Nakuru Water & Sanitation Services Company
Total budget	€ 280.000
Requested funding Water for Life	€ 120.000 (42%)
Other funding	€ 160.000 (58%) WaterWorX/ NAWASSCO
Project Duration, end date	12 Months, end date December 2019
Length of Water Pipeline KM	50kms
Number of household connections (Social)	500
Number of (shared) Water Tap Points	N/A
Number of Yard Taps	N/A
Number of toilets	1.000
Number of People provided with access to Drinking Water	25.000
Number of People provided with access to sanitation	10.000

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## **1. INTRODUCTION**

### **1.1. Background**

Nakuru Water & Sanitation Services Company (NAWASSCO) provides water and sanitation services primarily to the Nakuru town (municipality) though the service area extends beyond the municipal boundaries. This includes Olbanita Corridor which was added to Nawassco's area under the current SPA. The total target service area is 350km<sup>2</sup> (270 km<sup>2</sup> - municipality service area and 50 km<sup>2</sup> - peri-urban areas). The current water supply system however only serves an estimated 250 km<sup>2</sup>.

NAWASSCO recognized the plight of the underserved residents in the Low Income Areas and established the Pro-Poor Unit in the year 2012, which was later upgraded to a Low Income Consumer Section (LICS) in 2017, which is solely responsible for provision of water and sanitation services to ± 240,000 people within all the low-income settlements of Nakuru.

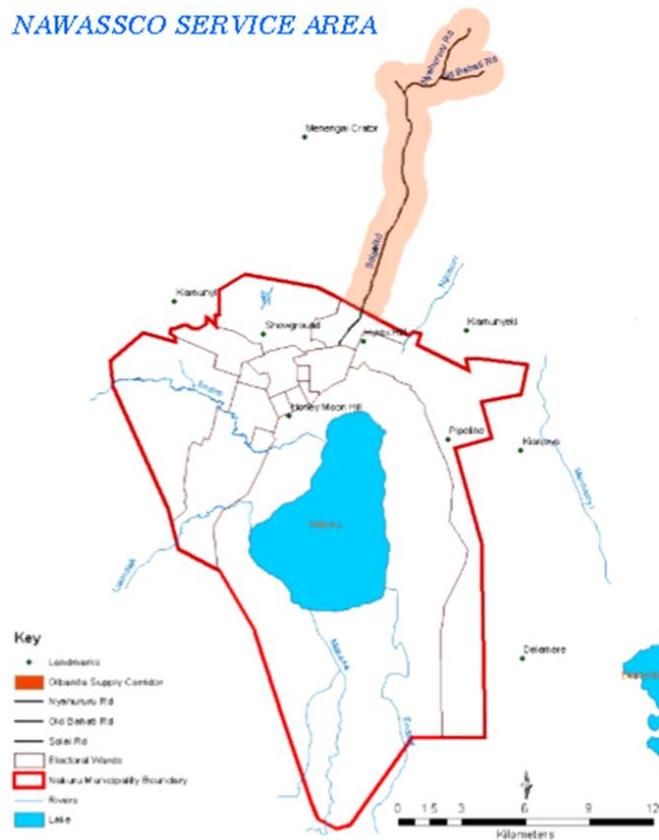
#### **a) Water Coverage in Low Income Areas**

There are 39 LIAs in Nakuru County under the service area of NAWASSCO. Currently only about 20 LIAs have been covered by NAWASSCO in their provision of water to the poor. Out of those covered, approximately 6% have a household connection, 66% rely on yard tap connections of (distant) neighbors, 16% obtain water from 39 water kiosks (currently) while a growing number of population (estimated at 2%) are served by pre-paid meters. The remaining 10% obtain water from water vendors. The Company instituted a pilot pre-paid meter program. However, the piloting of the pre-paid meter has not been very successful due to high cost meters and high maintenance cost.

#### **b) Sanitation Coverage in Low Income Areas**

In Nakuru's low income areas, of the 240.000 people, an estimated 27.5% of residents have access to household toilet facilities: 9.5% access Ventilated Improved Pit (VIP) latrine, 51.3% utilize ordinary pit latrine, or a flush toilet, and 11.7% rely on septic facilities. Lack of proper physical planning, inadequate Government interventions as well as congested land use has put pressure on existing facilities, which has led to reliance on over-crowded and sub-standard pit latrines. Sewerage infrastructure in informal settlements is broken down, or grossly inadequate.

### NAWASSCO SERVICE AREA



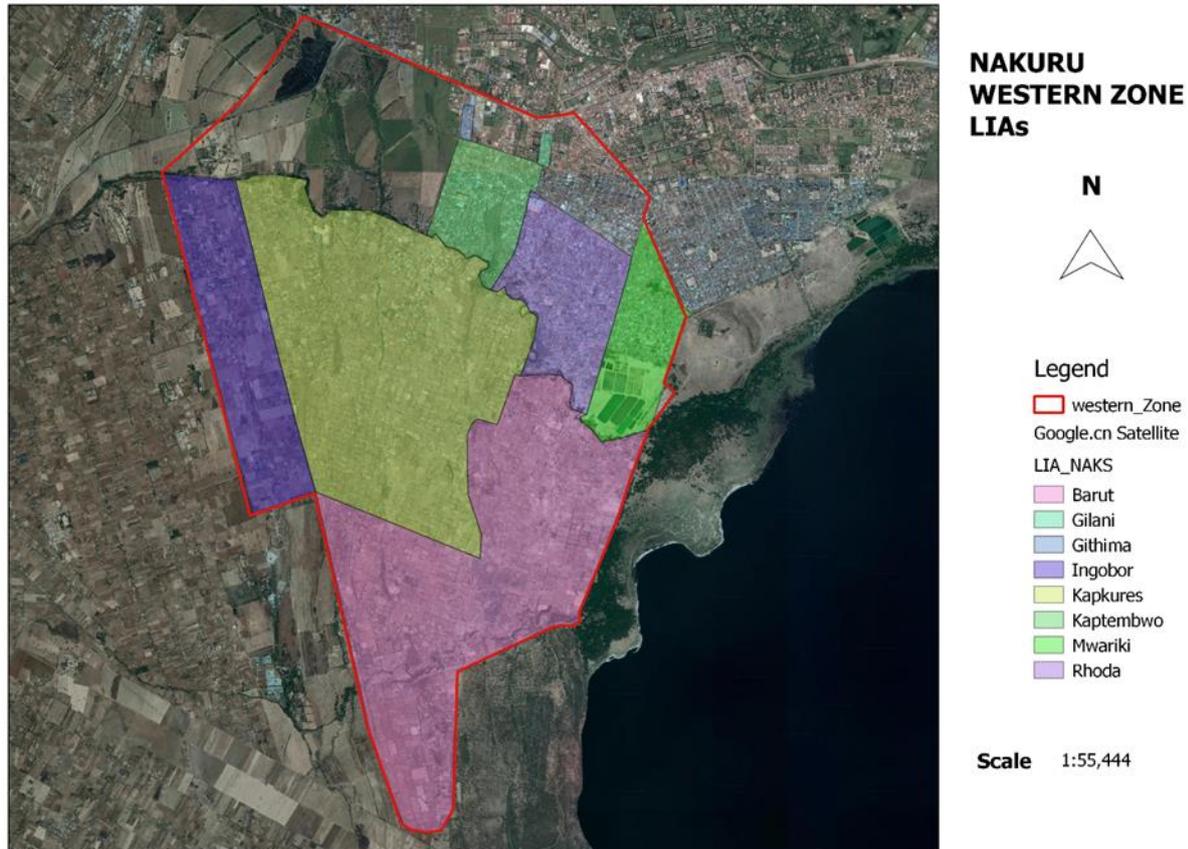
**Figure 1: Map of NAWASSCO's area of operation**

#### 1.2. Related Projects

This WfL-project will be a co-contribution part to the VEI WaterWorX programme. It specifically focuses on improving the water and sanitation coverage in the Low Income Areas in the western part of Nakuru town.

The WWX-project will start in January 2019 with the aim to improve water and sanitation services in Nakuru County, thus including the two other water utilities (NARUWASCO and NAIVAWAS) operating in the County. The three water utilities have the same shareholder, Nakuru County. The county promotes the collaboration between the utilities, to provide better services for the residents of Nakuru County.

### 1.3. Present situation



**Figure 2. Map of the proposed project areas**

#### 1.3.1. Access to Water

The proposed intervention will take place in the Low income areas of Western zone located. The highest population of poor people within Nakuru town reside in Nakuru West due to affordable housing. According the current WASREB report and public health department, The population in this areas is estimated at 150,000 inhabitants .The targeted LIA's in western zone include: Rhonda, Kaptembwo, Githima/Technology, Mwariki, Barut, Ingobor and Kapkures.

Most of the mentioned areas ( Githima/Technology, Ingobor, Barut and part of Kapkures) are not linked to water network . This is because of limited resources by the company, with this reason, the company has been depending on support from development partners to invest in the low income areas. The residents in these area get water from

- river Ndarugu which is not safe for drinking and
- water kiosks

Rhonda, Kaptembwo and Mwariki are very congested pro-poor areas, Although the areas are connected to NAWASSCO's supply, there has been a lot of subdivisions of the pieces of land and therefore the households/plots are not close to the main line. This has created a lot of spaghetti lines thus increased damages on the main line leading to increased NRW. In the same project areas most of the residents have not been able to connect to the water supply due to the high cost of connections and exploitation from the middlemen/ private plumbers. This proposal therefore proposes for a subsidy to connect the residents.



**Figure 3: Water Supply in the project area**

### 1.3.2. Access to Sanitation

The foundation of the request for this proposal lies with the communities in the Western Zone of Nakuru town. Although during Nakuru County Sanitation Programme (NCSP) over 9.000 toilet facilities were constructed mainly in the Western Zone. The demand for additional toilet facilities is still very high. Main reason is that this part of Nakuru is the most rapid growing part of town. Stopping construction of toilets reduces the coverage. Though the population faces all different kind of challenges, the lack of proper sanitation is one of the most urgent ones.

The NCSP program has had a great impact to the community whereby, the NCSP program triggered the landlords who were not ready to invest in improved sanitation to adopt the same. From public health department, it was noted that there have been reduction in sanitation related diseases. The landlords whose plots had improved toilets shared that they have been able to retain tenants while the landlords that resisted had to be given notices by the public health to vacate the tenants until toilets are up to standards. This has actually been a plus to the county since there has been a reduction in the cost of treating sanitation related diseases.



**Figure 4: Sanitation status in the project area**

## **2. PROJECT WATER FOR LIFE**

### **2.1. Project Proposal**

This project is proposed by VEI, its partners NAWASSCO and the Nakuru County. The project is a co-contribution part of the WaterWorX (WWX) Water Operator Partnerships (WOP). It specifically focuses on improving coverage of the Western Zone, the zone with the largest LIA's in Nakuru.

### **2.2. WfL Project objectives**

The overall objective of the project is to improve the water and sanitation access to over 35,000 residents in the Low Income Areas in Western zone of Nakuru town. This will lead to improved public health, human dignity, environmental sustainability and socio-economic development. More specifically, the proposed action has the following objectives:

1. Increase access to water to 25.000 people
2. Increase access to sanitation to 10.000 people
3. Improve community participation/engagement and project's sustainability<sup>1</sup>;
4. Embed a monitor and evaluation system with respect to construction in the local water service provider (WSP) NAWASSCO;

### **2.3. WfL Project activities and results**

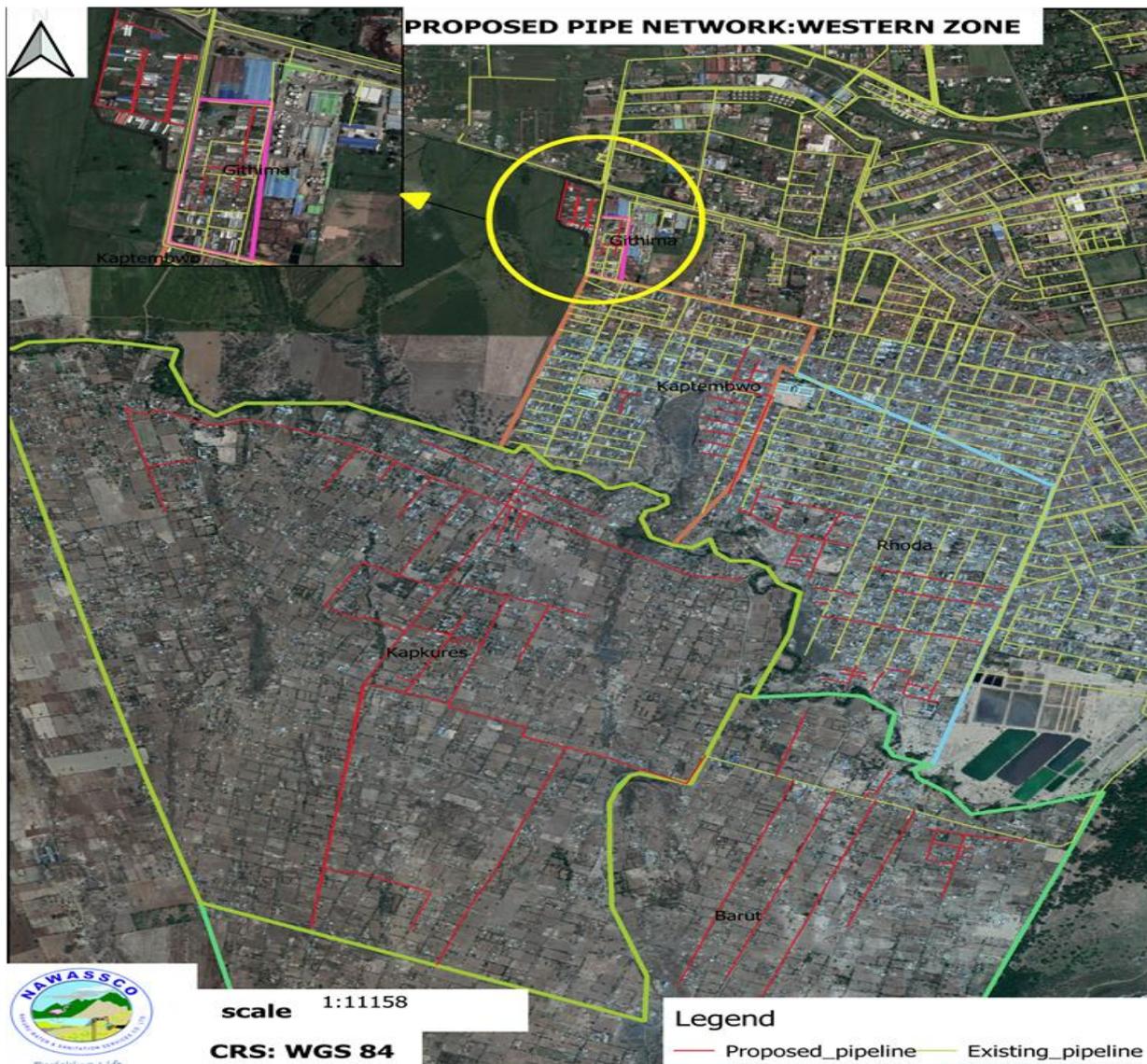
#### **2.3.1. Activities to achieve objective 1: Increased access to water**

In order to assess the activities required to provide water to various parts of the Western Zone a differentiation of the types of areas needs to be made. The following types are identified by NAWASSCO technical team:

1. Areas without any water network;
2. Areas with limited network;
3. Areas with nearly full network.

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<sup>1</sup> Barazas, landlord fora, 3 in total one in beginning, one in middle and one at the end



**Figure 5: Map showing proposed pipe network**

*1) Areas without a network*

Part of the proposed project area is not connected to the NAWASSCO's network. The areas that will require the 3 components below are: Githima\_Technology, Rhonda Kapkures and part of Rhonda. In order to provide water in that area, the development of the entire network is required. Entire includes the following three components: construction of mains, service lines and social connections. Based on calculations from BoQ in annex 1 of these areas the following construction need to be taken place:

No	Item	Estimated length (kms)
1	Main pipe line	9
2	Service pipe line	18
3	Social Connections <sup>2</sup>	250

<sup>2</sup> See: Social Connection Process

Based on customer satisfaction survey for the financial year 2016/2017 and the ongoing field visits, it has been noted that in the low income areas, several households have one water point shared among all the households in the plot (in some cases up to between 10hh to 20hh ) households getting water from a single water point controlled by either the plot owner or a caretaker. Under this project, the company will limit the number of household per water point that is 5 households per water point (per meter). In this area, we shall promote 250 social connections whereby each serving 10 households that has 5 persons share a water point In this case the project will provide 12,500 people with access to water<sup>3</sup>.

*2) Areas with limited network (Barut, Kaptembwa Rhonda and Mwariki)*

In other parts of the proposed project area, The mains line exists but require service lines extensions. Based on calculations as per annex 1 for this area the following construction need to be taken place:

No	Item	Estimated length (kms)
1	Service pipe line	22
2	Social connection	150

Based on a survey, it is expected that 150 (social) connections can be established, providing 7,500 people access to water.

*3) Areas with nearly full network, Major parts of Mwariki, Rhonda, Kaptembwo and Barut.*

In this type of areas, only individual connections are preventing people for having access to water. It is expected the within the project area 100 connections can be established reaching out at least 5,000 people.

Summarizing:

Looking at the three different options it is proposed that the following network will be developed.

No	Item	Estimated length (Kms)
1	Main pipe line	9
2	Service pipe line	40

By doing so the project can facilitate in the construction of 500 number of social connections, giving 25.000 people access to water.

**How Social Connection Process works**

In the low income areas, a majority of the poor do not have access to piped water in their compounds due to the high cost of initial connection fee and high cost of materials. These customers end up spending more money buying water from vendors (engaged through signed contracts and approved rates to sell water whose source of water is unknown. Social connection subsidy is a one-time subsidy, which allows customers to pay the deposit fee and cost of trenching while the remaining costs are pre-financed by the WSP and or a donor. Before the deposit fee is paid the customers are registered in the WSP's billing system, on payment a notification for connection is issued and then the customers are connected to the WSP's supply. On completion of a billing cycle the customer pays for water consumed

<sup>3</sup> Based on a previous project implemented through NAWASSCO, with one social connection an average of 50 people are getting access to water.

to the WSP in small instalments as agreed with the service provider. In some instances the customers are required to pay the full amount within a given period of time i.e. 12 months.

**2.3.2. Activities to achieve objective 2: Increased access to sanitation**

In order to increase the access to sanitation two activities are required:

Profiling of potential customers. This will be done by Community Health Volunteers (CHVs) under the supervision of the Public Health Officer (PHOs) of the respective areas and the WSP;

Construction of decent toilets in the Western Zone will be supervised by the WSP technicians.

It is proposed that under this project 1.000 toilet facilities will be constructed.

**Toilet Subsidy Processes**

Majority of the low income earners do not prioritize sanitation and there is no motivation for them to invest in improved sanitation. The subsidy program is therefore meant to motivate them to invest in sanitation. The cost of construction an improved toilet is usually high. The subsidy program pays the following Premiums to clients:

No of toilets	Premium paid
1	9.500/=
2	19.000/=
3	28.500/=
4	38.000/=
5	47.500/=
6	57.000
>6	60.000/=

The payment is done only after the right application procedure has been followed, the toilet fully constructed and assessed. See Annex 4 for the proposed procedure.

**2.3.3. Activities to achieve objective 3: Community participation/sensitization**

In order to promote the development of the water network and to safeguard sustainability of the interventions mentioned, improved community participation/engagement is required. To actively engage the community NAWASSCO will form project task team groups for each LIA that will spearhead community mobilization and awareness creation on project deliverables during project implementation. The task force will comprise of; local administration, Public Health office, youth, women, persons living with disability (PWLD), community opinion leaders and representatives from political leaders.

The Pro-poor section will carry out various activities including development of banners, posters, carryout out meetings with local administration, Landlords, tenants, Focused Group discussions as well as public barazas as ways of reaching out to the public on various water and sanitation activities related to the project.

Their main objective will be to disseminate information to the customers on project activities and provide feedback to the utility. The task team including the community health volunteers will also be responsible for marketing social connection.

**2.3.4. Activities to achieve objective 4: Embedding a M&E system**

It is important to monitor the various activities closely. By doing so the project will stay within the planned project framework. Some of the activities related to this are:

1. Supervise, monitor and coordinate the activities of the Technicians;
2. Keep record of constructed facilities in new database;
3. Collect and present geo-referenced pictures of the constructed facilities to avoid Ghost Toilets;

#### 2.4. How do we count the impact?

Since the proposed project consist of two complimentary interventions (access to water or sanitation) due diligence should be conducted in the number of people reached. It should be avoided that people are counted double. Underneath an overview of the number of people reached is depicted:

<b>Type of intervention</b>	<b>Number of households reached (per connection/toilet)</b>	<b>Number of people reached (per connection/toilet)</b>	<b>Total no of people reached</b>
No. reached with water	10	50	25.000
No. reached with Sanitation	2	10	10.000

A single social connection will serve 10hh each hh is averaged to consist of 5 persons as per reporting standards to the regulator

#### 2.5. Sustainability

##### 2.5.1. Water Quality & Quantity

NAWASSCO has a well-equipped water quality laboratory that was constructed with funding from JICA. The laboratory has been carrying out quality testing for the company as well as offering water quality testing services to other WSPs, industries and institutions in the region. There is potential for expansion of this service including using the laboratory for research purposes. The laboratory is KENAS accredited for compliance with the requirements of ISO/IEC 17025: 2005 international standards.

The quality of water consumed by residents from the river and private water vendors is questionable bearing in mind the levels of fluoride in Nakuru County and the increased rates of water borne diseases. The residents will therefore due to this project be in position to avoid water borne diseases and the finances saved for improved livelihoods.

The community in the project areas will access piped water thus quality is guaranteed.

##### 2.5.2. Financial Sustainability

Based on experience it is known that customers in the low income areas are exploited by middlemen, water vendors and other private operators by selling water 3 times higher than the recommended prices by the regulator with the water network, service lines and subsidy program, clients will be able to arrange their own consumptions and pay bills directly to the utility. Billed consumptions are determined by a regulated tariff by the government. For example if a customer consumes between 0-6M<sup>3</sup> the month's bill will be Kes 380 or Kes 627 if not connected or connected to our sewer trunks respectively.

The Sustainability shall be based on revenue generated from project by customers being sensitized on the use of services and payment for the same. The company is also in the process of developing a debt collection strategy for the low-income consumers which will be spearheaded by the pro-poor officer in charge.

##### 2.5.3. Institutional Sustainability

The customers will be sensitized on usage and conservation of water, especially having individual storage tanks in case of interruptions. In addition, NAWASSCO shall continue engaging the County Government for full realization of the project objectives to the benefit of the community. The community will be fully involved during the project implementation period, this will ensure ownership and sustainability of the infrastructure.

#### **2.5.4. Environmental Sustainability**

Water component: The proposed extension of the networks are small diameter pipes which are laid along road reserves with very minimal destruction to the environment and also this will prevent pressure on the environment by avoiding every resident digging individual wells in search of water.

Sanitation component: NAWASSCO and the Nakuru County are suffering from pollution of the aquifer through sanitation-related waste disposed in open pits or direct drainage. Only 27% of the urban population is served by the system and out of 27% only 5% is in the LIA's. The remaining population served by toilets connected to septic tanks, pit latrines and currently the county has been promoting Conservancy tanks (lined pits) which are meant to prevent underground water contamination and also prevents the pits from collapsing due to loose soil. As for this project all sanitation facilities are designed with disposal systems that do not allow seepage into the groundwater. The planned toilet facilities are so-called closed systems i.e. they are either connected to a conservancy tank (a water tight underground tank), a septic tank (a water tight tank in with partly digestion of the human waste takes place) or they will be connected to the existing sewer. However, the project will not construct nor finance a sewer system!

#### **2.5.5. Technological Sustainability**

Maintenance of water networks will be fully done by NAWASSCO while maintenance of the 1 areas to minimize cases of vandalism on both water lines and sanitation blocks.

There will be a project task team that will support the WSP and the contractor during the project implementation and post implementations to be engaged by the project during construction who will be absorbed to handle the operations after completion of the project.

#### **2.5.6. Social Sustainability**

The LIC section will ensure project sustainability by working hand in hand with the community. This will be done through establishing a task team in the project areas engaging the local administration to restore peace, the area Member of County Assembly will be fully engaged for a political goodwill.

The Chief's office will work with the officer to mobilize community representative to form a task team which will be the link between the community and the project team (WSP).

The community project task team will be trained on community approaches and engagement, tips on water savings, safe water handling, and payment for water and how to report leakages and bursts.

The task team will deliver the information to the community together with the LIC team.

It is also anticipated that with provision of water, the community will be utilized in other income generating activities.

Various community forums including Focused Group Discussions, public barazas, community meetings and road shows will be held to sensitize the public on water and sanitation issues.

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### 3. PROJECT MANAGEMENT

#### 3.1. Project Organisation

The project will internally be supervised by the Technical Manager of NAWASSCO and externally by VEI's Resident Project Manager. The RPM will be responsible for the project management, appropriate disbursement of funds and support during the implementation the RPM will closely work together with the Business Controller VEI.

Short-term staff of VEI will be responsible for technical and management assistance (capacity building) during the project through the WWX project.

The TM of NWASAASCO will be overall responsible for the project implementation. The project will be implemented under the propoor section headed by the Low Income Consumer's Manager who will be responsible for reporting to the Technical and Commercial Managers on Project progress. The section will be supported by other sections that include:

**Water component:**

- Water Quality Officer – Monitor water quality reporting to Technical Manager
- Low Income Consumer's Officer – Community mobilization, awareness and sensitization on water and sanitation reporting to LIC's Manager.
- Distribution Manager – Handle all the operations and maintenance O&M activities during and after the project reporting to Technical Manager.
- Plumber – Implementation and will handle O&M activities – reporting to Distribution Manager
- Zone manager, Western zone - In charge of Zone, connections and billing after the project is complete;

**Sanitation component:**

- CHVs for sanitation marketing and sensitization;
- PHO for approval of site and selection of technology;
- NAWASSCO/VEI office clerk for administration;
- NAWASSCO meter readers for final assessment of constructions;
- VEI RPM for approval of payments.

### 3.2. Project Planning

The project is planned to start in December 2019. The time frame per activity is described in the table below:

Activity	Start	End
Project award	December 2018	December 2019
Awareness and training PHO's and CHV's	January 2019	April 2019
Advertisement of tender and award	January 2019	March 2019
Community sensitization and awareness campaigns on WASH	January 2019	December 2019
Laying water networks	April 2019	June 2019
Water network realignment	April 2019	June 2019
Promotion of connections	July 2019	November 2019
Toilet constructions	January 2019	November 2019
Monitoring & Evaluation	January 2019	December 2019

### 3.3. Project Costs

The table below gives an overview of the required budget for execution of the proposed project.

	Activity	Units	Unit cost (KES)	Costs (KES)	Costs (€)
1.	Increased access to water (network)	1	15.172.412	15.172.412	126.442
2.	Increased access to water (social connections)	500	11.620	5.810.000	48.419
3.	Increased access to sanitation	1000	12000	12.000.000	100.004
4.	Community participation/sensitization	1	33.775.162	33.775.162	6.607
	<b>Total</b>			<b>66.757.574</b>	<b>281.471</b>

- Costs for embedding a monitor and evaluation system KES 600.000 (€5.000) are funded by WWX.
- For calculation of the costs for the water network see Annex 1
- For calculation of various contributions required and cost of materials for a connection see Annex 2
- 42% of the budget is funded by WFL, 58% of the budget is funded by WWX and NAWASSCO

With the anticipated numbers as mentioned the project expects to serve 35.000 people in the LIAs in Nakuru. This brings the costs per person to 7.51.

### 3.4. Reporting and Communication.

Before the project starts its implementation a responsibility chart will be developed and approved by the partners involved. This will be drawn by the project team and chaired by the VEI RPM. The project will provide Quarterly reports on each quarter and also whenever required

Communication: for the donor updates on progress

### 3.5. Risks and Constraints

Risk	Rating	Measure
Planning is not followed	Medium	Project areas have already been identified with needs clearly defined. Planning is in place and will be close supervised by the project team of which the VEI RPM will

		be part of. However, procurement maybe delayed by the tendering process which is bureaucratic
Funds are not sufficient	Medium	There will be close supervision, monitoring and reporting on the utilization of funds. The VEI RPM and NAWASSCO finance department will ensure there are clear measures to be taken in-case the funds are insufficient.
Cooperation of partners	Low	The project is developed by the service provider with consultation from relevant stakeholders. With all actors involved the risk is low. The project benefits all parties with their own agenda. Also, VEI already has >6 years' experience working with NAWASSCO
Quality of the work	Low	The technical manager and the WaterWorX RPM will be in-charge of all the water works and toilets construction. The LIC section will be in-charge of community engagements to ensure quality works and sustainability of the project and final report submitted to the RPM.

### 3.6. Monitoring and Evaluation

The project is formulated with all actors involved. However the monitoring on the execution will be done by the NAWASSCO's TM. A monitoring sheet on the actual execution of works will be developed and weekly followed up. VEI will hand over on the ongoing activities after completion of works of the project to NAWASSCO.

## 4. CONCLUSION

The proposed project is intended to create positive impact on the WSP, the beneficiaries and the county at large.

The following direct results will be realized after the implementation of the project quantify all items as much as possible

- 25,000 people getting access to affordable quality water services to LIA'S under NAWASSCO
- 10,000 people getting access to Improved sanitation and hygiene in the low Income areas and reduced sanitation related diseases
- Enhanced quality of materials & workmanship

Indirect results:

- Reduced NRW and
- increased revenue from these LIAs
- Increased NAWASSCO's customer base

**Annex 1: Cost for water network (summary and BoQs)**

Objective	Activity	# units	Unit cost (EUR)	Total cost (EUR)
1a	Cost of materials for laying main lines	9.176km	3.31	30.351
1b	Cost of materials for laying and realignment of service lines	40.00km	0.88	34.833
1d	Costs of transport & labour for excavation and backfilling	49.176Km	0.90	44.022
1e	Construction of meter chambers	7	0.40	2.82
1f	Installation of bulk meters and fittings	7	1.52	10.622
	Contingency -5%			3.79
<b>Total</b>				<b>126.438</b>

Exchange rate- 1 EUR=kes120/=

**Schedule of Materials & Labour Cost**
**Project Title: Western Zone Water Network Extension, realignment and Metering**

No.	Description	Unit	Quantity	Unit Cost	Total Cost
<b>1</b>	<b>Pipeline</b>				
1.1	uPVC pipes 1" C/E	No.	705	350	246,750
1.1	G.I pipes 1" C/B	No.	3	2,000	6,000
1.2	uPVC pipes 1 1/4" C/E	No.	1,970	500	985,000
1.1	G.I pipes 1 1/4" C/B	No.	6	3,000	18,000
1.3	uPVC pipes 1 1/2" C/E	No.	1,700	600	1,020,000
1.1	G.I pipes 1 1/2" C/B	No.	6	4,500	27,000
1.4	Upvc pipes 2" C/E	No.	2,724	800	2,179,200
1.1	G.I pipes 2" C/B	No.	8	5,700	45,600
1.5	uPVC pipes 3" C/E	No.	1,065	3,000	3,195,000
1.1	G.I pipes 3" C/B	No.	8	10,500	84,000
1.1	G.I pipes 4" C/B	No.	1	15,500	15,500
<b>Subtotal:</b>					<b>7,822,050</b>
<b>2</b>	<b>Fittings</b>				
2.1	V.J Coupling 2"	No.	36	1,800	64,800
	V.J Coupling 3"	No.	12	3,000	36,000
2.2.	V.J Coupling 4"	No.	8	3,500	28,000
2.4	Rubber Gaskets (2mm)	Kg.	60	600	36,000
2.5	Bolts and nuts 3"x1/2"	kg.	24	300	7,200
2.6	GI Cap plugs 1"	No.	14	150	2,100
2.7	GI Cap plugs 1 1/4"	No.	46	180	8,280
2.8	GI Cap plugs 1 1/2"	No.	26	250	6,500
2.9	GI Cap plugs 2"	No.	26	300	7,800
2.10	GI Cap plugs 3"	No.	4	400	1,600

2.11	G.I Flanges 2"	No.	8	600	4,800
2.12	G.I Flanges 3"	No.	8	1,000	8,000
2.12	G.I Flanges 4"	No.	6	1,200	7,200
2.13	Pegler Gate valves 1"	No.	14	1,800	25,200
2.14	Pegler Gate valves 1 1/4"	No.	46	2,500	115,000
2.15	Pegler Gate valves 1 1/2"	No.	26	3,500	91,000
2.16	Pegler Gate valves 2"	No.	28	4,500	126,000
2.17	Solvent Cement (Tangit-250mgs)	No.	234	400	93,600
2.18	Sluice valves 3"	No.	6	10,800	64,800
2.18	Sluice valves 4"	No.	2	18,000	36,000
2.19	uPVC Valve Sockets 1"	No.	56	100	5,600
2.2	uPVC Valve Sockets 1 1/4"	No.	184	120	22,080
2.21	uPVC Valve Sockets 1 1/2"	No.	104	150	15,600
2.22	uPVC Valve Sockets 2"	No.	100	200	20,000
2.23	uPVC Valve Sockets 3"	No.	12	300	3,600
2.18	G.I Nipples 1"	No.	28	100	2,800
2.19	G.I Nipples 1 1/4"	No.	56	120	6,720
2.2	G.I Nipples 1 1/2"	No.	30	180	5,400
2.21	G.I Nipples 2"	No.	32	250	8,000
2.22	Saddle Clamp 9" x 3"	No.	1	5,000	5,000
2.22	Saddle Clamp 6" x 3"	No.	2	3,000	6,000
2.22	Saddle Clamp 4" x 2"	No.	6	2,500	15,000
2.22	Saddle Clamp 3" x 2"	No.	16	2,000	32,000
2.22	Saddle Clamp 3" x 1 1/2"	No.	12	1,800	21,600
2.22	Saddle Clamp 2" x 1 1/2"	No.	14	1,200	16,800
2.22	Saddle Clamp 2" x 1 1/4"	No.	35	1,000	35,000
2.22	Saddle Clamp 2" x 1"	No.	14	900	12,600
2.22	Saddle Clamp 1 1/2" x 1 1/4"	No.	11	900	9,900
2.22	Water meters 2"	No.	3	16,000	48,000
2.22	Water meters 3"	No.	3	21,000	63,000
2.22	Water meters 4"	No.	1	30,000	30,000
2.22	Strainers 2"	No.	3	12,000	36,000
2.22	Strainers 3"	No.	3	18,000	54,000
2.22	Strainers 4"	No.	1	30,000	30,000
<b>Subtotal:</b>					<b>1,274,580</b>
<b>Total:</b>					<b>9,096,630</b>
Add 5% Contingency					454,832
<b>PIPE NETWORK TOTAL:</b>					<b>9,551,462</b>
<b>3</b>	<b>Materials (Chamber construction - 1500mm X 1500mm Masonry Wall)</b>				
3.1	welding rods (3.2mm)	No.	3	1,800	5,400
3.12	Grinding disc	No.	5	280	1,400

3.13	Cutting disc	No.	70	180	12,600
3.14	Cement (50kg)	No.	35	1,000	35,000
3.15	Building Stones (600fts.)	No.	4	22,000	88,000
3.16	Ballast 3/4"x 1/2" (14 tonnes)	No.	1	19,800	19,800
3.17	Building Sand (14 tonnes.)	No.	3	12,000	36,000
3.18	Y12	No.	14	1,600	22,400
3.19	Angle Iron 2 x 2 x 1/4	No.	7	3,600	25,200
3.2	Binding wire	kg.	14	200	2,800
3.21	Padlocks	No.	7	1,000	7,000
3.22	Timber (6"x 1")fts	No.	200	80	16,000
3.23	Poles (Props)	No.	35	250	8,750
3.24	Nails 3"	kg.	3	200	600
3.25	Fabric mesh 8x 4 fts	No.	7	1,000	7,000
<b>Total Materials Cost:</b>					<b>287,950</b>
<b>Labour</b>					
1	Installation (100mm dia meters)	No.	5	1,000	5,000
2	Construction of Meter Chambers	No.	7	7,200	50,400
3	Excavation for Pipe laying	M	49,176	100	4,917,600
3	Materials Transportation Costs	No.	45	8,000	360,000
<b>Labour cost Subtotal:</b>					<b>5,333,000</b>
<b>SUMMARY COST</b>					
<b>No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Total Cost</b>
1	Networks Materials cost	Sum			9,551,462
2	Chambers Material Cost	Sum			287,950.00
3	Labour cost	Item			5,333,000.00
<b>Grand Total:</b>					<b>15,172,411.50</b>

**Note:**

Explanation and assumptions made about the budget are given below:

- That incase of price changes during implementation the WSP incur the costs of the difference.
- Procurement of goods and services will be as per the Public Procurement and Disposal Act 2015

**Annex 2: Calculation of various contributions required**

Part of the budget will be provided as own contribution by the households and NAWASSCO.

Actual cost per social connection:

Institution	Item	Own contribution (KES)
Household	Consumer deposit	2500/= as per standards
	Connection fee	200/= as per standards

	Trenching costs-own connection	1000/=(10 pipes at KES 100@pipe)
<b>Households total Contribution</b>		<b>3,700/=</b>
NAWASSCO	Cost of water meter	3,800/= (current market price)
	Connection fee	2,500/=(as per standards)
	Staff supervisory Labour cost	400/=
<b>NAWASSCO total Contribution</b>		<b>6,700/=</b>
WfL <b>Total contribution required from WfL</b>	Cost of network realignment and extension	15.172.411/=
	Cost of materials for social connection	3.660.000/=
	Toilet construction	12.000.00/=
	Accompanying measures	792.750/=

Materials for connection are dependent of prevailing market rates. The schedule below outlines materials required for a connection and associated costs.

FROM 1 - 52M					
	Description	Type	Quantity	Unit Cost KES	Total Cost KES
1	Saddle Clamp 2"x 1/2" or 1 1/2"X 1/2" or 1 1/4"X 1/2"		1	800.00	800.00
2	Gate Valve 1/2"	Pegler	2	800.00	1,600.00
3	PPR Pipe 1/2"		2	500.00	1,000.00
4	PVC Pipe 1/2"	PN 16	8	250.00	2,000.00
5	G.I Nipple 1/2"	Steel	4	30.00	120.00
6	G.I Socket 1/2"	Steel	4	30.00	120.00
7	G.I Union 1/2"	Steel	1	60.00	60.00
8	G.I Elbow 1/2"	Steel	6	30.00	180.00
9	PVC Adaptor 1/2"	Metro	4	30.00	120.00
10	Tap 1/2"	Pegler	1	800.00	800.00
11	Tangit (250gms)		1	400.00	400.00
12	Thread tape		4	30.00	120.00
<b>Total Cost of Materials</b>					<b>7,320.00</b>

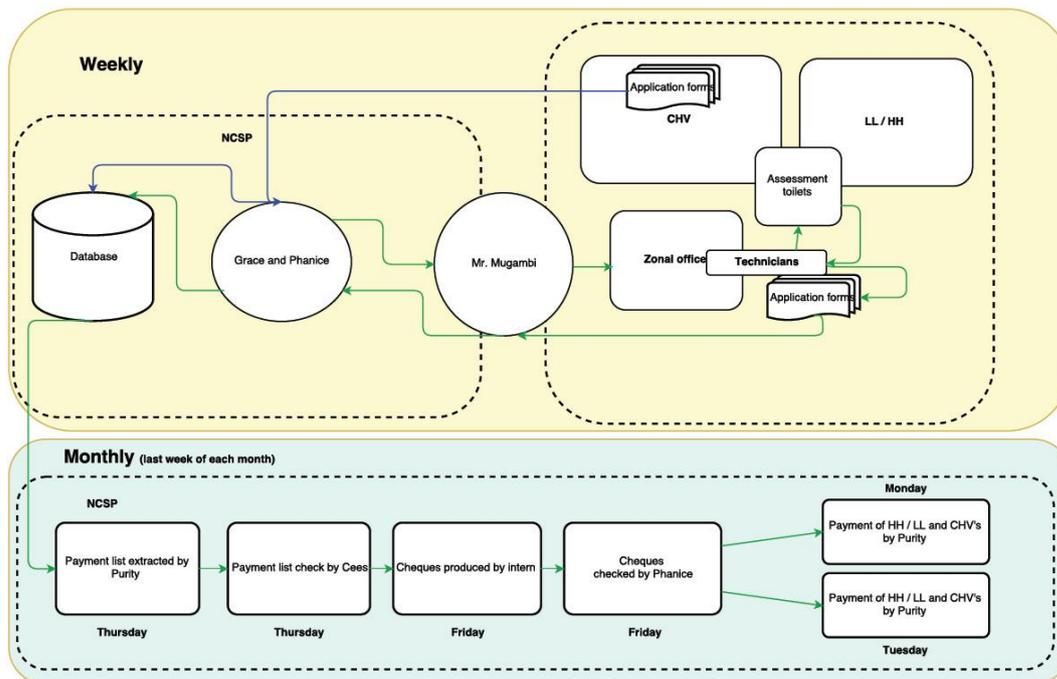
### Annex 3: Costs for Community participation

No	Activity Description	Qty	Rate	Totals	Remarks
1	Posters/ fliers/ banners	1	100,000	100,000	Marketing materials will be developed for marketing purposes
2	Public announcement and mini road shows	4	50,000	200,000	There will be mini road shows done by the marketers and CHV's to promote connections, construction of toilets and hygiene awareness

3	Public/community meetings and barazas	6	30,000	180,000	The total includes hire of tents ,chairs PAs and refreshments
4	Project evaluation meetings	1	5,000	5,000	There will be a project evaluation meeting each quarter during the project period
5	Formal project discussions with the community	6	10,000	60,000	There will be 10 Focused Group discussions in the project areas within the project time frame
6	Training and sensitizing of Task team members and CHV's	2	20,000	40,000	Costs includes training materials, venue, lunch and allowances
6	Task team and CHV's meetings	12	10,000	120,000	Costs includes training materials, venue, lunch and allowances
7	Training of NAWASSCO's and PHO's technical officer on toilets inspection and supervision	4	10,000	40,000	Training materials and allowances for participants
8	NEMA Licensing	4	2,500	10,000	NEMA licensing for four occasions
	Sub total			<b>755,000</b>	
9	Contingency @5%			37,750	
10	<b>Total</b>			<b>792,750</b>	

#### Annex 4: Information flow during assessment of toilets (See Annex 1)

1. Filling in of the application forms by Community Health Volunteers (CHVs);
2. Returning the duly filled in forms with all appropriate attachments (title deed or allotment letter, ID of the landowner) in place to NCSP office (Checked by Grace/Phanice)
3. Entering information from the application forms into NCSP database (Phanice)
4. Phanice sorts out the forms according to NAWASSCOs zone and hands them over to Senior Sewer Technician, Mr. Mutai;
5. Thursday Mr. Mutai brings the forms from the NCSP office to the respective zonal offices;
6. Friday: NAWASSCO Technicians will contact the respective CHVs (see 1) for appointments for assessing the toilets with landlords or Households on Saturday
7. Saturday: Assessment of toilets and filling in and signing of forms by Technicians;
8. Mondays: Mr. Mutai collects all the forms of all the assessed toilets from the zonal offices and assesses the information. When needed he personally re-checks an assessed toilet.
9. Tuesday all the forms will be checked (by Grace/Phanice) and data entered in the NCSP database (Phanice);
10. Every last Thursday of the month a list with all proposed payments (to HH/LL and CHVs) to be done will be extracted from the NCSP database (Grace);



11. The proposed payments will be checked (Cees);
12. Last Friday of the months the cheques will be written (Phanice/Grace), based on the extract of the database and checked by Phanice
13. The written cheques will be checked by Cees and signed;
14. Mondays payment of subsidies for both HH/LL as well as CHVs
15. Tuesdays payment of technicians ( Or after payment of LL and CHV's)