



# 1 Background

Water is a basic necessity for life. Unfortunately not all water is safe for human consumption. Water from contaminated sources causes numerous diseases and untimely death. The fact that human beings need water and cannot live without it forces them to use it even for drinking purpose from any contaminated source as the result many people suffer or die from water borne disease (Gobena T., 2006).

The situation is worse in the Upper Tana region which is our project area. Access to water supply and sanitation is a fundamental need and a human right. Access for the poor is a key factor in improving health and economic productivity and therefore an essential component of any effort to alleviate poverty (WHO/ UNICEF Global water supply and sanitation assessment report, 2001). Access to clean piped water and quality sanitation services in the Upper Tana region in particular is very low. This is mainly due to financial constraint and delay of infrastructure development in the project areas.

## CHALLENGES FACING THE PROJECT AREA

### 1.1 Lack of access to safe and adequate water

Currently, **65 %** of the target population fetch water from unprotected rivers, springs, ponds, and traditional hand dug wells respectively. Surface water resources in the project areas are not safe and sufficient for human and livestock consumption, especially during the dry season from January to May and their use exposes the communities to various water associated diseases. The percentage of people that fetch from unprotected water sources is high calling for spring rehabilitation interventions. There are common diseases in the area associated with the lack of safe water supply and hygiene/sanitation. Information collected during field surveys by the government health officers and from the community needs assessment clearly highlights water borne diseases eg. (Amoeba, Typhoid, etc) water washed diseases (like scabies, trachoma etc) and water related diseases (malaria).

The existing gender roles showed that water fetching is the responsibility of women and girls. In the focus group discussion, it is revealed that women spent time in long travel and queuing period. They spent on average a total of 1-2 hours for round trip travel including queuing time. This time is spent in fetching water from unprotected water sources. Women and girls fetch water two to three times a day. Since they loss their energy and time for water fetching, women are not doing their house management in time and have insufficient time to perform productive activities and get rest. Similarly, girls are not following their education properly and they drop out and fail. In critical water scarce period, women are forced to stay half of the day at the existing water sources. Only 40% of households have water harvesting technologies in the area. Even though rivers and springs are abundant in the area, The community is consuming unsafe water leading to an increase in water borne diseases. Most households have the capacity to adopt roof water harvesting technology since 92.5% have corrugated iron sheets.

Household distribution by main roofing materials	
Corrugated iron sheets	92.5
Tiles	1.0
Concrete	2.2
Grass	2.6

<b>Water and sanitation:</b>	
Household with access to piped water	35%
Household with access to potable water	65%
No. of permanent rivers	14
No. of shallow wells	7
No. of protected springs	22
No. of unprotected springs	180
No. of water pans	7
No. of dams	3
No. of boreholes/wells	100
Household with roof catchments systems	40%
Average distance to nearest water point km	0.8

### ***Lack of access to sanitation facilities***

The prevalence of water related diseases is exacerbated due to lack of knowledge and proper hygiene and sanitation services. Open defecation is a common practice in most of the community. The districts health offices indicated that the sanitation (pit latrine) coverage is 83.9%, with 66.7% being uncovered and dangerous to the user, environment including the water sources.

Lack of facilities and poor hygiene affect both girls and boys although poor sanitation conditions at schools have a stronger negative impact on girls. All girls should have access to safe, clean, separate and private sanitation facilities in their schools. If there are no latrines and hand washing facilities at schools, many children would rather not attend than

use the alternatives. In particular girls who are old enough to menstruate need to have adequate facilities at schools and normally separate from those of boys. If they don't, they may miss classes that week and find it hard to catch up which makes them more likely to drop out of school (SSHE, Lizette B., UNICEF, 2000).



***Dilapidate latrines in a local school***



*Ventilated Improved Pit Latrine constructed in a local school*

## **1.2 Lack of adequate sanitation and hygiene education**

During FGD, the participants of the group assured that they have limited practices of washing the water collection container before fetching and also the storage container too. Some women have prepared the plug for the storage container. They use narrow mouth water collection container which helps to reduce contamination of water. In their experience, women did not use detergent for keeping the collection container clean. As seen in the field assessment, the bottom of collection container is very dirty and green.

After the start of implementation of the health strategies that focuses on prevention, efforts are made to adopt the different sanitation facilities in the project area through mass hygiene and sanitation education and house to house visit. We introduced using of traditional pit latrine at household level. Only few households used to wash their hands after visiting their toilets. 66.7 % of the pit latrines in use are not adequately covered and no prepared cover materials for the latrine holes. In the FGD done in the area, the demand for sanitation services is generally lower than for water, as many people do not associate improved sanitation with improved health. Most of the households in the project areas live together with their animals and collect water for all domestic purposes including drinking and cooking from sources in which their livestock also drink and defecate.

Besides the use of unsafe water, the extremely poor sanitation conditions and very low level of hygiene education further exposed the communities to a variety of diseases including malaria, intestinal parasites, skin infections, eye diseases, and upper respiratory throat infections etc. Those diseases led them to high medical costs, an increased rate of mortality as well as a negative impact on the ability to work due to poor health. Poor garbage disposal also affects water quality and safety. 69.4% of households dispose their waste in their farms and eventually this waste trickle down to the rivers and springs polluting the water which they rely on for domestic use.



*Unhygienic water collection containers used in a local spring*

<b>Community distribution by type of main toilet facility (%)</b>	
Flush toilet	6.9
VIP latrine	9.2
PIT latrine	83.9
Uncovered pit latrine	66.7
Covered pit latrine	17.2

## **2 Project Design and Implementation**

### **2.1 Participation**

We use a community based approach as the most effective means of empowering communities to manage their own water supply schemes and sanitation facilities. Active participation of stakeholders and the beneficiary communities is ensured from the very beginning and at every stage of the project cycle. The beneficiaries are the main actors of the project in implementation, monitoring and evaluation and managing of rehabilitated water sources and their sanitation facilities. During FGD, beneficiary participants ensured to contribute locally available resources for construction of projects. Collaborations and linkage among partners will be strengthened. Similarly, KSEI works in close collaboration with County government offices that are responsible for the project area and those are vital to give the project work real legitimacy and sustainability and ensure the activities fit in with the community and government priorities.



## **2.2 Capacity Building of CBOs**

Currently, the established CBOs are trying to manage and rehabilitate the water sources through tree planting and bush clearing.

To capacitate water and sanitation committees, springs care takers and village hygiene communicators (VHCs), training is given to discharge their responsibility in managing their water supply and promoting hygiene and sanitation practices in their village. VHCs are the main agents of the action to bring attitudinal change among community members. They conduct house to house visits to teach the community on latrine use, appropriate solid and liquid waste management, hand washing after defecation, food hygiene promotion and the safe drinking water from “source-to-mouth”

Refresher trainings are organized for the water and sanitation committees, care takers and village hygiene communicators by identifying the critical gaps in operations, management, and hygiene and sanitation promotion. And joint monitoring of water schemes at the spot level including the beneficiaries and other stakeholder will be conducted. Through these women, men, boys and girls will empowered for long lasting utilization of water points through ensuring environmental sustainability.

## **2.3 Mass hygiene and sanitation education**

Health extension workers (HEWs) capacitated through training to equip them on knowledge and skill of mass hygiene and sanitation education. Mass hygiene and sanitation education are given at religious institutions, community social occasions and house to house visit. In addition school health/environmental clubs have been established, capacitated and exercise the hygienic behaviour and utilization of sanitation facilities effectively. Schools are considered as centre of hygiene and sanitation promotion. Training will be given for schools health club leaders jointly with district health offices on school health. Mainly it focuses on to teach the practice of hygiene and health to students both at school and at home and to build and utilize sanitation facilities like solid waste disposal and to keep the cleanliness of school compounds. The clubs teaches the community hygiene and sanitation practices through presentation of poems and dramas and mural art.

The mass education is expected to have each household of the target village with latrines having hand washing facilities School VIPLs is constructed for boys and girls separately. In the target area, sanitation facilities (dry waste disposal pit, liquid waste seepage, fuel wood saving stove, and others) promoted at individual household level. These will be built by the community members next to their homes to safely manage waste and keep a safe clean environment around their households. It is a simple hand dug pit where waste and litter can be placed. In general the mass hygiene and sanitation education will educate the rural target community to associate the improved sanitation with improved health.



*Mural educating on Water pollution and its negative effects on the environment*



*Community Members receiving Bamboo seedling for Springs Rehabilitation*



*Community level awareness creation through Mural art and theatre .The murals promote Sustainable environmental practices, water management and utilisation.*





*Mural highlighting the role of school environment/health clubs in Water catchment rehabilitation.*

#### **2.4 Integrated Approach**

To maximise the impact of this project an integrated approach combining safe and adequate water provision, promotion of sanitation facilities, capacity development of beneficiary population on keeping personal hygiene and environmental sanitation, source to mouth handling and utilization of water, and practical knowledge and skill also adequately provided for KSEI care takers and village hygiene communicators.

#### **2.5 Integrated biogas technology and sustainable agriculture**

KSEI Promotes integrated biogas technologies that combine animal and human waste to generate biogas for household energy needs while reducing water contamination due to unmanaged waste. Biogas will reduce significantly the household dependency on wood for fuel thus conserving our forests which are key to sustainable flow of our rivers and springs. The bio slurry from biogas digesters is used in the farm as to grow crops for household consumption and for the local market thus promoting household income.

We employ sustainable agricultural practices that enhance domestic conservation and maximum utilisation of water for house and the kitchen gardens.

We train local community on establishing kitchen gardens and fish farming to utilise excess water in the household.



*Fixed dome biogas units and Tube biogas installed by KSEI in households.*



*Raised /hanging kitchen gardens that utilises waste water from the kitchen to grow vegetables.*





*Fish pond that utilises water harvested from rooftops*

## **2.6 Mainstreaming of Cross-Cutting Issues**

To reduce existing gender disparity, reduce harmful traditional practices and protect the environment from degradation, due attention is normally given in awareness raising. Women's participation in planning, implementation and evaluation is ensured significantly in water, hygiene and sanitation projects. Women are normally encouraged to actively get involved in KSEI as village hygiene communicators.







*Women being trained on installing improve cook stoves in their households. Training includes Sustainable water management and hygiene at house level.*

## **2.7 Community Mobilization**

Community meetings are held at village level to create demand and raise awareness and promote the environmental, water supply, sanitation and hygiene projects. The community will participate for communal projects in a group and individually for their household sanitation facilities. For the execution of communal works, the beneficiaries are organized, strengthened in sub development team and hence active community participation enhanced. The local administration, Project manager, VHCs and HEWs take part in mobilizing the community in partnership with Ministry of Health (MOH)

The beneficiaries participate in terms of provision of labor, local available material (stone, sand, poles) and pumping knowledge during implementation of the projects. When monetized, the contribution of project beneficiaries is estimated at **10%** of the total budget of the project.

The project interventions are selected with due consideration of incidence of Water related diseases, high population, low water and sanitation coverage and accessibility during dry periods.

The process is coordinated by KSEI and local development committees. The proposed specific water sites are identified in the FGD with target beneficiary representatives, local development committees, local administrators, health extension workers, and other stakeholders.

### **3 Partnership and collaboration**

Donors, Schools, MOH, County water officers, Local administration and community at large offices play fundamental role in promoting water, sanitation and hygiene practices. The beneficiary community, Women groups and youth association are the main partners at grass roots level. .

### **4 Social and Environmental Impact**

During project implementation, all user communities will be involved to build sense of ownership. The executed project will benefit all members of the society (men, women, children, boys and girls). Hygiene and sanitation education also be given for all.

Water and soil conservation measures upstream benefit local farmers' livelihoods, food security and resilience through increasing agricultural yields and introducing climate-smart agricultural techniques, and thus reducing soil erosion that is damaging both crop production and downstream water quality and supply.

### **5 Sustainability**

The planned projects are constructed as per the standard aspect of the projects. Currently KSEI is involved in spring rehabilitation programmes where we are planting bamboo and other indigenous trees in water catchment areas, provision of safe water supply, sanitation and hygiene promotion.

#### **5.1 Economical Sustainability**

The project will improve the health status, reduce women work load and provide time to get engaged in agricultural and other income generating activities. It also reduces the medication costs. In general it will increase the overall production and productivity of the targets. In the focus group discussion, the beneficiaries agreed to ensure the economical sustainability of each water supply project by contributing Ksh.20 per beneficiary household as a start-up capital for future operation and maintenance of the projects. The collected cash will be deposited under the name of the water scheme committee members in a bank or Sacco. Moreover, they decided to establish regular water fee system so that using the revenue from this system; they will cover the expenses of the schemes that would be for operation and maintenance .Water committees can use the collected water fee for loan of water scheme beneficiaries to increase their capital of operation and maintenance cost of the scheme from the loan interest. Attention will be given for scaling up such practice in order to ensure the economic sustainability of the project.

#### **5.2 Social sustainability**

It is to mean that in the implementation of development projects required to maintain the desired social values, traditions, institutions and other social characteristics. Care takers and VHCs will be selected by the society democratically using acceptable social norms. And the training of members will help the beneficiaries to improve their knowledge and develop social by laws like: setting water fetching time, and amount and time of water fee for the proper management of water schemes based on the culture and values of the community. All WASH committees will have lawful acceptance by water users and local government.

### **5.3 Environmental sustainability**

Proper care is taken to avoid any soil erosion, flood problem, accumulation of stagnant water around the schemes that may be suitable for the breeding of mosquito and other water related disease due to the construction of water schemes. Furthermore, the traditional improved pit latrines will be constructed from locally available materials in a way that maintains and keeps the cleanliness of the locality and avoid spread of communicable diseases.

### **5.4 Technological suitability**

In both project districts, technologies that are suitable to the natural condition, relatively low level of technologies (most hand dug wells, springs and pit latrine are used) and also these technologies require low management and less input. This will enable the beneficiaries to manage the water supply schemes and sanitation facilities adequately. The water supply technologies are selected based on the water potential of the locality. The scheme care takers will get training and maintenance tool kits that will enable them to undertake simple maintenance by their own. In addition, the Sub -county water resources development offices have experience in conducting operation if any defect occurs at the water supply projects.

#### **Milestones of Sanitation and water project implementation:**

- **50** Domestic biogas units of 12 cubic meters constructed and running.
- **10** schools biogas units installed with 54 cubic meter units.
- Water quality test conducted for **25 local** springs conducted with support from Water Environment Federation USA.
- **4000** reached with water hygiene information and provided with improved cook stoves.
- **72** new school health clubs established in Tetu sub-county and **10** existing health clubs strengthened in Nyeri sub-county to promote hygiene and sanitation for target population,
- **200** Springs mapped in Tetu sub-county
- **Local Water resource user associations** organized and capacitated manage the springs in their locality.
- **Community resource centre constructed**
- **Over 500,000 trees planted** in water catchment areas.
- House to house visits by village hygiene communicators and health extension workers

## ***SPRING REHABILITATION PROGRAMME***



The above spring is one of those identified for rehabilitation to promote hygiene. The water is exposed all the year round exposing users to water borne diseases. The springs needs to be cleared and fitted with a concrete wall to stop soil from falling into the area where water is fetched.

We also require a concrete wall around the water point to keep of flood water, animal waste and urine from contaminating the water.

We plan to construct a concrete covered water reservoir to keep the water clean from pollution.





*The area around the spring is open and waste water flows and pollutes the water that the users fetch.*





***Water points exposed endangering the health of the users.***





***Farming in the riparian areas pollutes the water by exposing the springs to hazardous pesticides and fertilizers which are dangerous.***



***Members of the community consume water from the springs without knowing the danger it exposes them to because of pollution.***



***Community leaders visit a rehabilitated spring where water is fetched in a hygienic environment***



***A community member fetching water from a rehabilitated spring .The water is more hygienic compared to rehabilitated spring.***



***Rehabilitated springs in Tetu.***





***Community outreach meetings***



***Local primary school students being guided on how to conduct water monitoring with kits donated by Water Environment Federation USA during the world water monitoring day.***



*Kitchen garden demo-plots that utilizes waste water from the kitchen.*



*Indigenous tree nurseries for river rehabilitation*

**PROPOSED BUDGET FOR REHABILITATING 10 NATURAL SPRINGS IN TETU SUB-COUNTY IN NYERI,  
KENYA THAT SERVE 200 HOUSEHOLDS**

NO	ITEM	QUANTITY	UNIT COST	TOTAL REQUESTED	COMMUNITY CONTRIBUTION
	<b>MATERIAL COST FOR REHABILITATING ONE SPRING</b>			<b>\$300</b>	
	<b>\$300</b>				
	<b>COST OF REHABILITATING 10 SPRINGS</b>		<b>\$300</b>	<b>\$3000</b>	
<b>1</b>	<b>Locally Available material and labour</b>		<b>\$500</b>		<b>\$5000</b>
<b>2.</b>	<b>Water Safety Training</b>	<b>10</b>	<b>\$20</b>	<b>\$200</b>	
<b>3.</b>	<b>Water safety awareness murals</b>	<b>10</b>	<b>\$150</b>	<b>\$1500</b>	
<b>4.</b>	<b>Tree seedlings</b>	<b>3000</b>	<b>\$1</b>		<b>\$3000</b>
	<b>TOTAL BUDGET REQUESTED FROM DONORS</b>			<b>\$5,000</b>	

**DOCUMENT PREPARED BY:**

**Joram Mathenge**

**Executive Director**

**Kiangure Springs Environment Initiative**

**Email: [Kiangurespringsenvipro@gmail.com](mailto:Kiangurespringsenvipro@gmail.com)**

**Website: [www.kseikenya.org](http://www.kseikenya.org)**

**Mobile: +254729764619**