



Registered Charity  
No 1088020

# TURKANA WATER PROJECT

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## EXECUTIVE SUMMARY

This proposal is necessitated by the realization of fears posed by worn out water facilities in Kataboi, expensive maintenance of these facilities, absence of no consumable surface water and the looming water crisis. Much of these fears are aggravated by the infrequent rainfall, harsh topography, poor maintenance of the existing water facilities, and lack of alternative water harvesting techniques coupled with the impoverished lives of the Turkana people. The government had in the past taken the task of providing water to the residents of Kataboi but withdrew its support in 2006 and the project later suffered another blow when the Diocese of Lodwar, which was once a key donor, terminated its assistance. Consequently, the project was handed over to the community by the Rift Valley Water Service Board to manage and sustain but due to financial incapacity, this task has proved impossible. Oxfam GB came in to sensitize the local community on water management and repair of the oil fuel generator but never committed itself to provide the much needed water facilities.

The high maintenance and running costs of a generator, the falling to pieces of the already inadequate piping system, insufficient water storage facilities worsened by the low reliability of the gen-set have all had negative effects on the efforts to provide clean water to the residents and institutions in Kataboi. The situation is even more serious in the neighboring villages where communicable and other waterborne diseases have claimed several lives because of domestic consumption of unclean water.

Water contributes largely to human development and its provision must be a top priority. This project aims at improving access to adequate, clean and safe water to the Kataboi community through the provision of solar panels, repair of worn out piping system, construction of 2 water cement tanks. It is hoped that many lives will be saved from the frequent outbreaks of water borne diseases, more people and animals will be served with clean water and the present institutions will realize fuller operations. With the high solar energy, the installation of solar panels in the existing water pump will substantially reduce the maintenance costs, increase the volume of water pumped and guarantee water to more than 7,000 people.

With a total budget of **Ksh 1,296,074.80** the project seeks to offset the current water crisis in Kataboi and Nasechabuin villages by installing a solar pump at the main water source complete with all accessories, replacing old piping system alongside creating new extensions, constructing two masonry water tanks one at each centre and training the communities on project sustainability.

It is also in the interest of the project to establish a closer working relationship with the local leaders, the funding agency, water users' association, the government of Kenya and the beneficiaries so as to assure communal ownership of the project. The approach here will mainly enlist the participation of the communities this project is intended for.

## BACKGROUND INFORMATION

Kataboi is located approximately 85 Km from Lodwar town of Turkana North District, Kenya. Kataboi location is among the four established centers within Kataboi Division in the newly created district and is further sub-divided into three other sub-locations with an estimate population of more than 20,000 people, most of whom mainly subsist on fishing, small scale entrepreneurship and pastoralism.

Water in this region has always remained a scarce resource because of low rainfall and insufficient facilities to deliver water from the permanent sources. During the rainy seasons, people in the past and even now relied on scooped holes in the river beds for water because of the shallow water table and in dry seasons, they solely depended on the salty Lake Turkana water. In the late 1980s, the government constructed a shallow well in Nariding, a place 7 km away from Kataboi village with a good source of water throughout the seasons. The government through the water department also bought a water submersible pump, a generator, constructed two masonry tanks and placed pipes to supply water to the community. There was a major breakthrough on the crisis!

With the amendments of Water Act 2005 to empower and mandate the communities to take full charge of the water projects, the government hurriedly withdrew its support in 2006 without considering the capacity of the local people to sustain the project. The water crisis became even more acute with the unplanned desertion of the government as the community was not adequately empowered to handle the project. The Catholic mission and Oxfam GB took over the maintenance of the water plant when they realized the community had no capacity to manage and sustain the project. However, for the sake of sustainability they, too, felt the need to hand over the project to the Kataboi community and to that effect organized workshops and seminars to train the community representatives on the operations and maintenance of the generators.

Kataboi Water Users Association was formed in 2005 and registered as Kataboi Water Service Providers under Rift Valley Water Service Board in September 2006 REG No 27861 and was mandated to manage and sustain water projects on behalf of the community. Now, the water facilities that were provided by the government and Oxfam GB are dilapidated and worn out, the water tanks are collapsing and the piping system is bursting because of rust formation and poor maintenance. The desired intervention is in the form of providing solar panels, repairing existing piping system and constructing 2 storage tanks.

## PROBLEM STATEMENT

The cracking and collapsing of water tanks, the high costs of running and maintaining a generator and the worn out piping system has disabled the provision of safe and clean water to the people living in Kataboi village. This situation is worse in the nearby Nasechabuin settlement where the residents rely on the salty lake water which is unsafe for domestic use. It can be asserted that water crisis in Kataboi and Nasechabuin communities may



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escalate because of low reliability of water supply due to irregular fuel supplies and frequent technical breakdowns; high costs of operation of generator caused by operator expenses, high fuel consumption and costs and major breakdown and repair costs; management and cash flow problems at community level. A larger percentage of the population in Kataboi do not receive water because of low water supply, inadequate piping system, high water charges and poor water storage facilities.

### PROJECT JUSTIFICATION

Water is essential for life and it, therefore, must become possible to increase water access for quality living. The provision of solar panels, construction of two water tanks, replacing the old with new adequate piping system will avail clean and safe water to nearly the whole population of Kataboi. Solar energy is the natural substitute for oil fuel; its supply is unlimited, the plant will require practically no maintenance and water will be more affordable. We expect that, because of this intervention, water access will improve for both humans and animals, degraded lands will be reclaimed, institutions present will have full operations, communicable diseases will be eliminated and other alternative livelihoods such as small scale farming will be explored.

### GOAL AND OBJECTIVES

#### GOAL

The main goal is to achieve a continuous flow and access to clean water for all community members and institutions in the Kataboi region.

#### OBJECTIVES

- To provide enough water to the community and institutions in Kataboi.
- To reduce the prevalence of waterborne diseases by providing safe and clean water.
- To ensure a more sedentary life by reducing nomadic movement patterns in search of water for domestic animals.
- To initiate afforestation, land reclamation and promote small scale farming.

### PROJECT ACTIVITIES

#### a) Construction of 2 water storage tanks

This project plans to construct two water cement tanks for the Kataboi and Nasechabuin communities so as to solve the current storage problems. This will also help avoid wastage and to supply enough water to the public water kiosks, personal outlets and the institutions.



b) Placement of water piping system.

Piping system is critical for provision of water as it brings water closer to the people. The project aims at replacing the old pipes and installing new connections so that a larger population receives adequate safe and clean water at points near their homes. With reliable access to water, the operations of the new schools and other institutions in Kataboi will not be hampered.

c) Installation of solar panels at the pump

As a solution to the multiple operational and maintenance expenses for using a generator and the lack of ability to meet these costs occasioned by the high poverty index, this project seeks to install solar panels at the current pump so as to take advantage of the high solar energy. Solar energy will be a natural alternative to the expensive oil fuels and will substantially bring down the costs involved to manageable levels and also guarantee constant supply of water.

d) Employing a watchman to secure the solar panels

The security of the water facilities is a top priority in the quest for a lasting water solution. The project will undertake to employ a watchman who will protect the facilities from theft, sabotage or vandalism. The project will also seek to work in close collaboration with the water users' association, public administration and police so as to guarantee the security of the facilities.

### MONITORING AND EVALUATION

The monitoring and evaluation process will be a shared responsibility among all the stakeholders and will be continuous so as to assess the situation. **The Burnaby Blue Foundation** together with the local water association will jointly see through the project implementation and review other issues emanating from the community. The success of the project will be measured by the number of people and institutions who will have access to constant supply of clean water.

### SUSTAINABILITY

For purposes of sustainability of the project, the implementing organization will undertake to train community representatives on the maintenance of the solar pump and other facilities and the community will contribute towards maintenance and operational expenses. Proper management of the project will be ensured at every stage and the security of the facilities will be a top concern to ensure their safety.

# TURKANA WATER PROJECT BUDGET

## WATER IS LIFE

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### ESTIMATES

#### KATABOI WATER SUPPLY

Table 1: Pipe line

No.	Item/Description	Unit	Quantity	Rate	Amount(Ksh)
1	HDF 1½" pipes	100 m	4	19,500	78,000
2	1½" GI pipes	6m	6	3,750	22,500
3	1½" non return valve (china)	pc	1	2,500	2,500
4	1½" Elbow	pc	10	100	1,000
5	1½" - 1¼" Red Bush	pc	1	100	100
6	1½" PVC adaptors	pc	9	90	810
7	1½" HDF Couplings	pc	4	650	2,600
8	¾" HDF pipe	100m	3	5,000	15,000
9	1" - ¾" PVC reducers	pc	3	80	240
10	¾" GI pipes	pc	5	1,700	8,500
11	½" GI pipes	pc	2	1,450	2,900
12	¾"-½" GI reducers	pc	6	120	600
13	½" sockets	pc	5	60	300
14	Tangit	kg	1	1,000	1,000
15	Thread seals	Roll	6	35	210
16	Labour				32,000
17	T joint 3"	pc	5	520	2,600
18	Pipe rangers size 24	pc	4	6,500	26,000
19	Die stock and stand	pc	1	12,000	12,000
	<b>Total</b>			<b>55,155</b>	<b>208,860</b>



Table 2: 2 cement tanks

No	Item/Description	Unit	Quantity	Rate	Amount (Ksh)
1	Cement	pc	150	1000	150,000
2	PVC	pc	95	300	28,500
3	wire mesh	pc	10	550	5,500
4	binding wire	kg	20	300	6,000
5	Y 12	pc	10	1,200	12,000
6	Y 8	pc	8	850	6,800
7	Timber 8*1	ft	150	55	8,250
8	timber 4*2	ft	308	45	13,860
9	timber 12*1	ft	110	60	6,600
10	white wash	bag	12	600	7,200
11	Labour				20,000
	<b>Total</b>			<b>4960</b>	<b>264,710</b>

Table 3: Solar pump and accessories

No	Item/Description	Quantity	Rate	Amount(Ksh)
1	Grundfos SQF 2.5-2 solar pump duty: 20m <sup>3</sup> /day at 20m head	1	144,500	144,500
2	Submersible cable 10mm <sup>2</sup> 3 core	70	900	63,000
3	80w 12v shell solar panels (or GF 65)	10	34,000	340,000
4	Support structure	3	40,000	120,000
5	Splicing kit	1	2,700	2,700
6	Array to controller wire kit	1	6,555	6,555
7	IO 101 switch box	1	32,300	32,300
	<b>Subtotals</b>			<b>709,055</b>
	<b>Add VAT @16%</b>			<b>113,448.80</b>
	<b>Total</b>			<b>822,504.80</b>

Please note that for the items in tables 1 & 2, the prices are not stable and thus due to the frequent price fluctuations, a 20% price adjustment contingency is necessary.

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