

PROPOSAL FOR BOREHOLE DRILLING, SOLAR PUMPING SYSTEM, AND WATER TOWER INSTALLATION

For The NGAO Foundation

***Project Site: Oloishorua Centre, Osupuko, Kibiko, Kajjado
County, Kenya***

1. Background

The NGAO Foundation has been working closely with the Maasai community in **Oloishorua, Kibiko, Kajiado County**, to address some of the most critical challenges affecting daily life: **clean water, food security, and access to education**. Despite significant progress in education and community development, the lack of reliable water continues to undermine these efforts and poses a constant threat to the wellbeing of children, women, and households.

Currently, the community depends almost entirely on **seasonal water sources**, shallow streams, rainwater harvesting, and purchased water transported on donkeys. These sources are **unreliable, unsafe, and insufficient**.

During the dry seasons and even in periods of short rains, storage facilities quickly run empty. Families who cannot afford purchased water often go without, forcing children to miss school in search of water and leaving households vulnerable to hunger and disease.



This crisis disproportionately affects **women and children**, who carry the daily burden of walking long distances for water. The time spent in this struggle robs women of opportunities for **income-generating activities** and denies children valuable hours in **school**. Without intervention, the cycle of poverty, poor health, and limited education will persist.

To address this urgent and recurring challenge, the NGAO Foundation seeks support to establish a sustainable water solution at the Oloishorua Centre through:

1. **Drilling and developing a 300-meter deep borehole** to ensure access to a reliable groundwater source.
2. **Equipping the borehole with a solar-powered submersible pump system** to provide clean water sustainably and affordably.
3. **Constructing a 6-meter steel water tower with a 10,000-liter storage tank** to ensure consistent distribution to the community and the Centre.

This project will directly benefit more than **1,500 community members**, while also supporting the Foundation's **school feeding program, vocational training initiatives, and agricultural activities**. By securing safe and accessible water, the project will empower the community with the foundation it needs for improved health, education, economic resilience, and dignity.

2. Project Objectives

- Provide a **permanent and reliable source of clean water**.
- Reduce the **time and labor burden** on women and children.
- Support the **feeding program** for children at the Centre.
- Enable **agricultural activities** and vocational training at the Centre.
- Strengthen the **health and sanitation conditions** of the community.



3. Scope of Work

Phase 1: Borehole Drilling (Estimated 300 meters)

- Mobilization and demobilization of personnel and equipment.
- Rotary air drilling up to 300m depth.
- Installation of 6" steel casing (plain and slotted).
- Borehole development (airlifting, chemical treatment).
- 24-hour test pumping and yield determination.
- Borehole completion record and chemical water analysis.



Phase 2: Borehole Equipping with Solar Pumping System

- Supply and installation of a 7.5 HP submersible solar pump (set at 285m).
- Installation of HDPE rising main (285m) and pump control cable.
- Solar power system: 16 monocrystalline panels (8.8kWp) with mounting structure.
- MPPT controller, cabling, and protection accessories.
- Testing, commissioning, and user training.

Phase 3: Water Tower and Storage Tank

- Fabrication and erection of a 6-meter galvanized steel tower.
- Construction of reinforced concrete foundation.
- Supply and installation of a **10,000L food-grade polyethylene tank**.
- Installation of piping, valves, and fittings.
- Safety ladder with cage and painting of tower.

4. Financial Proposal

4.1 Borehole Drilling Costs (300m)

S/N	Description	Qty	Rate	Amount(USD)
1	Mobilization & Demobilization	Ls 1	\$3,200	\$3,200
2	Drilling to 100m (8.5" dia)	100m	\$69/m	\$6,900
3	Drilling 100m–200m	100m	\$69/m	\$6,900
4	Drilling 200m–300m	100m	\$69/m	\$6,900
Total Drilling Cost				\$21,020

Note: Casing, gravel pack, test pumping, logging, capping, and chemical analysis are **included** in the above cost.

4.2 Solar Pumping System Costs

S/N	Description	Qty	Rate	Amount(USD)
1	7.5HP Submersible Solar Pump (5.5kW)	1	\$2,800	\$2,800
2	285m HDPE Rising Main (2")	285m	\$6.5	\$1,852.5
3	Pump Control Cable (4 core)	285m	\$1.8	\$513
4	Pump Installation Equipment	Ls 1	\$400	\$400
5	Wellhead Assembly & Fittings	Ls 1	\$250	\$250
6	550W Solar Panels	Ls 1	\$220	\$220
7	Mounting Structure	Ls 1	\$650	\$650
8	MPPT Solar Controller (8kW)	1	\$550	\$550
9	Solar Cables & Connectors	Ls 1	\$180	\$180
10	Earthing & Protection	Ls 1	\$120	\$120
11	Installation & Commissioning	Ls 1	\$850	\$850
12	Training & Handover	Ls 1	\$150	\$150
13	Project Management & Supervision	Ls 1	\$100	\$100
Total Cost				\$12,000

4.3 Water Tower & Tank Costs

S/N	Description	Qty	Rate	Amount(USD)
1	Foundation(Concrete, Reinforcement, Waterproofing)	Ls	-	\$741
2	Steel Tower Fabrication (6m, Galvanized)	1000kg	\$2.5/kg	\$2,500
3	Tower Assembly & Erection	Ls	-	\$350
4	Access Ladder & Safety Cage	Ls	-	\$450
5	Platform & Tank Support	Ls	-	\$250
6	10,000L Food Grade Tank	1	\$850	\$850
7	Tank Installation & Fittings	Ls	-	\$155
8	Overflow Pipe, Valves & Connections	Ls	-	\$321
9	Distribution Pipes (18m)	-	-	\$141
10	Painting & Finishing	Ls	-	\$150
Total Water Tower Cost				\$6,808

5. Project Cost Summary

Component	Amount (USD)
4.1 Borehole Drilling Costs (300m)	\$21,020
Water Tower & 10,000L Tank	\$6,808
Solar Pumping System	\$12,000
Grand Total	\$39,828



6. Expected Outcomes

- Reliable supply of **20,000–30,000 liters/day** of safe water.
- Direct benefit to **1,500+ community members** (children, women, and households).
- Improved **school attendance** through reduced burden of water fetching.
- Enhanced **community nutrition and health outcomes**.
- Foundation for **small-scale irrigation** and livelihood projects.

7. Sustainability

- The solar system ensures **zero recurrent electricity costs**.
- Community members will be trained in **basic maintenance**.
- A **water management committee** will oversee usage and upkeep.
- Modest user contributions (where possible) will support repairs and sustainability.

8. Conclusion

The Borehole, Solar Pumping System, and Water Tower project at Oloishorua Centre will be a **life-changing investment** for the Maasai community in Kibiko, Kajiado County. It guarantees **safe water access, improved health, enhanced education, and sustainable livelihoods**.

The NGAO Foundation seeks partnership and financial support of **USD 39,828** to realize this project.