



Osiligi Charity Projects

Food Growing in Schools Pilot Project

FF 664

Interim Report, 13th December 2023

Donor:	Fondation Eagle
Date of grant acceptance:	15 th May 2023
Amount granted:	£20,000
Number of beneficiaries:	857 pupils (plus teachers and the community)
Location:	Kachar Primary School and St Mary's Kachar Girls Secondary school, Rangwe, Homa Bay, Kenya
Period of project:	1 st May 2023 to 31 st December 2023 (extension requested)

1. Project background and aim

Many schools in Kenya are short of food, and in some cases, clean water. Many school children are malnourished, and lack of food and water results in illness or poor concentration. There is often a desire, and in some cases an attempt, for schools to become self-sufficient by growing their own food for the children. However there is usually no means (infrastructure or expertise) to do so, especially in arid conditions.

The aim of this project is to equip **2 schools in Kenya, which have an existing electric water pump and borehole**, with the infrastructure (sufficient supply of electrically pumped water, pipework, fencing, tools) and agricultural skills to grow their own food sustainably in dedicated school food-growing plots.

The project will have 3 key benefits:

- Provide life-long skills to the children, giving them options for future food security and livelihoods
- Provide for the school kitchens
- Give the children valuable nutrition (and clean water, where not already available), enhancing their ability to concentrate and perform better at school

As well as providing life-long skills to the children involved during the study period, the infrastructure and knowledge within each school will benefit their families, teachers, future pupils and the wider local communities. A successful outcome to this initial pilot project would allow for a wider roll-out to many other schools, taking in valuable learnings from this initial project.

2. Project progress

a. Selected Schools

The two schools selected for this project by Osiligi Charity Projects, following two in-person visits, were St Mary's Kachar Girls Secondary school and Kachar Primary school. These are neighbouring schools that share the same borehole, served with a mains electric pump that had previously been installed by Osiligi Charity Projects. The schools are located in Rangwe, Homo Bay in southwest Kenya.

The numbers/mix of pupils at the secondary and primary schools are 281 (girls, mainly boarders) and 576 (boys and girls), respectively.

These schools were selected by Osiligi Charity Projects based upon:

- High degree of engagement from the head-teachers, and commitment to support the programme.
- Adequate land to house the agricultural plots.
- A commitment to jointly share, between the two schools, the cost of extra electricity needed for plot irrigation, and the costs of maintenance of the pump.
- A desire to continue to run the project self-sustainably once the initial pilot study is complete.
- Considerable cost savings due to their shared water facilities (for example, only one water tower needed to be constructed to irrigate both schools' agricultural plots).
- A mix of one primary school and one secondary school, so that impacts of both can be evaluated and compared.

b. Project team

A project team was formed which consisted of three Osiligi engineers (Esther Okode, Peter and Alex), three members of the Osiligi Charity Projects UK management team (Eric McKinnon, Jean Grout and Jim Freeth), Principal of St Mary's Kachar girls' secondary school (Mrs Eunice Juma), and Head-teacher of Kachar Primary school (Mr David Okwany). Esther Okode was Project Manager and was on site throughout the construction works by Aquifer Engineering.

During the construction works (see 2d below), the project team met virtually on a weekly basis, to monitor project progress, and to identify any issues, and how to resolve them. Two managers from Aquifer Engineering Limited were invited to take part in some project meetings.

c. MOU

A memorandum of understanding (MOU) was generated, agreed and signed prior to the start of activities between the Osiligi Charity Projects, the headteacher of each of the two schools, and the contractor Aquifer Engineering (responsible for delivering the tanks, tower, irrigation and plot construction). This outlined each party's commitments to the project (see Appendix 2).

d. Water provision, irrigation and agricultural plot

Following site surveys and quotes from multiple contractor companies, Aquifer Engineering Limited was selected by the project team as the contractor to undertake the construction for this project to build the agricultural plots and adapt the water system in order to irrigate the plots (Appendix 2). This involved:

- Digging foundations and constructing a water tower strong enough to carry 3 x 10,000 water tanks, and high enough to gravity feed the taps and agricultural plots. The tower was also designed to enable future addition of solar panels.
- Excavation and fencing of new agricultural plots (3100m² at the Primary school and 2000m² at the Secondary school).
- Trenching and plumbing to include 3 taps for school use, and drip irrigation lines throughout both agricultural plots.
- Installation of hybrid inverter and all necessary electrics.
- Full system testing.

The works started in early September 2023 and finished end October 2023. Each task and milestone were planned and scheduled prior to the project start (Appendix 1), and each was carefully monitored and inspected by Osiligi engineers. Progress was hampered significantly due to an extended power cut in the region for over 4 weeks, and heavy seasonal rains. To reduce delays, the construction works continued under generator power, or where possible (for example, tower fabrication) the work was undertaken off-site.

All tasks were successfully completed. Water is available at all 3 taps, and the irrigation system on both agricultural plots is fully operational (see photos in Appendix 3). The rate of tank refill is sufficient to meet demand for school drinking water and plot irrigation.

Due to the cost and unreliability of mains electricity, the mid-term aim for both schools is to obtain funding for the purchase and installation of solar panels. The system has been designed to accommodate an easy conversion to dual mains/solar power.

A positive and respectful working relationship was maintained between all parties throughout the construction project. Measures were implemented to ensure safety and security during the project and in the future (for example, the prevent unauthorised access to the electrical systems and tower, security lights installed, and the new installations monitored by 24 hour/7 days per week security guards).

e. Farm supervisors

A farm supervisor for each of the two school was identified and employed by the respective head teachers. Under this project, they are being paid 15,000 Kenyan shillings per month for a period of 6 months, starting October 1st, 2023. These are full time roles (particularly important during the long school holidays in November and December), and the supervisors are responsible for the maintenance of the plots, consistent provision of water, as well as food growing. Both attended the Haller training course (see 2g below).

f. Tooling

Both two headteachers and project manager Esther Okode travelled to Kisumu to purchase garden tools necessary for teaching and maintenance of the agricultural plots. This included sprayers, gloves, wheelbarrows, rakes, watering cans, djembes, slashers, spades and axes.

g. Agricultural training

The first of two 1-week food growing training courses was provided by the Haller Foundation and delivered at the Haller training farm in Mombasa from 4-8th December 2023. This was attended by both head-teachers, a second teacher from each school (who teach the agricultural aspects of the syllabus), the farm supervisor from each school, 3 pupils from each school, and two Osiligi water repair engineers (one of which was the project manager Esther Okode) (14 participants in total). The engineers will, in turn, be equipped to pass on their acquired farming knowledge to other schools beyond this pilot project. This training entailed a bus journey of over 500 miles from the schools in Homa Bay to Mombasa.

The training provided by the Haller team was carefully designed to cater for both pupils and adults, and consisted of talks, practical sessions, wildlife tours, films, and fun activities. See last two photos in Appendix 3.

The course covered the following aspects:

- Agricultural basics
- Organic farming
- Soil and fertility
- Composting
- Plant nutrition
- Soil and water management
- Measuring rainwater
- Soil erosion
- Construction
- Pest and disease control
- Record keeping
- Use of the Haller farmers app
- Q&As

A critical next step now is the integration of the Haller teaching into the growing activities at the two schools.

Quote from Esther Okode, Project Manager: *“We successfully completed the Haller training. We majored on organic farming, what it entails to be registered as organic farmer, how to manage our small farms to be able to get quality and quantity produce.*

We did some theory work and practicals, preparing compost manure and many others. The knowledge we got from Haller will be really helpful in these agricultural projects. It's all about concentration, patience and consistency to succeed in organic farming”.

3. Outstanding tasks, and project outcomes and benefits

Both schools will use the Haller learning in their food growing plans, teaching and activities.

The team that attended week 1 of training at the Haller training farm will attend a second week of training after 6 months. This will likely take place in June 2024.

During the final phase of the project, and beyond, it will be critical to capture the short-term and lasting benefits (including those listed in Section 1), outcomes and challenges of this project, at the schools and in their communities.

4. Financials

In most cases, financial control was achieved by making individual payments directly from the Osiligi Charity Project banks account in the UK to the end-user. While exchange rates therefore varied, the overall average to date was 182.32 KES/GBP.

All direct payments to the contractor Aquifer Engineering, accordingly to the payment schedule outlined in Appendix 1, were only made when once the project manager and one additional Osiligi Engineer inspected the work and confirmed in writing that the relevant milestones had been completed.

The table below shows the overall spend in the project so far of £14,805, between the dates of 10/9/23 to 26/11/23. This is combined for both schools, since they are co-located.

The remaining £5,195 should cover the final contractor's invoice and anticipated expenses for the second agricultural training week at the Haller farm in Mombasa. Over- or underspend is unlikely.

	KES	GBP
Aquifer Engineering (tanks, electrics, tower, irrigation, fencing, plumbing)	1,782,450	£9,813
Engineer expenses (travel to/from site)	172,000	£978
Farming tools	160,000	£872
Farming supervisors (6 months x two people)	180,000	£983
Soil analysis	4,825	£27
Training (1 week x 14 people; travel, accommodation and food)	400,000	£2,131
Total spent	2,699,275	£14,805
Average exchange rate (KES/GBP)	182.32	
Budget remaining (from £20,000)		£5,195
Yet to pay for: Aquifer final invoice outstanding		£2,444
Yet to pay for: 2nd training week (estimated)		£2,131

Appendix 2: Contractor quote (tank, tower, irrigation and plot construction) and Memorandum of Understanding



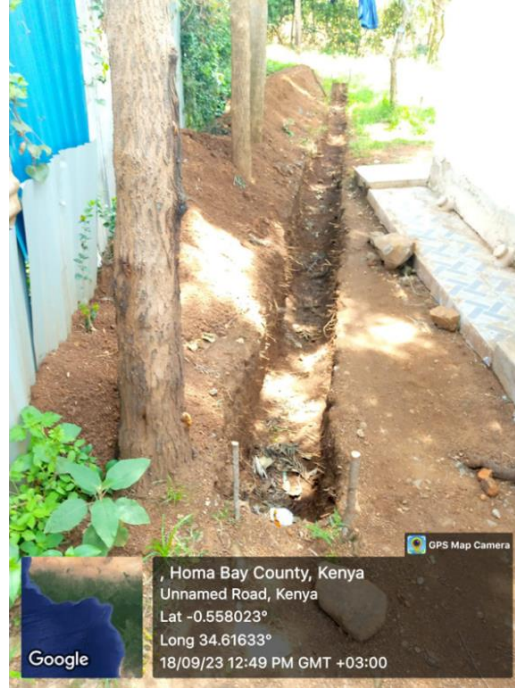
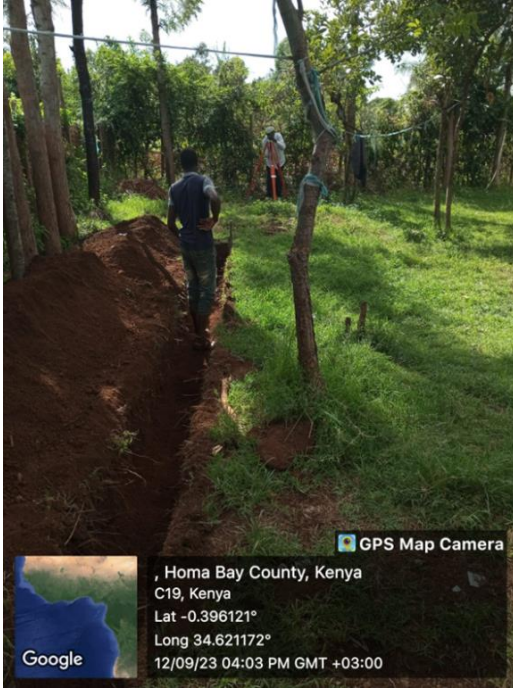
Kachar_Irrigation_Quote - Aquifer.pdf



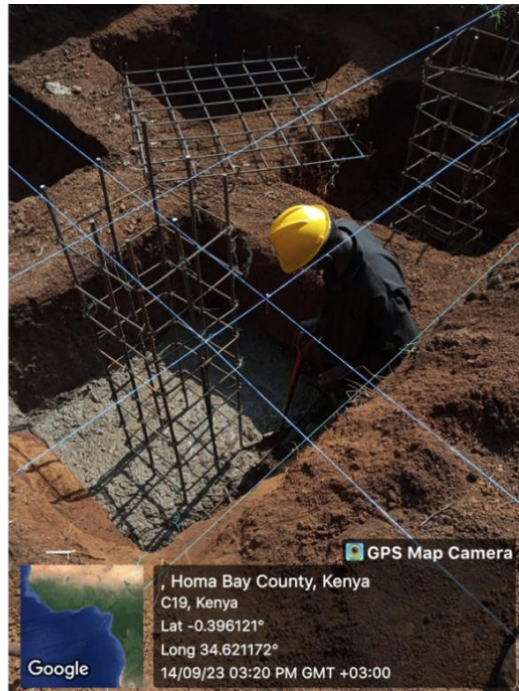
MoU- Agriculture in schools project - full

Appendix 3: Photographs

Digging of the trenches



Preparing the tower foundations



The completed tower carrying three 10,000 litre water tanks.



Left: Provision of water from the new tanks. Right: New fencing installed around the agricultural plots



Left: Turning on the new driplines. Right: Drip irrigation lines. The new crops beginning to appear.



The team in action (left) and receiving completion certificates (right) at the Haller agricultural training farm in Mombasa.

