

# Repair of broken hand pumps in Kenya FF 698

Interim Report, 25th July 2024

Donor: Fondation Eagle

Date of grant acceptance: 6<sup>th</sup> December 2023

Amount granted: £60,000

Average Exchange rate: 170 KES/GBP (exchanged monthly)

Number of beneficiaries: 74040 people

Location: Southern Kenya

Period of project: 1st January 2024 to 30th June 2024

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### 1. Executive Summary

This report outlines the progress made from January to June 2024 by the Osiligi Charity Kenyan team in restoring hand-pumps in the rural district regions of Kenya. During this time, the team has restored 184 hand-pumps across 9 counties of Kenya as a result of Eagle Foundation funding, providing access to water to around 74,000 people. The results indicate that the annual 2024 goal of 200-250 hand-pumps repaired using EF funding will be significantly surpassed. Despite the rising cost of materials and transport, the average cost of a repair was around 40p per person.

#### 2. Introduction

The aim of the project is to continue to repair and restore non-functional hand-pumps that provide access to ground water to the rural communities of Kenya. The Osiligi charity has restored over 2600 hand-pumps since 2015. However there are still many more to be repaired – probably in excess of 3000 – and each year many pumps break down. The cost of repairing a broken pump is about 20 times lower than that the cost of digging a new well, so it is a very cost-effective activity.

By the end of 2023, the Eagle Foundation (EF) had supported the Osiligi charity for 5 years, resulting in the repair of 1075 pumps, benefiting around 340,000 people. The aim for 2024 was to repair a further 200-250 pumps with EF funding. This report outlines the progress achieved from January 1st until June 30th 2024.

The Osiligi UK management team, and the team of 7 Kenyan water engineers who oversee the pump repairs, all work as volunteers. The charity does not pay the engineers a salary; however, the charity does contribute a small amount towards their education or the education of their children.

Repairing hand pumps consists of the following steps:

- Locate broken pumps
- Ask the community to appoint a caretaker
- Repair the pump with the help of the caretaker
- Train the caretaker on basic repairs
- Train the community how to generate a water economy from the pump (to pay for future repairs)
- Record keeping and follow up.

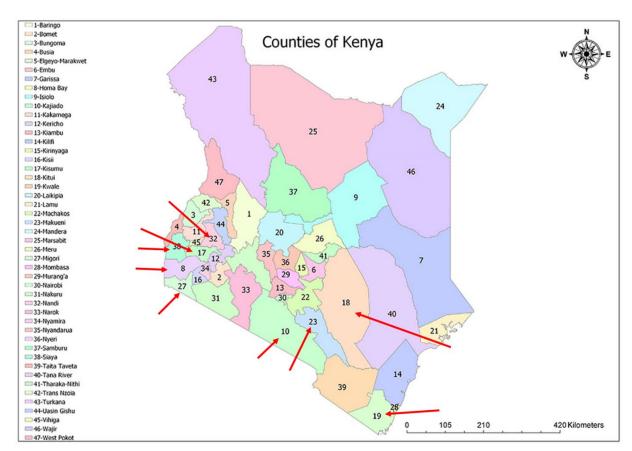
Rather than just repairing the broken pumps, it is paramount in each project that the charity gives the local community the resources (spares, knowledge and engineer contact details) so that they can perform their own basic repairs and maintenance in order to keep their pumps working for many years to come.

#### 3. Identification and locations of broken pumps

To locate the broken pumps, our team of Kenyan engineers work closely with local authorities, MPs, and word of mouth from the communities. Once identified, getting to site can be quite a challenge, often having to resort to getting out of the car and walking to the last stage.

During 2024, the EF-funded pump repairs have so far taken place in 9 counties of south and south-west Kenya (Figure 1). Each engineer is responsible for covering one or more regions. Figure 2 shows the number of EF-funded pump repairs undertaken in each county during the first half of 2024. In total, **184 pumps** were restored during this period as a result of EF funding.

**Figure 1:** The red arrows denote the 9 (of 47) Kenyan counties where pumps repairs took place during 1H 2024.



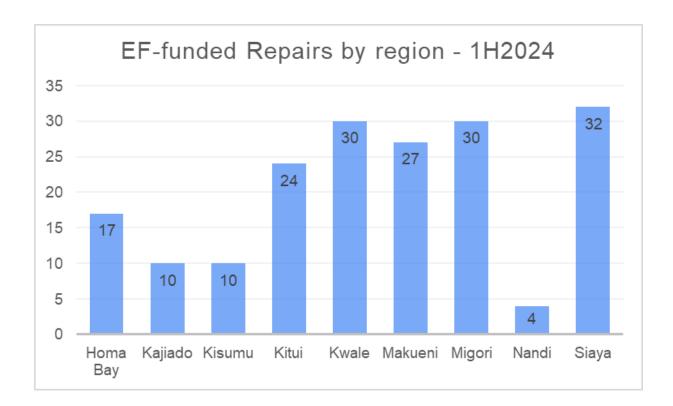


Figure 2: EF-funded repairs during 1H 2024 by location

## 4. Pump repairs

While we can repair any type of hand-pump, we concentrate on Afridev hand pumps as, once repaired, the caretaker can make simple repairs without the need of a winch. He/she is also trained in basic periodic maintenance and operation management due to the conditions imposed by the environment and how a community uses their pump.

There are 5 categories of repair; A to E. Category A is a basic repair where the parts cost less than 5,000Ksh (£27). B will require a more extensive repair where more parts are needed up to a cost of 25,000Ksh (£136). A repairs and B repairs can be carried out by the community if they are available to receive training. Category C is a more extensive repair where risers and rods may have to be replaced, and these costs can be up to 50,000Ksh (£272). D is where the installation of a new pump is required should the old one be beyond economic repair. E are where additional resources are needed for the repair, such as having to employ a contractor to fish out broken pipes, flush a borehole, broken or damaged plinths, or any civil works. These costs do not include the transport of materials and people to site, any accommodation and meals.

Figure 3 shows that the vast majority of EF-funded repairs in 1H 2024 fell into categories A-C.

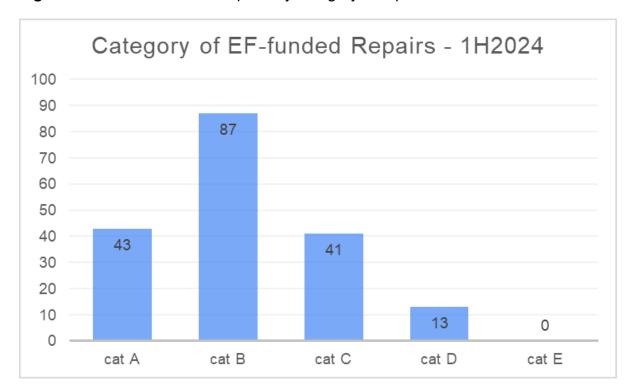


Figure 3: Shows EF-funded repairs by category of repair.

As noted above, a total of 184 pumps were repaired in the first half of 2024 as a result of EF funding. These repairs have resulted in the provision of clean water to 74,000 people. Therefore, the average number of beneficiaries per pump repair was 402 (Appendix 1).

The average cost per beneficiary during the first half of 2024 was 40p. This is slightly lower than average cost of 45p in 2023 (Appendix 1).

By the end of June 2024, there remained £314 in GBP and 1,711,201 KES (approximately £10,000), which is carried forward into the second half of 2024. The carry forward is mainly due to 1,308,096 KES brought forward from 2023 (with Eagle Foundation approval). In the second half of 2024, a larger budget will be distributed to each Osiligi engineer on a monthly basis, which will enable the repair of an even higher number of hand-pumps per month than during the first half of 2024. Appendix 3 shows how the funding was spent across different categories as compared to the estimated breakdown in the grant application.

#### 5. Data collection and verification

Data is collected on every pump repaired, and this includes the following information: the date of repair, category of pump repair, the type of repair, type of pump, population served, the number of homes, the county, the village and pump name, exact location (latitude and longitude), whether the borehole is registered and community certificated, photographs, what is the alternative source (cost and distance), the depth and water column, and training. Importantly two caretakers are identified for each pump repair, and their names and phone numbers are also recorded, which allows the pump repair to be verified and followed up (see below).

All this information is submitted by each Osiligi engineer on each of their repairs and is automatically collated onto a spreadsheet. Appendix 2 shows the data collected from a typical month.

At the end of every month, one member of our team has the responsibility to call a caretaker for each pump repaired in the preceding month. This is to verify that the pump is still working. In addition, it is the responsibility of each Kenyan engineer to post photos, with GPS coordinates, onto the Osiligi WhatsApp group. These is also verified by the above team member.

In March 2023, Eric McKinnon (UK-based), who manages the Kenyan repair team, was able to spend 2.5 months in Kenya auditing a representative set of pump repairs undertaken by the Osiligi charity in 2022. All pump audited were all found to be in good working order. The next audit will likely take place in 2025.

# Appendix 1: EF-funded pump repairs 1H 2024

				By month		Cumulative for 2024			
Date	Donations (KES)	Money Used (KES)	Pumps	No. of Users	Cost per user (KES)	Pumps	Users helped	Average cost per	
January 2024	, ,	` ′							
Eagle Foundation (£5,041.02 GBP)	950,000								
Brought forward (from 2023)	1,308,096								
Pump repairs		770,740	34	12395	69	34	12395	69	
Education budget		80,000							
Bank charges		3,000							
Sub-total	2,258,096	853,740							
C/F		1,404,356							
February 2024									
Eagle Foundation (£5,164.83 GBP)	940,000								
Brought forward	1,404,356								
Pump repairs		664,005	33	12792	58	67	25187	64	
Education budget		80,000							
Bank charges		3,000							
Sub-total	2,344,356	747,005							
C/F		1,597,351							
March 2024									
Eagle Foundation (£4676.73 GBP)	810,000								
Brought forward	1,597,351								
Pump repairs		627,150	27	11601	61	94	36788	63	
Education budget		80,000							
Bank charges		3,000							
Sub-total	2,407,351	710,150							
C/F	2,407,007	1,697,201							
April 2024		1,007,201							
Eagle Foundation (£5,061.82 GBP)	803,000								
Brought forward	1,697,201								
Pump repairs	1,037,201	655,000	24	11055	67	118	47843	64	
Education budget		80,000	24	11000	07	110	4/043	04	
•		,							
Bank charges	0.500.004	3,000							
Sub-total	2,500,201	738,000							
C/F		1,762,201							
May 2024									
Eagle Foundation (£4861.33 GBP)	772,000								
Brought forward	1,762,201								
Pump repairs		630,000	28	12387	58	146	60230	62	
Education budget		80,000							
Bank charges		3,000							
Sub-total	2,534,201	713,000							
C/F		1,821,201							
June 2024									
Eagle Foundation (£4879.90 GBP)	793,000								
Brought forward	1,821,201								
Pump repairs		820,000	38	13810	65	184	74040	63	
Education budget		80,000							
Bank charges		3,000							
Sub-total	2,614,201	903,000							
C/F	2,014,201	1,711,201							
Grand total (Jan-June 2024)	6,376,096	4,664,895	184	74040	63	184	74040	63	
C/F + £314.37			104	14040	03	104	14040	03	
U/F + £314.3/		1,711,201							

## Appendix 2: Pump repair record keeping

(January 2024 as a representative month)

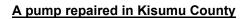
imestamp	Name	UK Pump repair Date (Categories (A - E):				Village name:	Pump Name:	Pump Type:			ol Water Column Depth	(Alternative source	Distance of water (k	m: Cost of water (Ksh)?		Longitutde:
1/23/2024 17:19		11/01/2024 C	210	Change of plungerNew Siaya	a	Upanda	Upanda	Afridev	Yes	30m	12m					0.11 34.1
1/23/2024 17:30		11/01/2024 B	321	U sealPlastic bushes Siaya	a	Dadra	Dadra	Afridev	Yes	27m	8m					0.111 34.2
1/23/2024 17:54	:07 PO	15/01/2024 B	620	Re installation Siaya	а	Malomba	Malomba Primary	Afridev	Yes	45m	34m	River			(	0.152 34.1
1/23/2024 18:27	:59 PO	18/01/2024 B	300	U sealPlastic bushesF Siaya	a	Sudhe	Sudhe primary school	Afridev	Yes	25m	5m					0.14 34.1
1/23/2024 18:38	:08 PO	19/01/2024 B	430	Replaced 5 rodsU sea Siaya	a	Boro	Boro Dispensary	Afridev	Yes	3	10 2	3			(	0.088 34.2
1/23/2024 18:44	:58 PO	10/01/2024 C	234	13 Cylinder replacement   Siaya	a	Rapenj A	Rapenj A	Afridev	Yes	23m	4m				(	0.119 34.1
1/24/2024 11:24	:42 LO	18/01/2024 C	400	25 Footvalve, U-seal , Plas Migo	ri Kuria East	Masangora village	Kerobert community hand pur	nr Afridev	No	50ft	30ft	Spring	2km	None	-1.28	8833 34.5672
1/24/2024 11:40	1:08 LO	18/01/2024 D	600	30 Complete Cylinder pla: Migo	ri Kuria East, Nya	basi w Senta village, senta	ac Senta Academy and commun	ts Afridev	None	150ft	100ft	Water harvesting			-1.30	34.6176
1/24/2024 11:49	:06 LO	18/01/2024 B	430 None	Footvalve, plunger, 4 s Migo	ri Kuria East Nya	basi w Remanyanki village	Remanyanki primary school	Afridev	None	35ft	20ft	Bottled Water (or oth	ner purchased water)	20/201	-1.32	5413 34.6352
1/24/2024 11:54	:21 LO	18/01/2024 B	500	35 Foot valve ,useal Migo	ri Kuria East Nya	basi w Kebaroti village	Kebaroti community hand pur	ng Afridev	None	40ft	35ft	Standing (puddle)	1km	None	-1.31	5955 34.6236
1/24/2024 12:00	1:48 LO	18/01/2024 A	600	30 U-seal ,a pair of plastic Migo	ri Kuria East sub-	county Komotobo village	Komotobo mix secondary sch	o Afridev	None	35ft	30ft	Bottled Water (or oth	ner purchased water)	5/201	-1.28	1567 34.6147
1/24/2024 21:57	':48 VO	11/01/2024 A	350	32 Hom	a Bay Ndhiwa	Kobonyo	Kobonyo Onyando	Afridev	Yes	12	10	4 Alternative Pump			5 -0. 643591	34.5237
1/24/2024 22:16	:33 VO	16/01/2024 A	300	29 Hom	a Bay	Kodendii	Kodendii community water pu	m Afridev	Yes	6	9 6	3 Alternative Pump		1 2	5 -0. 608682	34.5050
1/24/2024 22:46	i:10 VO	22/01/2024 A	250	19 Hom	a Bay Ndhiwa	Kawere	Kawere C water pump	Afridev	Yes	12	10	Alternative Pump	0	.5 2.	5 -0. 657852	34.4364
1/24/2024 23:07	:26 VO	22/01/2024 A	300	29 Homa	a Bay Ndhiwa	Maskla	Maskla primary school water	ou Afridev	Yes	6	10 5	0 Alternative Pump		1 2	5 -0. 580979	34.5095
1/28/2024 12:18	:19 SK	24/01/2024 B	200	10 Seal bobbin, plastic br Maku	ueni Makindu	Soto	Sakimu well	Afridev	Shallow well	2	13	6 Alternative Pump		3	5 -2.349322°	37.85836°
1/28/2024 12:33	:49 SK	24/01/2024 B	250	15 Seal, plastic bearings, Maku	ueni Makindu	Kyaaka	Mbinda well	Afridev	Shallow well	1	5	7 Alternative Pump		3	5 -2.4062°	37.841688°
1/28/2024 12:59	:30 DN	28/01/2024 C	400	80 Rods change and bust Kitui	Nzambani	Kwa kalondu	Kwa kalondo	Afridev	Well	3	10	7 River		2 1	-1.38	1374 38.0096
1/28/2024 13:00	1:45 SK	26/01/2024 C	300	15 Additional of risin mair Maku	ueni Makindu	Uiini	Kioko well	Afridev	Shallow	2	15	7 Alternative Pump		3	5 -2.4062°	37.841688°
1/28/2024 13:07	:43 DN	28/01/2024 C	300	60 Rods and leaking riser Kitui	Kangungi	Kangungi	huo well	Afridev	Well	2	0	6 Alternative Pump		1	-1.38	1377 38.0109
1/28/2024 13:16	:52 SK	27/01/2024 A	300	16 Seal, bobbin, rod canti Maku	ueni	Kenze	Nzomo well	Afridev	Shallow well	2	10	4 Alternative Pump		3	5 -2.422809°	37.890507°
1/28/2024 13:19	:53 DN	28/01/2024 C	300	60 Change of fulcrumpin ¿Kitui	Kitui east	Katakani village	Mwangasa well	Afridev	Well	2	15	9 Alternative Pump		1	-1.16	9907 37.89899
1/28/2024 13:33	:46 DN	28/01/2024 C	200	40 Leaking rising main fix Kitui	Kitui east	Kaveta	Kaveta well	Afridev	Well	1	5	6 River		2 1	-135	3992 38.003
1/28/2024 13:40	1:48 DN	28/01/2024 C	300	60 Footvalve two bent rod Kitui	Kitui east	Mutuni	Unyaa primary school	Afridev	Well	3	11	9 Alternative Pump		2 1	-1.3	2506 37.997
1/29/2024 12:36	:46 EM	28/01/2023 A	300	25 u-seal, rods centralise Kwal	le Ukunda	Tiwi Mwachema	Mwachema dugu	Afridev	N/A	2	4 1	8 Alternative Pump			4.25	5319 39.5738
1/29/2024 12:46	:05 EM	25/01/2024 A	300	30 Leaking, o-ring,, rod c(Kwal	le Ukunda	Tiwi	Chibwaga	Afridev	N/A	2	1 1	5			-4.2	5334 39.5799
1/29/2024 12:59	:28 EM	25/01/2024 A	250	25 u-seal, bobbin, rod cer Kwal	le Ukunda	Tiwi Mwachem	Ndugu Pump -1	Afridev	N/A	2	10 1	5 Alternative Pump			-4.25	2032 39.5793
1/29/2024 13:10	:59 EM	24/01/2024 A	350	28 rod centralisers, s/s ro Kwali	le Ukunda	Tiwi	Mwachma 2	Afridev	N/A	1	8 1	Alternative Pump			4.25	2438 35.5769
1/29/2024 13:36	:41 EM	25/01/2024 B	300	30 Riser, useal and bush Kwal	le Ukunda	Ndugu	Ndugu Pump	Afridev	N/A	N/A	3	0			-4.2	5378 39.5815
1/30/2024 14:09	:04 DG	16/01/2024 B	500	100 Replaced cylinder, bea Kajia	edo Kajiado South	Entonet	Entonet pump	Afridev	N/A	2	18	3 Alternative Pump	1	.5 1	Lat -2.903889°	Long 37.429167°
1/30/2024 14:27	:18 DG	17/01/2024 B	300	60 Changed rusty rods, b Kajia	ido Kajiado south	Mauani	Mauani pump	Afridev	N/A	1	8 2	5 Alternative Pump		1 1	-2.88	8333 37.4111
1/30/2024 15:07	:02 DG	17/01/2024 B	700	140 Replaced cylinder ass Kajia	edo Kajiado south	Metumi village	Metumi pump	Afridev	N/A	2	4	2 Standing (puddle)		2	-2.17	6667 37.1102
1/30/2024 16:07	:28 DG	18/01/2024 B	400	80 Changed foot valve, us Kaija	edo Kajiado South	Makutano village	Makutano pump	Afridev	N/a	2	0	3 Alternative Pump		1 1	-2.5375°	37.526944°
1/30/2024 17:03	:14 DG	19/01/2024 B	600	120 Changed pipes, rods,   Kajia		Poka village	Poka pump	Afridey	N/a		5 1	8 Alternative Pump		2 1	-2.13	4444 37.4571

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	Mr. Mbinda 0704826742	Mrs.Mbinda 0704826742	No	Yes	Mr. Benjamin Masai						https://drive.google.coi/https://drive.google.com/open?id=1AOLI8yw/XDyeEbj9zdF0WtkWk65QBFfW0, https://drive.google.com/open?id=1mzZlmill_VwVs2GaVF_
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https://drive.google.co	Mbuvi 0710710152	Kamene 254104634696	No	Yes	Mbuvi 0710710152		None	None	None	None	https://drive.google.co.https://drive.google.com/open?id=1GE5Rjp0bnSYX3AWdj-BMvipc78wCxG9W
	Kamene 254103766917	Not available	No	No	Not available	Not available	Not started	None	None	None	https://drive.google.co.https://drive.google.com/open?id=1pyblGQC39YTfPw7srFbPuGZWALyUT4ek
https://drive.google.co	Kamene 0104634696	None	No	Yes	Kamene 0104634696	None	It is in a school	None	None	None	https://drive.google.co/https://drive.google.com/open?id=1zLiXdD5ZhtOV7GJbNP6ef6U1qPeHbbh
https://drive.google.co		Bakari		No							https://drive.google.coi.https://drive.google.com/open?id=1jjZc9sTDxTFsKOxM3KAbbseEoOvqS75n
	Mohamed Zigizi - 0783510417	Bakari	No	No							https://drive.google.coi.https://drive.google.com/open?id=13ZQsbjC8GsdmIPCGXUv2NwFeYdN4IPVL
https://drive.google.co	Mesaidi Mwanundu 0112037653	Mesaidi 2 0792155448		No							https://drive.google.co/https://drive.google.com/open?id=1M-yXIRVuCuuO5yI0FLLT8HujGid7WS7i
https://drive.google.co	Athmani Bakari - 0723950794	Bakari Ukunda		No							https://drive.google.co/https://drive.google.com/open?id=11upgOlx-MWBUUjPg5QOVFUgXr5IOmxl8
https://drive.google.co/	Mwalimu Juma - 0720092823	Bakari		No							https://drive.google.co/https://drive.google.com/open?id=1QANLI3OSrDbjarBErS3qD0WH7WO3WMzw
https://drive.google.co	Ms Wanjiru	0751740955		Yes			N	N/A	N/A	N/A	https://drive.google.co/https://drive.google.com/open?id=1fGyeuQELcH9-ligB-6iLQFrZUVPnOq3L
https://drive.google.co	Ms Grace	+254735151277	No	Yes			N				https://drive.google.co/https://drive.google.com/open?id=17MnwW/Aphtwow8fB9DuoD2IBVquIHMBdJ
https://drive.google.co	+254705889471	Mr. Mureithi		Yes	Stan Mureithi		N	N/a	Nil	Nil	https://drive.google.coi.https://drive.google.com/open?id=1cPnCPVR9JFjd7rl0ju2SEm54rlkDGKgy
https://drive.google.co	+254 706 089505	Blake Mwangi	No	Yes	Blake Mwangi	Evans	N	N/A	N/a	N/a	https://drive.google.coi.https://drive.google.com/open?id=1JkA8OAISHQG-IGZpXWnithTH-RyWx5IR
https://drive.google.co	Karen wangoi	+254 791 693541	No	Yes							https://drive.google.coi.https://drive.google.com/open?id=1EdrnvNdk_JYCTrO1ETJuKDfCTXvWakMi

Appendix 3: Variance of expenditure across categories

	Budget (%)	1H actual (%)*							
Accommodation	8	12							
Communications	2	0							
Contractors	9	28							
Food-Drink	8	3							
Materials	39	33							
Misc	2	3							
Transport + Fuel	9	12							
People transport	3	0							
Education Budget	12	10							
Administration	5	0							
Audit	3	0							
Total	100	100							
*on receipted expenses									

## Appendix 4: Photographs of typical pump repairs





A child jumping for joy after an Osiligi/EF repair



A pump repaired in Makueni County

