

Northern Rangelands Sand Dam Programme 2015 – 2019

Project Overview

In 2015 Excellent Development commenced a four-year pilot sand dam programme in the Northern Rangelands of Kenya, specifically in Lekurruki and Oldonyiro Conservancies, with Lekurruki Conservancy Trust (LCT) as our delivery partner. The purpose of this programme was to increase access to clean water for both people and wildlife, and to build the platform for an integrated water resources management model in the Northern Rangelands.

Working in a new region in Kenya, this programme represented the first time we had worked with pastoralist communities where beneficiaries were not only humans and their livestock, but also wildlife that was in the region (previously we had only worked with settled farming communities who were in need of improved water access for drinking and domestic use, as well as to support agriculture).

When we first started working here, whilst there were some examples of sand dams in the region, they were not well known, and there was some scepticism around their effectiveness. However, the success of this programme has demonstrated the hugely beneficial impact of sand dams in this region of Kenya, and the role they can play in wider water and conservation strategies.

Project Location

The Northern Rangelands of Kenya consist of 33 conservancies which cover 44,000km² and are occupied by over 400,000 people. The region also supports **20%** of Kenya's wildlife, including globally significant populations of vulnerable and endangered mammals (such as Hirola, Rothschild Giraffe and Grevy's Zebra), living outside formally protected national reserves.

This is a harsh semi-arid environment with a long history of drought, land degradation and low, erratic rainfall. The ethnic groups living in this region have a culture of nomadic and semi-nomadic pastoralism, with people and animals moving around regularly. However, the scarcity of water and pasture has caused community conflict and internal displacement, as well as made access to education and health services increasingly challenging. This is made worse by the lack of an integrated water resources management system in the area. As part of our pilot project in Lekurruki in 2014, we engaged a number of different community representatives including the Lekurruki Conservancy Trust (LCT) Board, and held needs and priority assessment meetings with community representatives, including Maasai women's groups, elders, and young warriors. The overwhelming priority of each was access to, and quality, of water.

Summary of Project Activities

- Since 2015, we have completed 14 sand dams; 12 in Lekurruki Conservancy, and two in neighbouring Oldonyiro Conservancy, bringing an improved source of clean water to over 10,400 people, as well as many other pastoralists who move through the area
- A network of five sand dams (Tassia A – E) has been built along the Tassia River in Lekurruki, having a hugely beneficial impact on the whole conservancy, and providing water to a large

array of wildlife. It is hoped that in time, they will enable the Tassia river to flow permanently once again

- A community-owned tourist lodge is now having its water needs met entirely by the Tassia sand dams. Increased water and wildlife have already boosted tourism to the lodge, in turn generating over 1 million KES (Kenyan Shillings) for the community
- One school water tank has been constructed in Lekurruki, providing the pupils and staff here with an on-site source of clean water

Improving Access to Water

During the course of this four-year programme, 12 sand dams have been built in Lekurruki Conservancy, and a further two sand dams have been built in neighbouring Oldonyiro Conservancy, where our partners in the region, LCT, passed on their knowledge and supported the construction of these sand dams.

Each of the sand dams were sited and designed with the LCT Management team and Board, with technical support from our strategic partner, the Africa Sand Dam Foundation (ASDF). During construction, an ASDF Dam Coordinator and fundi (skilled builder) were present to support the less experienced Lekurruki fundis in constructing high quality sand dams, and to build the capacity of the Lekurruki team. A team of community members were recruited for each sand dam to provide the labour, including the collection of rocks, sand, and water for construction. Often a vehicle was also hired for a few days to help with water collection, as water sources are so far away and sand dam construction requires a lot of water for mixing cement.

Once enough materials were collected and the fundis had prepared the dam sites, the cement and timber were ordered, the ASDF dam team arrived on site, and construction began. Upon completion the timber shuttering was removed, barbed wire (used to reinforce the structure) was trimmed and any holes or exposed rocks were plastered with mortar. Finally, in order for the dams to reach maximum strength and to prevent shrinking and cracking, the dams were watered for four weeks to cure the cement.

Tassia E (Lekurruki) and Mokori (Oldonyiro) sand dams under construction





Nolasuri (top left), Junction (top right) and Tassia B (bottom left) completed sand dams in Lekurruki Conservancy, and Kitagezi (bottom right) completed sand dam in Oldonyiro Conservancy

These water sources are benefitting the 10,460 people (7,200 in Lekurruki Conservancy and 3,260 in Oldonyiro Conservancy), as well as many other pastoralists who move through the area, and local wildlife and their supporting habitats.

Data from the Lekurruki Conservancy sand dams show that the distance people have to walk for water during the dry season has reduced from 6km to 2km (Figure A), and more significantly for these communities the amount of water they are able to collect in the dry season has increased by 370%, from 1.7 litres per person (12 litres per household) in 2015 to 8 litres per person (almost 50 litres per household) in 2018 (Figure B).

NB In Figure B you will note the reduction in the amount of water consumed per household in Year 2. Sand dams only become fully mature once enough sand has been deposited behind them during periods of intense rainfall. Therefore, if there have been less rains, it can take several rainy seasons before they can hold enough water to supply an entire community.

Figure A

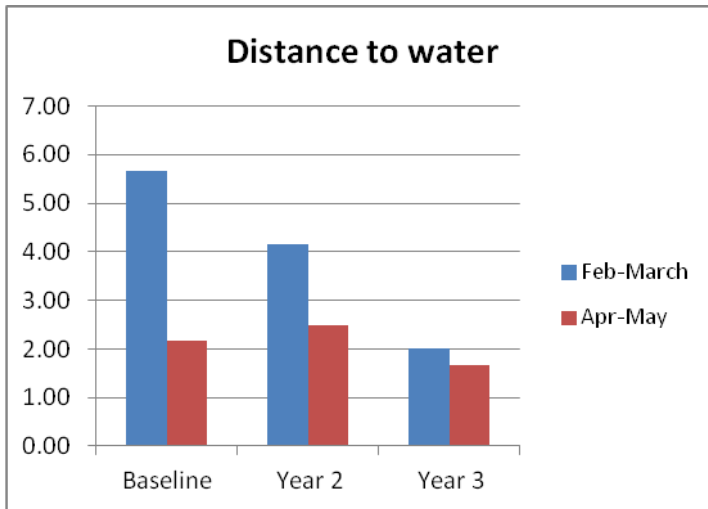
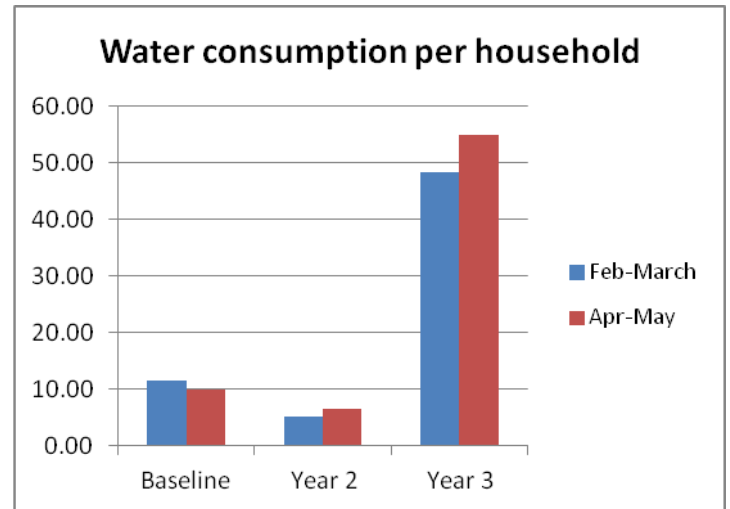


Figure B



In 2016 a rainwater harvesting tank was constructed at Sieko Primary School in Nandungoro, Lekurruki, to provide a sustainable source of clean water for the students and staff here. Instead of using a standard model, this more effective style of tank comes with its own specialised rainwater harvesting roof. By ensuring that the school has an on-site source of clean water, this means that the children here have more time and energy to focus on their education, instead of the daily chore of collecting water.



Left, the completed school water tank at Sieko Primary School, and right, students accessing water from the tank using taps

Benefits to the Environment and Wildlife

One of the greatest positive changes brought about by this project is the transformation of the environment around the sand dams. Monitoring evidence shows that vegetation cover has substantially increased in the areas surrounding the sand dams, as shown in the photo right.



In the case of the Tassia river, we have been informed that one of the scoop holes which was full of water (pictured left) was in a place where water had not been present since the river stopped flowing some years ago. There are now other new wet areas developing near to the dams, adding weight to the hope that the series of dams will result in the Tassia river flowing permanently again, transforming the area for people, livestock and wildlife.

What's more, the water from the Tassia dams is supplying the community-owned tourist lodge with water, and meeting all of its water needs. Already, wildlife numbers in the area have increased, and wildlife are remaining in the area for longer as a result of the increased water. Community members have spotted herds of elephants as well as giraffe and zebra near the sand dams in Lekurruki, at times when they are usually forced into the mountains in search of water.



Increased Community Income

With wildlife numbers now on the increase as a result of the improved water supply in Lekurruki Conservancy, this has resulted in an increased number of tourists visiting the community-owned tourist lodge, generating over 1 million KES (around £7,500) of community funds.

Investments from the community income have included providing bursaries for 22 students, including university and teacher training students. In comparison, in the year prior to this the community were unable to provide any bursaries because of the cost of ensuring the lodge had enough water.

Reduced Conflict

As well as extending the use of sand dams as an effective rainwater harvesting solution, one of the key benefits of the Oldonyiro sand dams is reduced encroachment into Lekurruki by pastoralists from Oldonyiro in search of water and pasture. It is envisaged that this will result in reduced conflict between the communities over resources, and in fact local reports note that clashes between human and wildlife have already reduced. Now there is more water for all, people and wildlife are living more peacefully alongside each other.

Future Plans

This programme, delivered in partnership with LCT, ended in June 2019. During the four years in which it ran it significantly raised the profile of sand dams within this region of Kenya, both amongst beneficiary communities, and conservancy management in Lekurruki and Oldonyiro. The successful construction of functioning sand dams in these two conservancies provides evidence that sand dams are a viable and effective solution to water shortage within two key regions in the Northern Rangelands, supporting the case for their inclusion into broader conservancy management plans. In fact, NRT, the umbrella organisation for all of the conservancies, has recognised the impact of sand dams and the role they can play in their own Water Resource Management strategies throughout the Northern Rangelands. As such, they have now taken over the responsibility for continuing this Water Resource Management approach, and have asked Excellent Development to work with them to facilitate this process.

As part of our long term plans to scale up into other conservancies, over the next two years we therefore plan to work closely with NRT to build their local capacity and transition the expertise of sand dams across the region to them, thereby ensuring local ownership and sustainability of our programmes and work. This includes supporting them to construct five sand dams over the next two years.

Thank You

By completing this pilot sand dam programme we have helped provide an improved source of clean water for thousands of people and wildlife in the Northern Rangelands of Kenya for generations to come. We are incredibly grateful to all our donors who supported this work, without which none of this work would have been possible – thank you.