



## WHAT IS AN ELEPHANT PUMP WATER PROJECT?

A Pump Aid Whitepaper

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# PUMP AID

## **Our mission**

Pump Aid exists to bring appropriate, affordable and sustainable water and sanitation solutions to rural Africa.

## **How we achieve it**

By working with national and local district health organisations and with traditional community leaders such as village chiefs, Pump Aid identifies communities most in need. Together with the local population we establish suitable project sites, dig wells and then co-ordinate the manufacture, construction and maintenance of Elephant Pumps and/or Elephant Toilets.

# ELEPHANT PUMP PROJECT TIMELINE

## 1.Site identification

Sites for pumps are identified with the local community. The suitability of a site is assessed by examining the depth of ground water, the time it takes for the groundwater to re-infiltrate and reach the well, the projected number of people that will be using the water source, the distance of the site from sanitation facilities and rubbish pits and other factors such as the use of chemicals on the land. We take GPS coordinates of the site and if there is an existing, unprotected water source we undertake pre-project testing of the water quality.

## 2.Well preparation

A new well is dug, or the existing unprotected well is renewed by deepening, cleaning and lining with bricks. This ensures that a well does not collapse and is sufficiently deep to refill with clean and safe ground water the ideal rate. This preparation can only be usually undertaken during the dry months, ensuring that even in the dry season there is sufficient water in the well for the community's use. The community contributes both labour and construction materials as well as producing bricks. The health and safety of all workers is monitored throughout the build to ensure accident free operations.

## 3.Manufacturing the metal pump parts

The entire pump is produced locally, either at a Pump Aid metal workshop, or by local welders under our supervision. Welders make the wheel, the axle and the ratchet from locally sourced steel.

## 4.Manufacturing the concrete pump parts

In order to avoid costly and risky transportation, the concrete casting normally takes place at a site close to the build location provided by the regional authority. The casting includes the manufacture of the pump housings, lids and rope guides. The housing protects the well and pump mechanism from exposure and damage. It may be painted by users to carry messages about good nutrition and hygiene practices.

## 5.Pump building

A small team of three builders take around one day to install an Elephant Pump. With local participation, the team

first assembles the inner workings of the pump (the axle, handles, posts, pipes and rope guide etc). The outer housing, the top and the lid of the pump, are put in place and cemented together. The spillway, drainage system and soak pit are constructed at the end of the process.

## 6.Training

Pump Aid trains local artisans, builders and welders in Elephant Pump construction and well preparation. We also train individuals within the community in the operation and maintenance of the Elephant Pump. In addition, Pump Aid trains community volunteers, called Area Mechanics, to support pump maintenance. We work with staff from Ministries of Health in the countries we work in, to maximize the promotion of health and hygiene practices. We work together with these groups to provide support mechanisms for the communities to retain necessary knowledge and skills to maintain the pump after Pump Aid has left. In situations where the communities are not able to fix a problem with the pump, they are able to consult Area Mechanics or local artisans. As part of their training we also encourage the community in growing vegetables, planting orchards, and establishing tree nurseries for household nutrition and environmental protection, using any excess water from the pump.

## 7.A Water Point Committee is formed

To help embed responsibility for the pump across the entire community, a local committee is created. Amongst its many responsibilities, the Water Point Committee is charged with creating and maintaining a fund to pay for minor repairs such as replacing ropes or washers and greasing the axle.

## 8.Hygiene & sanitation

Pump Aid's training doesn't just cover the technical aspects of the Elephant Pump Water Project. We also provide training on hygiene and sanitation. Should a community require it, Pump Aid can construct an Elephant Toilet utilising a similar project programme to that of the Elephant Pump.

## 9.Monitoring

Pump Aid frequently revisits communities to monitor progress and answer questions from users. The technical

monitoring includes testing the water's quality, gathering data such as dry-month water table depth etc. We also undertake surveys in order to gather data on the impact of the pump on wider health, education, economic, gender and other community issues. The monitoring informs our organisation, promoting best practice and efficiency. The data is collated and communicated on to donors and other critical partners and supporters of our work.

## 10.Serious Repair & Refurbishment

We are always prepared to mobilise our maintenance teams in the event that a pump requires work that is beyond the capabilities of the community to remedy themselves. This could include recovering collapsed wells or having to deepen a well in response to lowering water tables. Planning is key to this process in order to conserve resources. It is critical though that repairs are carried out in a timely manner to avoid communities returning to the use of unprotected and potentially hazardous water sources.

**You can see videos showing all aspects of the Elephant Pump and Elephant Toilet building process on the Pump Aid Channel on You Tube (go to [www.youtube.com](http://www.youtube.com) and type in "Pump Aid").**

## COMMUNITY OWNERSHIP

Recently we discovered that decorating the pump housing with inscriptions or logos relating to our donors was having an unintended consequence. Villagers were interpreting the messages as a mark of ownership and were under the impression that the day-to-day management and responsibility for the pump lay with the donor, NOT the users. It is critically important that once a pump is installed and working that the community assumes responsibility for it. We therefore now limit inscription to a coded donor ID on the platform base. Our existing donors have been very understanding of this issue and we are happy to discuss alternative branding opportunities if required.

## THE FUTURE

Under the current model we build, train and move on. Whilst this has been extremely effective in getting pumps to the communities in need, we are concerned that communities are not being left with lasting infrastructure and transferrable skills to depend on. It is our intention to pilot a scheme throughout 2012 focused on building on the skills of existing local builders and artisans, district water officials and local communities in Africa with the specific goal of creating a lasting legacy and sustainable supply chains.

## COST OF AN ELEPHANT PUMP WATER PROJECT

We hope that this document illustrates why the costs for an Elephant Pump Water Project don't naturally conform to a static amount. Costs are affected by multiple factors including: country, location, soil, previous water source, depth, how many times we visit the community, number of pumps we build in a certain period etc.

Ongoing projects in Malawi have been costed at around £3,070 per installation; in Liberia this can be higher. It is tempting to think of the physical construction of an Elephant Pump as being the end of the project. To improve the lives of rural Africans through access to clean and safe water it is necessary to provide ongoing support and maintain a regular schedule of maintenance.

As of September 2011, Pump Aid had built more than 7,600 Elephant Pumps, delivering clean, safe and accessible water to over a million people in Zimbabwe, Malawi and Liberia, predominantly in areas where there were previously no protected water sources. Our Elephant Pump Water Projects save lives and change them for the better. In both Zimbabwe and Malawi around 10% of the improved rural water is supplied from Pump Aid's Elephant Pumps. With your help we can continue to help people improve their lives through access to clean and safe water.

## ELEPHANT TOILET SANITATION PROJECT

Clean water and safe sanitation go hand in hand and when implemented together provide significantly improved health results. Wherever possible, Pump Aid works in collaboration with authorities and local partner organisations to implement sanitation projects. The cost of building a demonstration toilet, which is built as part of a wider campaign to stimulate households in the community to build their own toilets is around £400. Please contact us for more information.