

Who we are

BushProof Ltd is a humanitarian business that was started by emergency aid and development professionals. The company is registered in the UK and has completed contracts in several countries, for example Sudan, Madagascar and Kenya. Previous clients include the World Bank, international humanitarian organisations such as ICCO, Tearfund and Medair but also the private sector.

BushProof participates in a number of professional networks, and is a member of the Network for Household Water Treatment and Safe Storage.

Vision

To significantly contribute towards achieving the Millennium Development Goals through innovative solutions that positively impact the health and wellbeing of people living in low-income countries.

Mission

BushProof provides the means to scale up relief and development initiatives for people living in low-income countries. Our innovative technologies and professional services have a rapid and widespread application. BushProof products are specifically designed for the tough and remote environments commonly encountered in much of the developing world. They are easy to use and maintain. They work and last. Durability, affordability and reliability are key features. Delivered rapidly, this guarantees maximum impact where it is needed most. Training and consultancies provided by BushProof maximise the effectiveness of other organisations to implement cost-efficient, high impact programmes.

BushProof believes that economic and human development is more sustainable when products are commercially viable. This happens when sufficient demand is created for products that are manufactured through the private sector, whilst remaining affordable and available to low-income households. We believe that good market opportunities *can* be developed for products that improve health and wellbeing.

In order to create local economic benefits, BushProof endeavours to locate production in low-income countries. We are committed to re-investing a percentage of profits into research and pilot programmes in order to broaden the scientific knowledge base of innovative technologies.

Contact Details

BushProof is registered in the UK, with representation in Madagascar and Kenya.

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- www.bushproof.com
- www.canzee.com
- www.biosandfilter.org

BushProof

Maximum humanitarian impact

Innovative solutions for tough conditions

The Canzee pump



Canzee Hand Pumps

The Canzee pump is of ingenious simplicity: it has no conventional piston or seals. It contains no significantly wearing parts and the pump needs no maintenance. The few parts that do eventually break down are very easily repaired. Ideal for installation on shallow wells, the pump is robustly



constructed and lifts water from at least 10 meters. The pump is now produced by BushProof in Madagascar where several hundred pumps have already been installed. Canzee pumps have been used for years in many countries including Kenya, Tanzania, Zimbabwe and Angola. The Canzee is officially recommended by the government of Madagascar.

Technical data

Max. lift:	At least 10 meters.
Mechanism:	Direct action pump.
Material:	UV-stable ABS and PVC plastic except pump handle and rod.
Lifespan:	5 years minimum guaranteed.
Average flow:	Between 20 - 35 litres per minute when pumping from depths of between 1.5 – 7 metres.
Weight:	Pump head assembly 3kg. Complete pump kit for 6 metre deep well: 9 kg.
Application:	Shallow wells, boreholes and (rain water) tanks.
Operating principle:	Vertically operated inner pipe within a fixed outer pipe, both fitted with a rubber disc non-return valve.

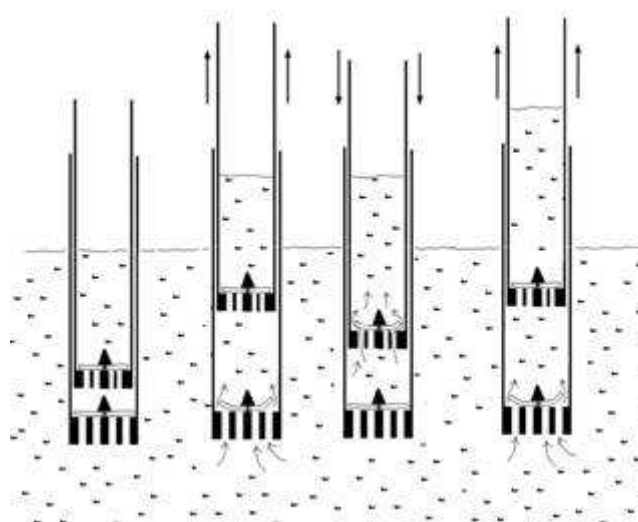
Maintenance-free

The Canzee pump needs no maintenance even when used intensively. There are no parts that need adjustment, greasing or attention in any way. After a simple training, villagers are capable to make their own spare parts and repair their pump without outside assistance.

The Canzee is unlike most other hand pumps because instead of a piston valve moving inside a cylinder, the pump

uses one plastic pipe inside another to lift water.

At the bottom of each pipe is a simple non-return valve, which allows water to enter the pipe, but not out again. As the inner pipe is lifted, the water in it is also lifted. At the same time, an area of low pressure is created in the space between the two valves, causing water to enter through the valve on the outer pipe. When the inner pipe is lowered once more, this water between the two valves is forced into the inner pipe through the second non-return valve. A small amount of the water is also displaced into the space between the two pipes during the downstroke, but the volume is minimal due to the small cross-sectional area and high frictional forces. However, it does mean that water is displaced from the pump on both up and downstrokes. This process continues until the water starts to flow from the pump head.



This simple design has eliminated the need for piston seals. Instead, the non-return valves at the bottom of each pipe depend on rubber discs which can be cut from an old tyre inner tube. Under normal use, the pump will function for years without breakdown. When that finally happens, repair is easy and can be done within minutes. The pipes themselves do not wear out. A thin film of water between the two pipes ensures they do not touch: the pump lubricates itself.

The only other part that might wear out over time is the handle guide. A new one can be simply screwed in place. If this spare part is not available, an ordinary carpenter can make a spare, from tropical hardwood or any other available material.

Proven reliability

Previous versions of the Canzee have been tested by the British Consumer Research Laboratory, which concluded that "the overall efficiency of the pump is good with a maximum value of 43% at 37 strokes per minute. This ergonomically well designed pump compares favourably with presently available direct action pumps such as Tara, Nira and Wavin. The pump appears to have enormous potential." In the field, performance has been verified in several countries. For instance, Kenyan users report 3 years of continuous use by 200 people, lifting water from 6 metres, before having to repair the rubber disc. In Uganda 2 years and 8 months passed before the first repair, with the pump lifting from 4 metres. In Madagascar village pumps have also continued to operate without breakdown for several years.

Service

The Canzee is delivered in kit form with 6 metres of pipe. If a greater depth is required, additional pipes are available. Since the pump is lightweight, it can be shipped by air. Each pump comes with a spare handle guide, plus a supply of rubber disc valves. Illustrated instructions are provided on how to install the pump (a very simple procedure), as well as the basic tools to do so (spanner, hacksaw and screwdriver). BushProof provides pump mechanic trainings and technical advice on request.



Programme implementation

BushProof can implement programmes that combine the rapid jetting of shallow wells with the installation of Canzee pumps. Jetting is suitable in alluvial soils with a shallow water table, and is usually limited to a depth of about 8 metres. Programmes implemented by BushProof in rural Madagascar have constructed hundreds of new wells, sometimes at a rate of 50 per week. All have been equipped with Canzee pumps.

Canzee pumps are also very well suited for installation on underground tanks or existing open shallow wells, after covering them with a concrete slab.

Visit www.canzee.com for more information.