

## What is a solar powered irrigation?

Solar powered irrigation systems consist of electric water pumps that are connected to solar panels. The pumped water is either directed directly to the field or into a water tank from where it is released at a later point in time. Most water pumps utilized for irrigation purposes worldwide are powered by engines run on fossil fuels or on electricity supplied from the grid. As prices for solar panels have reduced, solar pumps for irrigation have become an economical, technical and environmentally-viable alternative.

## What are the main features?

Solar water pumps are available in different sizes. Depending on the depth of the borehole, the water requirement and the solar radiation, a suitable system can be designed. Compared to conventional pumps, the solar alternatives come with higher initial investment costs but have no operational costs. The pumps installed by WE4F come from a Kenyan manufacturer. They can pump up to 1500 litres per hour from an 18 m deep well, using 600 W<sub>p</sub> of PV. This amount is sufficient to irrigate up to 2 acres of land. During the hours of sunshine, the water is pumped into a water tank. From there it is distributed to the field when needed. The solar water pumps are ideally used for drip irrigation.

## What are common uses?

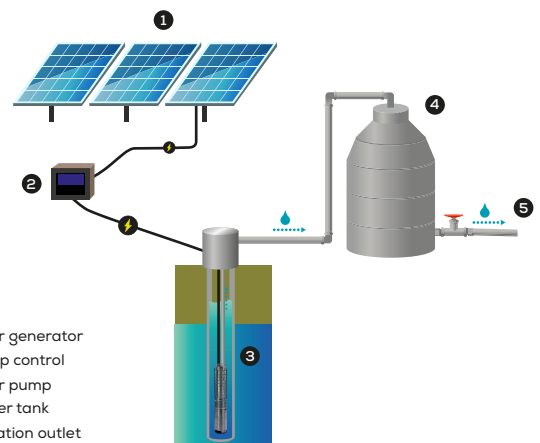
Solar powered water pumps are used for the irrigation of crops. Under irrigation crops can get the ideal amount of water and yields can be increased significantly, leading to a higher income for the farmers. The effects of climate change, especially droughts and unpredictable rainfalls can be mitigated by the use of solar powered water pumps.

## Market Development

The market potential for solar powered water pumps in East Africa is high. Different manufacturers are based in the region, also pumps from international brands are available on the market. To tackle the initial investment cost, some of the companies are offering finance mechanisms, that make the product accessible for farmers, such as pay-as-you-grow or payment plans.

## Project overview

**Partner:** Energy for Impact (E4I)  
**Type:** Grant Agreement  
**Focus:** Improve the livelihoods and resilience of farmers through access to small-scale solar irrigation systems  
**Duration:** 11.2020-01.2022  
**Country:** Tanzania



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