



SUSTAINABLE  
**WATER &  
ENERGY**  
SOLUTIONS  
NETWORK

## Electricity and Clean Water from Integrated, Self-Contained Utility Systems in Tanzania



### Sustainable Development Goals Addressed



<b>Name of Water and/or Energy Project, Institution or Company</b>
OffGridBox Inc and UNDP
<b>Location of project site, Country</b>
Tanzania in three districts of Bunda, Ikungi and Busega
<b>Brief narrative description of objective/project/activity/initiative</b>
<p>Twelve integrated, self-contained, modular systems have been installed in Tanzania to enable access to clean water and electricity in 10 villages in three districts around Lake Victoria. They serve about 24,000 people who previously had no electricity and had to walk around five kilometres every day to get water. They are also being used by health centres and schools. In rural Tanzania 16 percent of people have no electricity and more than 70 percent of the country's 57 million people do not have clean and safe water. The systems, installed with support from UNDP, are manufactured by OffGridBox Inc a company with offices in the USA and Rwanda, and manufacturing in Italy.</p> <p>The all-in-one utility system, which is called OffGridBox (OGB), integrates photovoltaic energy generation, rainwater harvesting, water pumping for family agriculture, and water purification through micro-filtration and UV sterilization for domestic use. A timer for irrigation can be added as well as additional water tanks. The capacity of the OGB is between 3kWp and 8 kWp, and this power can be stored safely in batteries or can be used to power productive use activities, or lighting and phone charging for households. The system includes remote monitoring through 3G or 4G and this signal is also used to provide WiFi to the community. The water-electricity-connectivity system and all its hardware are inside a 6ftx6ftx6ft steel container.</p>
<b>Economic, environmental and climate benefits, challenges and lessons learned</b>
<p>The decentralized systems are particularly valuable for isolated communities where there is no access to water and energy including refugee camps. The modular systems represent a promising solution for scaling access to clean water and renewable energy to the billion people in need across the globe.</p> <p>The systems are carbon neutral since they harvest solar energy and rain water, emit no carbon dioxide into the atmosphere, and even replace polluting practices like diesel generators, kerosene lamps and disposable batteries. The project also helps to address the impact of climate change, which has had a pronounced impact in the Lake Victoria region. The negative effects of climate change disproportionately fall on marginalized and rural communities located in this region.</p>

Women, who carry a disproportionate responsibility for household fuel and water collection as well as food preparation, are benefitting in particular. In addition, each box is operated by two women from the community, who receive training in technical maintenance and bookkeeping. It is expected that the project will also stimulate a wide range of economic activity. Tanzania's Ministry of Health has also indicated interest in deploying these systems to health centres throughout the country that lack access to reliable sources of clean, safe water and electricity.

These practical, relatively small and easy to install systems could also be very valuable for areas impacted by natural disasters or world crisis such as pandemics. Natural disasters can happen anytime and anywhere, impacting entire countries, cities and families. Electricity, water, and connectivity are critical services that usually become unavailable when a disaster strikes. These systems could provide power and water to clinics, schools or emergency centres when these services are disrupted. They could represent all-encompassing relief hubs providing communication (WiFi / cellular phones), electricity from renewable energy and clean purified water. The systems are designed, in general, to withstand a cyclone with emergency procedures to be implemented in less than one hour. Additionally, they can be easily transported by truck, boat or helicopter and could be installed in about three hours.

**Additional information: website addresses and contacts**

Website of OffGridBox <https://www.offgridbox.com>

Website UNDP article: <https://www.undp.org/content/undp/en/home/blog/2020/in-tanzania--electricity-and-clean-water-comes-from-a-box.html>



*Photos by OffGridBox Inc and UNDP*