

## **Term of References (TOR) for upgrading of water yard to solar system**

### **Introduction:**

“Relief International is an international non-profit organization that partners with communities impacted by conflict, climate change and disaster to save lives, build greater resilience and promote long-term health and wellbeing. We work in 15 countries across Africa, Asia, and the Middle East, providing Health and Nutrition, WASH (Water, Sanitation, and Hygiene), Education and Livelihoods programming that creates the foundation for community resilience.”

WASH interventions aim to meet basic needs and improve safe access to water of sufficient quality and quantity; sanitation; hygiene practices; and WASH in hospitals, health and nutrition centers, schools and other institutions.

The WASH sector works closely with public health and nutrition to address potential causes of waterborne disease and malnutrition, and reduce the (public) health risks associated with poor water, and poor sanitation and hygiene services and practices.

### **Overview of the Situation and Needs:**

The purpose of this intervention is to improve access to safe water, sanitation facilities and promote better hygiene practices for an estimated population of 14,600 people in Alkarory and Albanjadeed communities with high rates of ongoing return in Damazin and Giessan Localities of Blue Nile State .

Under this activity, RI, undertakes the upgrading of the 2 existing water yards to solar system as the needs are increasing; that will help on reducing the cost of fuel and avoid the breakdown of the diesel pump and ensure that water is available in the water yard throughout the year as the water needs are increasing. Alkarory and Albanjadeed water yard experienced sever water shortages due to breakdowns in the diesel pump needs. The solar pump will supply the water yard with a safe yield of 3.5 l/s.; thus will contribute to decreasing the incidence of diarrheal diseases and associated morbidity, and is hoped to contribute to a reduction in the under-five mortality rate through provision of sufficient quantity and quality of water for drinking, cooking and personal and domestic hygiene.

### **Scope of work:**

This work entails supply/delivery, installation and commissioning of a complete unit solar panel with all its accessory (14 solar sells 10 x 550 Wat plus converter) in Alkarory and Albanjadeed water yards.

The scope of works shall include:

- To characterize and quantify energy loads/requirements for the solar panel.
- To identify, design an appropriate Solar Panels technology which meets energy requirement to motorized Water Schemes. Given the motorized water schemes are Diesel powered, the proposed study/assessment should explore the most appropriate solar panels with cost effective option for the supply to meet the power demands of the motorized water schemes, Design, Supply and Install the right capacity of solar panels to run the Motorized scheme with best efficiency and technology
- To supply and install the appropriate design Capacity of the Solar Panels

identified and fits with demand of the energy of the Motorized scheme.

- To test and commission the installed solar technology of motorized Water Scheme.
- Transport of equipment and structural parts to the sites.
- Erection of the solar panel support structure for solar panels and positioning of the solar modules on the structure with vandal proofing. Solar panels will be mounted at a height of at least 3 meters above ground level, facing North.
- Installation of the control unit, change-over switch, cable connections between pump, controller and the solar modules.
- Full testing and commissioning of completed installation with water delivered to the elevated water tank.
- Training of pump attendants on the operation and maintenance of the solar System - 2 day of training at site by an approved trainer
- The system should be of high quality and designed for use in remote locations. The bidder should outline the key design elements that make the solution suitable for the environment it will be installed in.

**Site selection:**

The site selected in consultation with WES and according to the information about the water yard with regard to the very good yield, number of beneficiaries served by these water yards and the water shortages they experienced due to break downs of the current diesel pump. Upgrading of Alkarory and Albanjadeed water yards to solar system will improved reliability of power generation of water supply installations in these water yards.