

# COUNTRY INVESTMENT FACILITY SUBMISSION FORM

Submitted by: Tanzania

Bringing Clean Energy and Water to Off-grid Tanzania Rural Communities

Theme: "Light up the Rural Tanzania"

## PURPOSE AND OBJECTIVE



The submitting CO should outline the purpose and proposed objective(s). First, a clear explanation on how the objective meets the corporate criteria (A and/or B). Second, a clear rationale in support of the regional priority. Third, a total requested amount for 2018-19.

### Purpose:

The main purpose of the project is to bring clean energy and safe water to off-grid marginalized communities by introducing technological solution in selected, to be identified, localities in the Singida region and selected islands in Lake Victoria. The localities to be selected do not currently feature in the national plan for electrification. The technology is called '**The Off-Grid Box**' (please see: <https://www.offgridbox.com/>) which is a 6x6x6 feet shipping container, equipped with all the hardware needed to produce electricity and clean water. The Off-Grid Box has a warranty of 10 years. The application of this technology will help the communities to access clean energy and safe water for the first time in the aforementioned, areas. This will be a pilot which could be replicated later in other localities facing similar challenges.

A unit of the Off-Grid Box Technology can provide for up to 300 households which may have approximately 1500 people. This makes the project a community transformation initiative, with a long-term impact on the affected communities' livelihood. The Off-Grid Box technology is completely renewable and will be 36% more cost effective than diesel when used to generate electricity in off-grid areas. The electricity produced by one Off-Grid Box unit per year can eliminate the burning of 1.4 tons of diesel fuel (fossil fuel). The advantages of such Off Grid Boxes can also be found in the following article: <https://www.fastcompany.com/40449777/this-simple-box-serves-up-running-water-and-clean-electricity-in-remote-locations>

The project will also involve the drilling of boreholes to tap underground water, which is additional to harvested rainwater in the relevant communities and will ensure the availability of clean and safe water throughout the year.

The project has the potential to attract private sector investment because the technology allows use of mobile payment methods whereby consumers pay for the services provided by using mobile phones. . This payment modality will be promoted by the project to make the initiative commercially viable and sustainable. The project will also promote the productive use of energy in agricultural, commercial and mini-industrial activities in rural areas that require electricity services as a direct input to the production of goods or provision of services. This has the potential to create new jobs, increase employment and food security. These changes will in turn reduce rural-urban migration, promote the growth and sustainability of businesses in rural settings.

The productive use of clean energy and safe water will give rise to development of use of affordable and simple and environmental friendly technologies in agriculture production and agricultural related activities, such as drip-irrigation, simple chicks hatcheries and others.

### **Rationale**

According to Energy Access Situation Report 2016, only 16% of the population in rural areas in Tanzania have access to electricity. Electricity supply is not reliable. Electricity generation is heavily dependent on hydropower-42%, natural gas – 45% and liquid fuel 13%. Power cuts are frequent and unpredictable due aged transmission lines. With the exception of the hydro-electric, the other two sources of power generation are both expensive and unfriendly to the environment. Thus, renewable energy sources provide a viable and sustainable option which is yet to be fully exploited in Tanzania. Tanzania's sunshine hours per year range between 2080 and 3500 with global horizontal radiation of 4-7 kwh per square per day. Tapping into this renewable source of energy will give rural populations numerous possibilities including increasing agricultural productivity, income generation and climate resilience. Women, who shoulder a disproportionate responsibility for household fuel and water collection, food preparation, is the population group most affected by inadequate access to clean energy and safe water supply. Typically, women and children spend over two hours a day collecting water, and up to seven hours in remote rural areas. So, the proposed project will address some key challenges on accessibility to clean energy and safe water in targeted rural areas.

The impact of the project will be life long as it will incorporate sustainability approaches in its solutions of enabling communities to, for the first-time, access reliable clean energy, safe and clean water as well as sanitation.

National priorities are identified in Tanzania's National Five-Year Development Plan (FYDP) 2016/17 – 2020/21 where climate change is well recognized as a threat to achieving desired targets, hence the call for climate action is bold and promoted. The FYDP strategic interventions for industrialization and human development states its target to reach 50% energy from renewables of the energy mix as well as reduction of 60% in charcoal consumption in the urban areas by 2020. In the nationally determined contribution to the implementation of the Paris Agreement the Agriculture, Water and Energy Sectors are on the list of the most affected sectors, and Tanzania is determined to tackle these challenges, hence the relevance of this project.

The proposed project is therefore in line with the Tanzanian National Energy Policy of 2015, the National Strategy for Youth Involvement in Agriculture of 2016-2021, Water Policy of 2002, New Draft Environmental Policy of 2017, the Agriculture Climate Resilience Plan of 2014-2019 and many others. The project will engage all relevant stakeholders throughout the project design, implementation, monitoring and evaluation phases. It is out of this involvement and participation that ownership from national to community level will be achieved and sustained.

- **Plan for the business concept beyond Partners financing:**

The plan is to continue to develop the Off-grid box and to replicate it to other regions in Tanzania after the completion of the pilot project. The success of this pilot project is therefore critical for mobilizing future resources.

### **Alignment with facility objectives:**


This project aligns with the facility objectives, particularly with regards to innovation and energy. It is indeed an innovative approach in addressing developmental challenges while at the same time contributing to achievement of the SDGs on clean & affordable energy and clean water thus, positively and directly changing peoples' lives in rural areas.

### Alignment with regional priorities

This project aligns with regional priorities particularly with the vision of African countries namely “Agenda 2063 - The Africa we want” and the Sustainable Development Goals relevant to mitigation of climate change effects and energy for all i.e. Sustainable Energy for All initiative. It is also in line with countries and regional institutions initiatives to develop and or replicate and even upscale low-carbon development pathways. Moreover, Off-Grid Boxes have already been piloted in the region, particularly in Rwanda and South Africa, as described in the website referred to on page 1.

- **Total amount requested: USD 500,000**

## EXPECTED RESULTS

	<p>The submitting CO should list the expected benefits and indicators for success.</p>
---	--

### Financial Benefits

- **Financial savings accrued to house-holds due affordable sources of energy and safe water**

As it is now, most families in the marginalized rural areas buy kerosene for lighting and incur big cost to pay for treatment of diseases cause by use of unclean and unsafe water.

- **Stimulation of rural businesses**

Through the solar-powered use of off-grid boxes, communities will be empowered to engage in diversified range of businesses apart from agriculture and therefore generate more income. These opportunities may be related to starting new businesses on electronic devices and accessories, hair cutting salons, mobile charging, local cinema business, poultry farming, and crop processing and storage among others.

### Technical Benefits

- The Off- Grid Box model approach is technically viable, cost effective and replicable. As per evidence provided <https://www.fastcompany.com/40449777/this-simple-box-serves-up-running-water-and-clean-electricity-in-remote-locations>
- Direct gas emissions reductions, sustainable energy provided.

### Political/Policy Benefits

- Supports National priorities in Tanzania’s National Five-Year Development Plan 2016/17 – 2020 - Industrialization agenda

### Other Benefits - Social

#### Increasing gender equality.

The project will prioritize women and youth in all services that it directly provides or supports, such as collecting water user fees, security and trainings.

## Indicators for Success

**i** The submitting CO should identify specific indicators for each result area, being as specific as possible. Each indicator should include a baseline (if available), target, source of data, and timeline.

- **Indicator #1:** Number of beneficiaries reached, i.e. persons directly impacted by the project
  - Indicator baseline: Zero
  - Indicator target: 600 households
  - Source of data: Studies and surveys
  - Timeline for target: 1 year
- **Indicator #2:** Number of new decent jobs created
  - Indicator baseline: Zero
  - Indicator target: 1500 (as per number of beneficiaries targeted).
  - Source of data: Project report
  - Timeline for target: 1 year
- **Indicator #3:** Number of people with improved livelihoods/income-generating possibilities
  - Indicator baseline: Zero
  - Indicator target: 3000
  - Source of data: project report
  - Timeline for target: 1 year

## IMPLEMENTATION


### Key Activities, Costs, and Timeline

**i** The submitting CO should identify the implementation plan during 2018-19. The plan should include activities, costings, timeline – activities, estimated costs (total limit is \$500k), and timeline.

Activity	Description	Cost	Timeline
<b>Phase 1: Feasibility Study</b>	- Conduct a detailed feasibility study	<b>USD 50,000</b>	July- August 2018
<b>Phase 2: Project identification and establishment of partnership arrangement</b>	- Identify and visit the project identified areas - Meeting with Stakeholders - Stimulate demand for the project's output in the local community; - Identify individuals, local enterprises and communities that will participate in the project; - Define the interaction platform/s that will support the project. - Procurement and assignment of contract for construction	<b>USD 100,000</b>	Sept – Oct, 2018
<b>Phase 3: Off Grid Boxes Installations</b>	- Importation of Off Grid Boxes and Associated equipment's - Installation of Off Grid Boxes - Connectivity of electricity to House holds	<b>USD 300,000</b>	Oct 2018 – Jan 19


<p><b>Phase 4: Operation of the project and monitoring</b></p>	<ul style="list-style-type: none"> <li>- The Off-Grid Box is commissioned and operated, with appropriate training for users</li> <li>- Project monitoring and oversight</li> <li>- Establishment and operation steering committee or project management board</li> <li>- Consolidate the project's operations to maximize its impact and commercial viability</li> <li>- Conduct technical viability and confirm its commercial potential within a restricted geographical location</li> <li>- Capacity building – Conduct trainings to the Users and support team(technicians)</li> </ul>	<p><b>USD 50,000</b></p>	<p>Feb - 2019 -</p>
--	--	--------------------------	---------------------

## Key Partners

	<p>The submitting CO should identify the key government partners and/or other development partners, along with a description on the role of the partner in the activities and if/how they will contribute to the project.</p>
---	---


- **Ministry of Energy** – Provide policy guidance and project endorsement.
- **Rural Electrification Agency:** Provide technical guidance and endorsement of the project
- **Private Sector Actors** - Provide technology and innovation.

## Risks

	<p>The submitting CO should identify the risks associated with the project. This could include the risks associated with key partners, factors that may contribute to achievement of results, availability of data, and any other relevant factors.</p>
	<ul style="list-style-type: none"> <li>- <b>The project will not be accepted and supported by all stakeholders</b>  <b>Risk rating:</b> low  <b>Mitigation:</b> All key stakeholders will be informed and educated about the project. This will be done continuously including through validation workshops/meetings.</li> <li>- <b>Factors external to the project such as economic, social, political and technological situation will not remain supportive to the project</b>  <b>Risk rating:</b> low  <b>Mitigation:</b> External factors will be closely monitored to avoid surprises</li> <li>- A change of Government's plan to electrify the proposed project area. Even though intended villages to be served by the project are not in the national plans for electrification soon, the situation may change abruptly.   Our assessment is that the likelihood of this situation is very low, particularly when there is no clear information about rural electrification plans.   Rural Electrification Agency will provide detailed information for an alternative project site in same regions or in nearby regions which will not increase the project's expenditure.</li> <li>- <b>Maintainance Sustainability for the technology (off Grid Box)</b>   <b>Mitigation:</b> Training will be provided to technicians and users, also Off Grid Boxes enjoys 10 years warrant from manufacturer.</li> </ul>

<b>CO FOCAL POINT(S):</b>	Emmanuel Nnko Ernest Salla
<b>EMAIL:</b>	<a href="mailto:emmanuel.nnko@undp.org">emmanuel.nnko@undp.org</a> <a href="mailto:ernest.salla@undp.org">ernest.salla@undp.org</a>
<b>DATE SUBMITTED TO REG. BUREAU:</b>	14 <sup>th</sup> April, 2018

## REGIONAL BUREAU EVALUATION

	The relevant Regional Bureau leadership should provide their comments and recommendation to the Administrator for consideration.
---	--

### Alignment with Corporate Objectives

Comments on alignment to overall facility objectives

### Alignment with Regional Priorities

Comments related to priorities provided to COs

### Assessment on CO Likelihood of Achieving Results

Assessment of CO capacity, previous similar initiatives success/challenges

### Recommendation

Overall recommendation including any proposed financial changes e.g. adjustment to proposed allocation



*Empowered lives.  
Resilient nations.*

<b>REG BUREAU FOCAL POINT(S):</b>	
<b>EMAIL:</b>	
<b>DATE SUBMITTED TO EXECUTIVE OFFICE:</b>	