

# TITLE

**PROJECT: Solar Energy initiative for the disadvantaged in Eastern Uganda.**

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## **List of Abbreviations**

NEMA: [National Environment Management Authority]

UDHS: [Uganda Demographic and Health Survey]

NFA: [National Forestry Authority]

PEAP: [Poverty Eradication Action Plan]

MEND: [Ministry of Energy and Mineral Development]

## 1.1 INTRODUCTION

Solar Energy initiative for the disadvantaged in Eastern Uganda is a project which has been designed by the **Disabled Technicians Uganda Ltd**, to address the problem of Energy faced by the disadvantaged communities in Eastern Uganda.

**Disabled Technicians Uganda Ltd** is a registered entity that was started in 1990 by members with disabilities in Uganda. With a sole aim of improving the quality of life for disadvantaged Ugandans through provision of skills, knowledge and information.

For the last 18 years the organization has been involved in a number of activities that directly benefit the disadvantaged poor; these include;

1. Training communities about Land use conservation.
2. Provision of skills in how to effectively improve crop production.
3. Provision of Solar equipments to the communities.
4. Environmental Education.

This initiative aims at giving skills and knowledge to the displaced people in Eastern Uganda on Solar Energy and how the Energy can be tapped and used in order to improve their quality of life at a minimum price.

## 1.2 BACKGROUND

Uganda is a country located in Eastern region of Africa with a population estimated of 30 million (UDHS report 2006). It has a total fertility rate of 6.9 births per woman.

Eastern Uganda has a total fertility rate of 6.2 births per woman.

Eastern Uganda, just like Northern Uganda has a high dependency ratio which is the population of persons under 15 years and over 65 years who are economically dependent on the working members aged between 15 – 65 years.

In 2004 this ratio was 110%. Given this high age – dependency ratio, persons spending on basic goods and services absorbs much of household income, leaving hardly any amount as saving.

It has been noted that there has been an increase in the inflow of people from Northern Uganda and neighboring Kenya districts. This is attributed to the growing instabilities within those two regions. This has greatly impacted on the Energy demands within the area.

According to the figures, 94% of Ugandans use lives in the rural Country side and of these, more than 90% use bio – fuels for their Energy requirements (NEMA 2004). Energy production is critical the economic transformation and modernization processes.

Over dependence on Biomass is an indicator of Energy poverty; households, intuitions and rural industries such as bakeries, tea and tobacco curing, brick making, pottery and ceramics all depend on Bio – mass Energy.

Bio- mass is inform of firewood, charcoal, cow dung and agricultural residues. Only 5% of the total population and less than 1% of the rural population has access to the national electricity grid.

Whereas, the dependence on Bio – mass by the majority of the population is likely to persist in the foreseeable future, there is no explicit policy on Bio – mass development. Instead the current policy emphasis is mainly on developing HEP which includes the rural Electrification strategy. However, the economic viability of this strategy is still subject to debate in the face of worsening rural poverty and the high marginal cost of installing Electricity network.

There is therefore a great need for a practical solution to the growing Energy deficit which is affordable to the poor land environmentally friendly. This can only be the **SOLAR ENERGY** strategy.

Solar conditions are ideal and its radiation is currently estimated at 4 – 5KWh / m<sup>2</sup> / day. Estimated solar Electricity potential 230 megawatts (Source: Draft New and Renewable Sources of Energy Policy 2005).

## **2.0. PROBLEM STATEMENT AND JUSTIFICATION**

More than 90% of the rural communities in Eastern Uganda use bio fuels for their day today cooking. With the integrate Electricity supply and increasing tariffs more people have resorted to using charcoal and firewood for cooking.

Correctly an equivalent of 26 million tones of wood is consumed annually and demand is predicted to triple to over 60 million tones by 2005 (MEMD, 2005).

Thus, whereas the population will double by 2005, the availability of wood will reduce to a third per person (NFA, 2005).

The distance traveled to collect fire wood especially by women and children increased between 2002 and 2005. In eastern Uganda districts like Tororo, Sironko, Mbale it has increased from 0.9km to 7km required 8hours to collect a head load of approximately 0.25m<sup>2</sup> This is equivalent to 2000 Uganda shillings {1dolar}. This head load lasts a family of 4 for only 3 days of 2 meals per day (poverty status report 2006). Low firewood availability results into poor quality food intake due to reduced Energy for cooking.

Women and girls are generally responsible for the provision of Energy for household use. This is mainly because according to the traditional gender roles, they are responsible for cooking and feeding their families and often for subsistence agriculture and food processing. This imposes a burden on Women's time negative affects in their economic and domestic activities as well as the quality of their lives (PEAP, 2004).

The dependence of biomass Energy especially the use of the poorly ventilated traditional kitchens exposes the Women and children to the problem of indoor air pollution. Studies have indicated that exposure to indoor air pollution is as bad as smoking.

It has been indicated that in some homes where Women cook for there hours per day, they are exposed to similar amounts carcinogens as if they had smoked two packers of cigarettes daily (Rahlaman, 2005).

Deforestation is one of the major environmental problems facing the Country today, fueled by a number of factors including the high population growth rates and the consequent demand for food and Energy. The over dependence on

biomass Energy is one of the leading causes of deforestation as evidence in Nakasongola and Sironko districts(NEMA,2002) and is not sustainable.

## **JUSTIFICATION**

Access to efficient Energy and technologies is a critical factor to gender equality and empowerment of especially the rural poor. It frees up Women's time and income which is relocated to more productive activities that build their assets base, increase income and improve family well being and their healthy generally. The training that will be given will empower the local communities with skills can will be used to better manage their environment in terms of forest conservation.

## **3.0 PROJECT METHODOLOGY IMPLEMENTATION STRATEGY**

### **3.1 PROJECT AREA**

The project area will cover an area of ten (10) districts in the Eastern Uganda; the target will be the disadvantages communities especially the Refugee camps in the area.

### **3.2 PROJECT TARGET**

The project will target homesteads in different communities where people use bio- fuel as their sources of Energy. It will also target people living in displaced camps. These will include mainly families managed by the disadvantaged rural Women, since there are the almost highly affected by the problem.

### **3.3(I) PROJECT IMPLEMENTATION**

The project will be implemented in II phase where the first phase will focus on 100(one hundred families).

There will be provision of solar cooker kits and one will be given to every four stead's. It will be used in a rotation system. Shared amongst them.

The solar kits to be provided will be on loan basis where each family will contribute a portion of their saving every after 3 months.

It is estimated that there will pay a local currency equality 7(seven) US dollars per family in 3 months. This will meet the initial cost of making a solar cooker kit.

The money collect affect 3 month will be used to repair the damaged kits or construct new ones to run the project for more coverage.

### **3.3(ii) PROJECT IMPLEMENTATION PLAN**

We expect to design 200kits for the start each kit will be given to four families and a leader out of the 4 families and by the project co-coordinator. This person will ensure that the kit is effectively utilized by all the families equally.

There will also be training of one person who in turn will train other members on how to to use the solar kit.

### **MONITORING OF THE PROJECT**

The project will be monitored by the project coordinator who will be employees of the organization. There will be supervised by the organization director.

The project coordinators are expected to train the users of kits and also monitor them for a period of one month. Then after the trained personal will be left to monitor their fellow members.

### **3.4 EVALUATION**

Evaluation will be done by the directors of the organization to find out whether the project has achieved its goals.

The organization will measure the achievements of the objectives vendible indictors (OVI). There will include;

1. The number of families who will have got solar cooking kits(coverage)
2. How many people will be in position to make their own kits and use them?

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**PICTURES**

**DISABLED TECHNICIANS ASSEMBLE A PARABOLIC SOLAR FROM  
JAPAN**



**PHOTOS SHOWING SOME OF THE FINISHED SOLAR ENERGY COOKERS.**

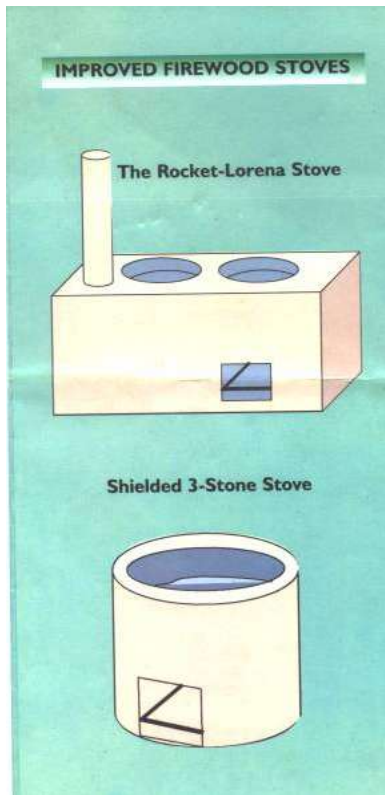




**LOGISTICS OFFICER MR. OBOYO MARC ANTHONY AND OFFICERS FROM ITALY UNDER 'COMBONI SAMARITANS OF GULU' ORGANISATION**



**USE AN IMPROVED STOVE TO SAVE ENERGY AND THE ENVIRONMENT**



**THE PICTURE SHOWS THE CURRENT ENERGY PROBLEM IN RURAL EASTERN UGANDA.**



**SHOWS A WOMAN USING FIREWOOD TO COOK IN RURAL UGANDA.**



# FINISHED PRODUCT OF PARABOLIC SOLAR COOKER

	<b>K 9</b>	<b>K 10</b>	<b>K 14</b>	<b>A 12</b>
	Ø 90 cm	Ø 100 cm	Ø 140 cm	Ø 125 cm
	8 kg	9 kg	19 kg	22 kg
	3 litre	3/4 litre	10/12 litre	8 litre
	15 litre	24 litre	48 litre	38 litre
				

Boils max  
→ litre/day



**PROJECT: SOLAR ENERGY INITIATIVE FOR THE DISADVANTAGED IN EASTERN UGANDA**

**OPERATIONAL BUDGET**

<b>ACTIVITIES</b>	<b>REQUIREMENTS</b>	<b>AMOUNT IN US DOLLARS</b>
1. Train groups on environmental conservation	<ul style="list-style-type: none"> <li>• Training materials</li> <li>• Transport</li> <li>• Trainers allowance</li> </ul>	937.5
2. Mobilize and sensitize communities on sustainable management and use of environment	<ul style="list-style-type: none"> <li>• Training materials</li> <li>• Transport</li> </ul>	1187.5
3. Conduct Consultative planning meeting at the beginning of the project	<ul style="list-style-type: none"> <li>• Venues</li> <li>• Training methods</li> <li>• Consultative allowances</li> <li>• Transport</li> </ul>	437.5
4. Train groups and households on energy conservation and construction of energy saving cooking stoves.	<ul style="list-style-type: none"> <li>• Training materials</li> <li>• Facilitator's allowances in energy stove cooking</li> <li>• Transport</li> </ul>	687.5
5. Monitoring and Evaluation	<ul style="list-style-type: none"> <li>• Purchase Bicycle</li> <li>• Allowances for Director and coordinator ( 20 working days x 2 people @ 3 US \$)</li> </ul>	156.25
<b>TOTAL</b>		<b>3406.25</b>

**Duration = 3 months**