

Solar cooker for refugee camp Nyarugusu – Western-Tanzania

In June Klaus Strasser contacted us from Tanzania. Klaus, a former pupil of our school, worked for EG-Solar in 2009 as a "Weltwärts volunteer" in our partner workshop in Döbra / Namibia.



Klaus Strasser in Namibia 2009

He is now an Associate Renewable Energy Officer for UNHCR Kasulu, Tanzania. His job is to switch the electrification in the refugee camp stations in western Tanzania from diesel generators to renewable energies.

The Nyarugusu refugee camp was opened in November 1996 to accommodate people fleeing conflicts in the Democratic Republic of the Congo. Before April 2015, the camp housed around 65,000 Congolese. In 2015, many refugees from Burundi came to Tanzania after political unrest, and two further refugee camps were opened in Tanzania, Nduta and Mtendeli. 235,700 people currently live in the Tanzanian refugee camps. The largest refugee camp is Nyarugusu with around 150,000 residents. 80% of the residents are women and children.



<https://www.dw.com/de/hunger-and-desperation-in-ostafrika-refugee-camps>

Camp	District	Population	Households
Nyarugusu	Kasulu	150.302	30,06
Nduta	Kibondo	89.225	17,845
Mtendeli	Kakonko	36.036	7,207

UNHCR 06.2019

The UNHCR as a mandate advocates

- the protection of refugees and people in the host villages,
- integration into local society,
- the relocation of refugees to third countries
- accompanying volunteer repatriation to their home countries.

Within the political and financial framework, the UNHCR, together with its "Operational Partners" and "Implementing Partners", guarantees the following areas:

- Registration and protection of refugees
- Living expenses
- School education and further education
- Health care
- water supply and sanitary facilities,
- Basic supplies and food, clothing etc.

The basic supply is very limited and, for example, it is not possible to provide the refugees with cooking energy. Only people in need of protection in Nyarugusu are currently getting organic coal briquettes for cooking. This corresponds to approximately 2% of the residents of Nyarugusu Refugee Camp. The economic opportunities for refugees living in Tanzania are very limited. For this reason, the majority of the refugees depend on collecting firewood.



The result of this is that people from Nyarugusu collect firewood on average three times a week, about 10 km away. In addition to the great effort for women, men and children to collect wood, people are also at risk from conflicts with the host villages.

Another consequence is an enormous deforestation rate in the region. Around 120 million tons of firewood or more than 2,200 ha of forest are used up every year. Afforestation programs are carried out by the UNHCR, but they cannot keep pace with deforestation.





Tree nursery UNHCR

Klaus has undertaken the following project steps for the introduction of solar cooking:

1. Import of 4 test solar cookers. After months of preparation, 4 SK14 kits have now been sent duty-free to Kisumu via the UNHCR.
 2. Testing the solar cookers in the Nyarugusu Refugee Camp and in the host communities with implementation partner
 3. Project description for workshops in host communities with a financing structure
 4. Presentation of the solar cooker solution at various UNHCR decision levels as part of an energy mix for Nyarugusu and the surrounding area
- In order to give the refugees in Nyarugusu an alternative to firewood, solar cookers which have been donated by EG Solar are now being tested.



Klaus Strasser with sample cooker

Families selected by the refugees use the solar cookers to get to know cooking with the sun and to point out any difficulties.

The idea of solar cooking should thereby be conveyed to the residents and the organizations can adapt the cookers to the local conditions, taking into account the information from the families.

If you want to support us with the introduction of solar cooking in the refugee camp, please use the keyword Nyarugusu when making a transfer. Thanks a lot!



Resident Nyarugusu, UNHCR

EG-Solar e.V. 22.12.2019

Klaus writes from Kasulu:

The further steps in the project are as follows:

On the part of the UNHCR:

The 4 solar cookers are currently being tested in Nyarugusu Refugee Camp. At the beginning of February we will evaluate the project and together with the refugees we will decide whether to continue. (Last week we had a presentation to the government. We have positive feedback here)

If the test of the solar cooker is successful, the 100 solar cooker will be commissioned by UNHCR (budget is subject to approval). These stoves are then distributed at Nyarugusu Refugee Camp and tested over a period of six months.

In these six months, work will then be carried out on a budget to expand the project.

from the private side:

The aim is that the solar cookers are produced locally. I motivated 2 young men on site (Adolf Yanda, Angelo Barige). Both have a half-day job currently and want to set up a solar cooker sales independently.

I.e. they will apply to the UNHCR with their own local company to sell the solar cookers. In the long term, Adolf and Angelo's idea is to offer several cooking technologies (fuel efficient stoves, biogas, electric cooking, etc.)

EG-Solar e.V. * Neuöttinger Str. 64 c * 84503 Altötting * Tel. (0 86 71) 96 99 37

E-Mail: eg-solar@t-online.de * Homepage: <http://www.eg-solar.de>

Kreissparkasse Altötting BLZ 711 510 20 Kto.-Nr. 49 33 8, IBAN: DE55 7115 1020 0000 0493 38, BIC: BYLADEM1MDF



Presentation of the test cooker

Adolf and Angelo are now about to register their company. Technically speaking, they will build the frames of the stoves (i.e. they built the prototypes) and import the sheets.

I advise the two and support where necessary and as far as I can.



Assembly of a replica frame

So that the two can start practically, we need mirror plates. Against the background of the UNHCR project, we want to import 150 sheets (100 sheets for the UNHCR project, 50 sheets for additional sales).

I would like to inquire to what extent EG Solar can imagine supporting the local company with the sheets? A donation to mirror sheets would definitely be a good "startup budget".

EG-Solar e.V. 17.01.2020

Solarkochertest erfolgreich

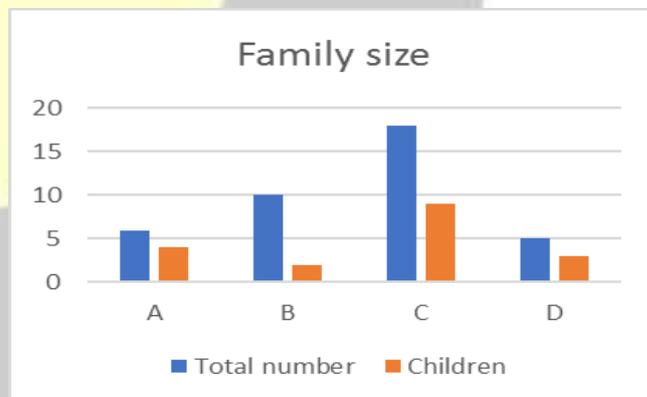
The Zone Leaders showed interest but recommended to conduct a Product Acceptance Test at selected households to learn about the technology in practice. It was agreed in the meeting that four Solar Cookers will be tested for one month, 2 cookers at households with Congolese origin and 2 cookers at households with Burundian families.

The Product Acceptance Test was started on the 7th of January 2020. The families were selected by the Zone Leaders. The Solar Cookers were assembled on-site and handed over to the families. Additionally, one family received a Heat Retention Basket (3 out of 4 families owned a Heat Retention Basket already), and all families were supplied with a Thermos Flask and black paint for their pots. At hand over, training on "How to use" the cooker was held.



A sample cooker in use

Interviews were held on 31st January and 3rd February 2020 respectively. It has to be considered, that the test was conducted during the rainy season at which it is not possible to use the cooker every day. It is the objective to find out the impact of Solar Cookers on firewood consumption even during the rainy season and the interviews aim to learn about the experience from the PoC households using the Solar Cooker.



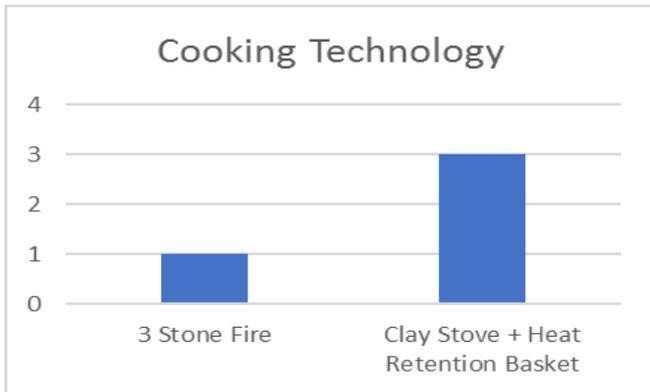
The family size varies from 5 to 18 with an average of 9.75 persons per household. This is a quite high number, as the UNHCR statistics indicate an average of 4.12 persons per household in Nyarugusu Refugee Camp.

The primary source for cooking in these households is firewood, whereby one household mentions to use Charcoal as a primary source. Two households use firewood as a primary source and charcoal as a secondary source. Three out of four households use a Clay Stove and Heat Retention Basket for cooking whereby the remaining one household uses a traditional 3 Stone Fire.

EG-Solar e.V. * Neuöttinger Str. 64 c * 84503 Altötting * Tel. (0 86 71) 96 99 37

E-Mail: eg-solar@t-online.de * Homepage: <http://www.eg-solar.de>

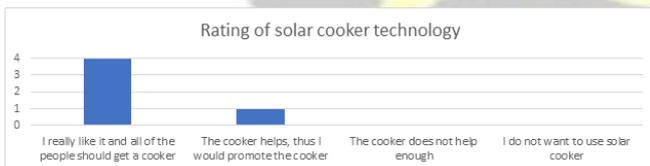
Kreissparkasse Altötting BLZ 711 510 20 Kto.-Nr. 49 33 8, IBAN: DE55 7115 1020 0000 0493 38, BIC: BYLADEM1MDF



The families go 2 – 3 times per week for collecting firewood. Three households sometimes buy the cooking fuel, depending on their available budget. The total budget for fuel wood per week varies from 17,000 to 48,000 TSH per month depending on the household size. On average 3,133 TSH per person per month is spent which equals 1.36 USD per person per month.

Comparing these figures with the UNHCR database supports these results. On institutional level 61 TSH per kg is paid. Further, the standard for firewood consumption on fuel efficient stoves is 1.8 kg per day. This leads to the amount of 3,294 TSH per person per month, which equals to 1.43 USD. The discrepancy of these two methods of assuming the budget is 5 %.

It was not answered where people buy firewood. However, it is assumed that firewood traders in the camp are existing. Additionally, it was mentioned in the interviews, that in case the budget is not available, the responsible family members need to walk to forests at a distance of approx. 10 km for collecting firewood. Under the consideration, that leaving the camp on a distance more than 3 km is illegal in Tanzania, PoCs are not protected when they are accessing energy for cooking. With these circumstances they live under the hazards of becoming victims of conflicts and SGBV cases.



EG-Solar e.V. 25.02.2020

UNHCR approves budget for the manufacture and introduction of 100 solar cookers in Nyarugusu Refugee Camp/Tanzania

Due to the positive test results in 4 refugee families, the UNHCR has approved the funds for the solar cooker project. 100 on-site built solar cookers will be distributed to selected families in the refugee camp and tested for half a year. The partner organization Redeso will be responsible for project support.



<http://redeso.org/>

Adolf Yanda and Angelo Barige have now founded a company and are currently building the structure for the project.

Adolf is currently examining offers for freight and customs for the import of the 150 mirror sheet sets that EG Solar has promised to help them get started.

As soon as we get the green light from the two and in Corona times transportation to Dar es Salaam is possible, we will send the boxes off.

EG-Solar e.V. 26.03.2020