

RWENENA REPORT ON SOLAR COOKING STOVE SURVEY

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Village interviewed: Rwenena, DR Congo

Survey performed by Aaron Kalala* in conjunction with Annette Scarpitta

SURVEY OBJECTIVES:

- Obtain information on Rwenena's local food preparation and cooking methods;
- Query whether Rwenena household managers would be willing and able to use solar technology for food preparation

GOALS:

- To demonstrate the potential impact of solar cooking on the community and the environment;
- To demonstrate the negative impacts of inadequate local cooking food systems, including but not limited to deforestation, time poverty, human peril, and disease.

GENERAL CONTEXT:

During and after the First and Second Congo Wars, mass atrocities included millions of murders, sexual violence, forced servitude of child soldiers, looting of houses and fields, and destruction of infrastructures and income-producing livelihoods.

In the Ruzizi Plain in the eastern province of South Kivu, about 35% of inhabitants fled their homes, relocating either to the town of Uvira or to refugee camps in Burundi, Tanzania and Rwanda. The village of Rwenena has been one of the most vulnerable and underprivileged villages in eastern Congo. Even now, despite peace, 40% of the population has not returned from forced relocation.

Rwenena is located 45 KM from Uvira, in eastern South-Kivu Province. A former refugee camp, it is located near the border of Burundi. Because of this proximity, many Burundians are living in and around Rwenena, along with Fuliiru and Banyamulenge (people came from Rwanda). The village is ethnically diverse. The main activities are farming and small business, but due to the proximity of conflict armies and climate change, this village is very impoverished, particularly women and children.

Provisions of solar cookstoves from Solar Cookers International would be most welcome in Rwenena. They would change lives in the community, especially of women and children who are marginalized because of their lower status and expectations that they gather wood for cooking. The provision of solar cookers would drastically reduce their time poverty. Girls, if their school fees are paid, can gain time for studying and using their talents. Otherwise, without school attendance, the cycle of illiteracy, poverty, and marginalization continues, and gender inequality is further cemented.

We have organized this survey to present information that would help to conduct and orient our activities on solar cooking and safe water for this village. With these provisions, we can facilitate implementation and build capacity for both men and women and improve overall well-being in Rwenena.

All survey questionnaires were addressed to the community spanning age and gender, profession, religion, ethnicity and origin. In total 43 persons were interviewed.

- A. [PRIMARY COOK IN HOUSEHOLD.](#) Cassava and maize bread are the primary staple foods, which may be accompanied by fish, meat or vegetables. Beans, rice, and potatoes are also consumed. Wood and charcoal are utilized for food preparation. Only 3% of inhabitants use the charcoal to cook food while more than 50% of inhabitants are making charcoal due to high poverty and lack of income-generating work. Men and women cut trees for charcoal to be sold or bartered. Charcoal is sold in the larger villages of Luberizi and Sange as well as in the city of Uvira. This activity brings money to the community, but charcoal production contributes to deforestation, climate change, and poverty.

Today due to food scarcity, women and children can walk more than 12 km looking for wood and charcoal. School children, particularly girls, have no time for homework and frequently arrive to school late, contributing in large part to failure in advancement and dropout rates. Others suffer from smoke-related diseases like lung cancer as well as eye and bone ailments.

Approximately 70% of housing structures are weak, with straw roofs, and each year 5-7 houses are burned due to cooking.



Roof of this kitchen is made of straw, which causes fires from cooking.

- B. [BRIEF DESCRIPTION OF SOLAR COOKING](#) (a technology that captures free solar energy for cooking and making water safe to drink)

During my interview, I showed the community that today with new technology, we can cook our food and have safe water by using solar cooking stoves (as solar panel is doing to light houses and charge batteries). The sun, I explained, provides energy to cook food. The elimination of firewood cooking will greatly reduce environmental damage. Solar cooking is free (“God’s Energy”) and will also provide safe drinking water that eliminates disease-producing bacteria, fungus, and microbes.

During my explanation, people agreed to commit to this project, which they found important and helpful. If Solar Cookers International will provide the cookstoves, the people of Rwenena would like to start utilizing them as soon as possible.



This woman is cooking vegetables indoors using 3 stone pillars.

SURVEY QUESTIONS:

A.1: In Rwenena, with only 3% using charcoal for cooking, more than 97% use the traditional cooking stove with 3 pillars: Dry sticks/wood are put in the 3 stone pillars, fire is lit, and food in a metal bowl is deposited on it to cook the food. This system is traditional and is neither economically nor environmentally sound because it consumes much energy. In the cooking process, energy escapes and is not rationally used.

Issues with the 3-pillar stove cooking method:

- Although it is easy to use, it requires dry sticks/wood, matches, leaves....
- Not durable: deforestation is limiting access to sticks and wood
- Requires more fuel: we need many sticks and wood to cook food for 5 persons (5 kg of charcoal or 20 kg of sticks per day)
- Does not cook food well: the smoke from wood/sticks penetrates into the food
- Causes disease-promoting coughs due to smoke

-Is not portable because the 3 pillars are deeply sunk into the soil

A2. Does your drinking water need to be made safe to drink? (Probe: water is contaminated) (Yes, No)

- Rwenena people drink water from the Luberizi River; this water is unsafe because people are washing their clothing and bodies in this river. Wastes can be thrown in the river and there is no law or authority to protect it.



Luberizi River is one source of water to all activities: irrigation, animals, way, drinking water, body and clothing washing ...

A3. Do you sell or barter food to obtain fuel for cooking? (Yes, No)

People returning home from the fields late; they have no other time to fetch wood from the bush. Some people barter for food to obtain charcoal for food preparation when they arrive. Yes, food can be sold to have money to buy charcoal or wood.

A4. What fuels do you use for cooking? (Probe: charcoal, crop residues, dung, LPG, kerosene, wood, other – select all that apply)

Wood, charcoal, and crop residues

A5. Are you experiencing problems with the current source of your cooking fuel? (Yes, No)

Yes:

- Possibility of burning houses because houses are built by wood and straw as roof
- Inaccessibility to fuel from scarcity of wood/sticks due to deforestation and climate change

-Diseases and poverty due by smoke

A6. What is the desired future for this community?

To improve development and well-being, including the integration of solar cooking into the community.

B1. Do you cook indoors or outdoors? (Indoor, Outdoor, Both)

About 85% of people are cooking indoors because it protects against animals, insect, dust and theft; 15% cook outdoors—these are generally highly impoverished and vulnerable people, including refugees.

B2. How many people do you cook for each day? [number]

Generally there are 2 persons who are in charge of cooking (Mother and oldest daughter). It depends on how many persons are in the household. If there are 3 or less, 1 person can be in charge (mother).

B3. How many meals do you prepare each day? (One, two, three, four, five or more)

About of 50% of people prepare 3 meals each day, 40% of people said that they prepare 2 meals and 10% one meal



Cassava is the principal food in Rwenena

B4. What time of day do you eat meals? (Probe: before dawn, morning, midday, evening, after sunset)

40% of people eat meals Morning and after sunset

55% of people eat meals Evening

5% of people eat meals Morning, Evening and after sunset

B5. Will your solar cooker be secure if you leave while you are cooking? (Yes, No)

Yes, they said that if all community members have access to solar cookers, no one will envy that of his or her neighbor. Consequently, if all community does not have access to it, one said that she will call her child to secure cooker if she is absent for 5-10 minutes or longer.

C1. For what reasons are you interested in using a solar cooker?

Communities gave the answers below:

- To be secured from snakes, rape and injuries... because they are victims when they go to search wood in the bush
- To avoid illness due to smoke in the eyes, bone pain, and respiratory ailments
- To increase family economy by avoiding money spent on buying wood and sticks
- To help the kids do homework
- To reduce time poverty of parents otherwise spent on wood gathering
- To reduce climate change effects and deforestation
- To have access to new technology and to benefit from solar energy free of charge



C2. Do you believe that you can make a solar cooker work? (Yes, No)

Yes

C3. Are you willing to change the way that you cook? (Yes, No)

Yes

C4. Are you willing to change the time of day that you prepare food? (Yes, No)

-90% of interviewed accepted to change the time of cooking to adapt to sun shining time, because it is a great benefit to adapt to the time according the sun because it is free.

-10% of interviewed said that it will be difficult at first because members of the family are accustomed to cooking and eating in the evening, when there is no sun. They added that they would gradually adapt.

C5. Will you commit to attend a complete round of training sessions during several weeks? (Yes, No)

Yes, 85% of interviewed accepted to attend round of training; 15% accepted but have a doubt about their farming activities (they will be occupied by farming activities) and 5% would like to know if during this period they would have a per diem to compensate for the hours lost to their farming activities.

Also, we would like to know when do we expect to organize these activities (concrete information: day, months and years)?

C6. Are you willing to be interviewed again in three months to give information about your solar cooking experience? (Yes, No)

Yes, all interviewed persons accepted to be interviewed in the three months

C7. Are you willing to learn and train others? (Yes, No)

Yes, all interviewed persons accepted to learn and train others



*Aaron Kalala Karumba is a founder of APAA Congo, a local NGO established in Uvira, Democratic Republic of the Congo. He trained with the eminent permaculture teacher Geoff Lawton in 2007 in Musoma, Tanzania. Aaron is active in permaculture extension in Africa. In 2012 he taught permaculture in Kasangulu, Bas-Congo with GEN Congo; in 2013 in Lubumbashi with GMF-FIFA, in 2015 in Butembo with PRI-Kenya, in 2016 at University of Ngozi with Spain Jean, in 2017 in Kalehe, Sud Kivu with LUSH Cosmetics.

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