

Annexes

List of the Annex:

- List of figures and tables
- A Fixed Dome Digester in one of the Household Vicinity
- A Household users Kitchen with biogas stove
- Questionnaire Survey guide
- Interview guide

Annex1: List of figures and tables

Table (22): Household involvement in Agriculture Activity

	N	Mean	Std. Deviations	Variance		Percent
Does the household carry out any agriculture Activity	262	1.11	.314	.099		
						Yes = 83.8
						No = 10.4
						Missing = 5.8

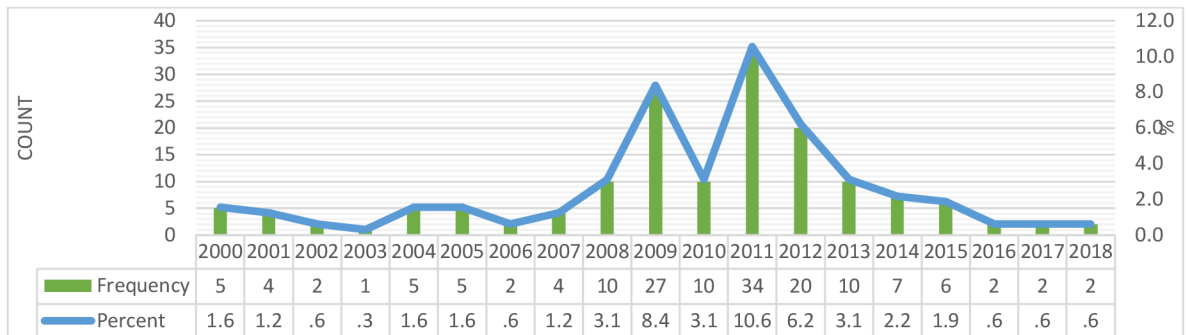


Figure (22): Year of Installation

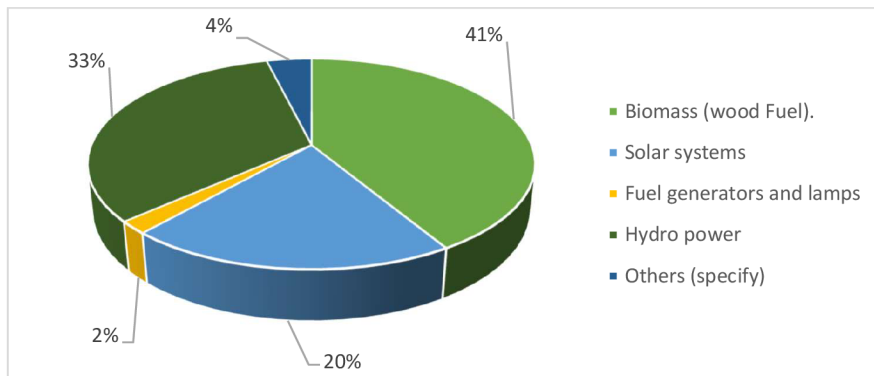


Figure (23): Alternative Energy source

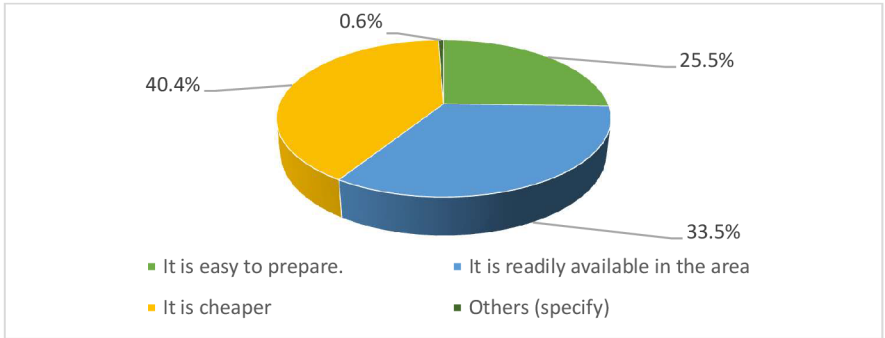


Figure (24): Why the feedstock is used

Annex 2: A Fixed Dome Digester in one of the Household Vicinity



Annex 3: A Household user’s Kitchen with biogas stove



Annex 4: Questionnaire Guide

I am a master's studies student at the Czech University of Life Science in Prague and I am conducting a study on Biogas in Uganda and the SDGs: A comparative cross-sectional fuel analysis of biogas and wood fuel; A case of Iganga district, Uganda. My target audience is households in Iganga Municipality Council, Namungalwe, and Nakalama sub-counties.

The purpose of this survey is to help me understand the use of small-scale biogas technologies vs wood-fuel and their implementation benefits in terms of the socio-economic, environmental, health and climate issues in relation to the SDGs among households in the rural areas of Iganga district. This questionnaire therefore is strictly for academic purposes and the response given will be treated with a high level of anonymity. I request you to answer the following questions and all your responses are highly welcome.

Date of Survey	
Sample No.	
Village	
Sub-county	

Dear respondent, I request you to please select one or more options or fill in responses in the spaces where applicable.

SECTION A. General information

1.0 Personal information about the household.

1.1	Is the HH male or female headed?	
1.2	Age of the HHH	
1.3	Education Level of the HHH (code*)	
1.4	Occupation of the HHH (code**)	
1.5	Family Size (No. of HH members)	

HH - Household, **HHH** - Household Head

Code*: 1. Illiterate, 2. Literate but no institutional education, 3. Primary, 4. Secondary, 5. Tertiary but did not graduate, 6. Tertiary and graduated.

Code:** 1. Civil service, 2. Business (specify), 3. Farmer (Specify), 4. Manual laborer, 5. Domestic worker, 6. Others (Housewife; Tailor, carpenter, etc. specify if any).

2.0 Basic information about biogas and the related aspects

2.1	Do you have any biogas digester installed? (1=Yes & 2=No)	
2.2	If yes, which type of digester is it? 1. Fixed dome. 2. Floating drum. 3. Balloon 4. Others (specify)	
2.3	Who financed the installation of the digester? 1. Yourself 2. NGO (please write the name) 3. Government 4. Others (specify)	
2.4	What year was the digester installed?	
2.5	Why do you use biogas plant? (More than one answer can be selected). 1. Low cost installation 2. Generates more gas, 3. Easy to maintain and operate. 4. Others (specify)	
2.6	What do you use the biogas for? (More than one answer can be selected). 1. Cooking. 2. Lighting. 3. Heating. 4. Others (specify)	
2.7	If yes, besides using biogas, which other type of energy do you supplement it with?	
2.8	What biogas appliances do you use? 1. Biogas cookers 2. Biogas stoves 3. Biogas lamps 4. Refrigerators	
2.9	Which type of feedstock do you feed the digester? 1. Crop waste. 2. Animal waste 3. Human waste. 4. Kitchen waste	
2.10	Why use the type of feedstock? 1. It is easy to prepare. 2. It is readily available in the area 3. It is cheaper 4. Others (specify)	
2.11	If No, what energy source do you use for cooking and lighting? 1. Biomass (wood Fuel). 2. Solar systems	

	3. Fuel generators and lamps 4. Hydro power (UMEME/YAKA) 5. Others (specify)	
--	--	--

SECTION B. Impact of Biogas vs Wood fuel use on SDGs Achievement

Please rate the following benefits of biogas use over fuel wood according to your understating from the highest to least

3.0	Socio-Economic Assessment	Rank 1-(Lowest) 8-(Highest)
3.1	Reduces on the time spent in collection of firewood	
3.2	Time spent in cooking is reduced	
3.3	Women and children get time to engage in education and productive activities	
3.4	Creates employment	
3.5	Increases household savings and incomes.	
3.6	Reduces costs of waste removal	
3.7	Increases energy supply	
3.8	Use of bio slurry from biogas increases crop yields	

4.0	Environment Assessment	Rank
4.1	Reduces on deforestation	
4.2	Reduces on air pollution	
4.3	Reduces on carbon emission in the household environment	

5.0	Health Assessment	Rank
5.1	Increases on life expectancy	
5.2	Reduces on eye and respiratory infections caused by unclean smoke	
5.3	Serves as a method of waste disposal and sewage	

6.0 Variables for Adoption and Use of biogas in Households

6.1	Access to biogas knowledge and technical expertise are the main variables hindering the adoption and use of biogas besides other factors. 1. Strongly Agree 2. Agree 3. Disagree 4. Strongly Disagree	
6.2	If you Disagree or Strongly disagree, Why?	
6.3	What other factors hinders your adoption of biogas use in households? Please rank from the highest to the least.	
	1. I do not have access to sufficient supply of feedstock (Waste).	
	2. There is no sufficient government support	
	3. Firewood is readily available and accessible	
	4. Financial constraints (Initial investment is too high).	
	5. Biogas is dangerous	
	6. Its more expensive than other sources of energy	
6.4	What motivating factors lead to adoption of biogas technology?	
	1. Easy to use	
	2. Subsidies given by the government	
	3. Women and Children get time to engage in other developmental activities.	
	4. Saves money	
	5. Its smoke free	
	6. Time spent on cooking is reduced	

7.0 Policy Approaches

7.1	Does the government and or NGOs involve the community when implementing renewable related initiatives? 1. Yes 2. No	
7.2	If Yes, how does it? Please, select one or more response. 1. Consults the people 2. The Community provides labor 3. It sensitizes and creates awareness.	

7.3	Are the initiatives always sustainable? 1. Yes 2. No	
7.4	If yes. How sustainable are they?	

SECTION C: Other Biogas Adoption Related Aspects

8. What advantages and disadvantages does wood fuel use have over biogas?

a). Advantages

.....

b). Disadvantages

.....

9 a). Do you have a permanent pit latrine?

i). Yes ii). No

b). How far is it from the main house? (In Meters)

.....

c). If you have a biogas digester, how far is the latrine from it? (In Meters)

.....

10a). Do you as a household carry out agriculture activities?

i). Yes ii) No

b). If yes, select one or more from below

i). Poultry ii). Animal rearing (specify, Cattle, Goat, Pigs, etc.)

iii). Crop cultivation (specify) iv). Mixed farming

c). If Yes, is it for

i). Subsistence purposes ii). Commercial purpose iii). Both

11a). Where do you collect your water from?

i). Borehole ii) Tap iii). Well iv) Dam v). Tank

b). How far is the choice selected in 11(a) from the household?

.....

Name of the Researcher: Mukisa Phiona Jackline.

Thank You for Your Response.

*****END*****

Annex 5: Interview guide for Local Government Officials and NGO's

A. Waste Management Section

1. What waste management systems exist in these areas?
2. What kind of waste is collected and how is it handled?

B. Biogas and the related matters

3. What is the potential for biogas generation in these sub-counties?
4. How reliable is the waste generated by households in these sub-counties for biogas generation?
5. What initiatives has the government or NGOs taken to promote the use of biogas energy?
6. What funding is provided by the government and /or NGOs for installation of biogas digesters and biogas appliances?
7. What policy approaches are used by either the Government and or NGOs in the designing, development, and implementation of renewable energy initiatives? And how efficient and effective are they?
8. What approaches are used in the implementation and installation of biogas systems by the government and/or NGOs?
9. What are some of the challenges met by the government, NGOs, and households when it comes to adoption and installation of biogas digesters?
10. How beneficial is the use of biogas energy to households?

S/N	ASPECT	BENEFIT
1.	Socio-economic	
2.	Environment	
3.	Health	
4.	Climate	

11. What common sources of energy are used for cooking and lighting in these areas and why?

12. What challenges exist with the current energy sources being used by the households in general?

Thank You

*******END*******