

INTERVIEW SCHEDULE FOR HOUSEHOLD HEADS

BIOGAS IN DEVELOPING COUNTRIES AND THE SDGS: A COMPARATIVE CROSS-FUEL ANALYSIS FOR BIOGAS AND OTHER COOKING SOURCES IN CENTRAL REGION OF GHANA.

Informed Consent

I am a master's student and I am conducting a study on Biogas and other cooking sources in Ghana. The study areas are Kasoa (Effutu Municipality) and Winneba (Awutu Senya East Municipality) in the central region of Ghana.

The purpose of this survey is to help me understand the use of small-scale biogas technologies vis-a-vis 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 study areas. This questionnaire, therefore, is strictly for academic purposes and the response is 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. The information is for academic purposes only and will be treated with the strictest confidentiality.

Name and Contact of Researcher:

(MSc. Agri-food systems and rural development)

Thank You.

Name of Respondent.....

District/Community.....

.....

Date.....

.....

Time.....

.....

SECTION A: General Information about the respondent

1. Sex of respondent
 - a. Male []
 - b. Female []
2. Age of respondent
 - a. 21-30 []
 - b. 31-40 []
 - c. 41-50 []
 - d. 51- 60 []
 - e. Above 60 []
3. Level of education of the respondent
 - a. Basic []
 - b. Secondary []
 - c. Tertiary []
 - d. Never Educated []
4. Occupation of respondent
 - a. Civil Servant []
 - b. Agriculture []
 - c. Commercial []
 - d. Others Specify.....

(If Not Agriculture, Skip to Question 6)

5. If Agriculture, what is the position of the respondent?
 - a. Self-owned []
 - b. Employed []
 - c.

SECTION B: Basic information about Biogas

6. Do you have a biogas digester installed?

Yes [] No []

(If No, skip to Question 19)

7. If yes, which type of digester is it?

a. Fixed dome b. Floating drum c. Balloon d. Others

(specify).....

8. What is the size of the biogas plant?

.....
...

9. Who financed the installation of the digester?

a. Self-financed b. NGO c. Government d. Others

(specify).....

10. Are you aware of the cost of installation?

Yes [] No []

(If No, skip to Question 12)

11. If yes, what is the cost of installation?

.....
.....

12. What year was the digester installed?

.....

13. Why do you use biogas plants? (Tick as many as may apply).

- a. Low-cost installation
- b. Generates more gas
- c. Easy to maintain and operate
- d. Time spent cooking is reduced
- e. Time spent collecting firewood is reduced
- f. Reduces cost of waste removal
- g. Others (specify).....

14. What do you use the biogas for? (Tick as many as may apply)

a. Cooking []

b. Lighting []

c. Heating []

d. Others

(specify).....

15. Which other type of energy is used to supplement biogas in the house?

.....
.....

16. What biogas appliances do you use?

a. Biogas cookers []

b. Biogas stoves []

c. Biogas lamps []

d. Refrigerators []

17. Which type of feedstock do you feed the digester?

a. Crop waste []

b. Animal waste []

c. Human waste []

d. Kitchen waste []

18. Why use the type of feedstock?

a. It is easy to prepare []

b. It is readily available in the area []

c. It is cheaper []

d. Others

(specify).....

19. If No, what energy source do you use for cooking and lighting?

a. Biomass (wood Fuel) []

b. Solar systems []

c. Fuel generators and lamps []

d. Hydropower []

e. Gas []

f. Others

(specify).....

SECTION C: Impact of Biogas against Wood fuel use on SDGs Achievement

Please rate the following benefits of biogas use over fuel wood according to the scale provided.

1-Strongly Disagree

2-Disagree

3-Neutral

4-Agree

5-Strongly Agree

(Lowest 1 and Highest 5)

| C1 | Socio-Economic Assessment | Rank |
|-----------|--|-------------|
| 1.1 | Reduces on the time spent in collection of firewood | |
| 1.2 | Time spent in cooking is reduced | |
| 1.3 | Women and children get time to engage in education and productive activities | |
| 1.4 | Creates employment | |
| 1.5 | Increases household savings and incomes. | |
| 1.6 | Reduces costs of waste removal | |
| 1.7 | Increases energy supply | |
| 1.8 | Use of bio slurry from biogas increases crop yields | |
| C2 | Environment Assessment | Rank |
| 2.1 | Reduces on deforestation | |
| 2.2 | Reduces on air pollution | |
| 2.3 | Reduces on carbon emission in the household environment | |
| C3 | Health Assessment | Rank |
| 3.1 | Increases in life expectancy | |
| 3.2 | Reduces eye and respiratory infections caused by unclean smoke | |

3.3 Serves as a method of waste disposal and sewage

SECTION D: Variables for Adoption and Use of biogas in Households

20. Access to biogas knowledge and technical expertise are hindering the adoption and use of biogas.

- a. Strongly Agree []
- b. Agree []
- c. Disagree []
- d. Strongly Disagree []

State _____ reason _____ for

Selection.....
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21. Access to technical expertise hinders the adoption and use of biogas

- a. Strongly Agree []
- b. Agree []
- c. Disagree []
- d. Strongly Disagree []

State _____ reason _____ for

Selection.....
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.....

22. What other factors hinder your adoption of biogas use in households? Please rank from the highest to the least.

- 1-Strongly Disagree**
- 2-Disagree**
- 3-Neutral**
- 4-Agree**
- 5-Strongly Agree**
- (Lowest 1 and Highest 5)**

| Factor | Rank |
|--|------|
| i. I do not have access to a sufficient supply of feedstock (Waste). | |
| ii. There is no sufficient government support | |
| iii. Firewood is readily available and accessible | |
| iv. Financial constraints (Initial investment is too high). | |
| v. Biogas is dangerous | |
| vi. It is more expensive than other sources of energy | |
| Other factors (explain): | |

23. What motivating factors led to the adoption of biogas technology? Please rank from the highest to the least.

- 1-Strongly Disagree**
 - 2-Disagree**
 - 3-Neutral**
 - 4-Agree**
 - 5-Strongly Agree**
 - (Lowest 1 and Highest 5)**
- | Factor | Rank |
|--------|------|
|--------|------|

| | |
|---|--|
| i. Easy to use | |
| ii. Government subsidies | |
| iii. Women and Children get time to engage in other developmental activities. | |
| iv. Saves money (economical) | |
| v. It is smoke-free | |
| vi. Reduced cooking time | |
| Other factors (explain): | |

SECTION E: Policy approaches in promoting the use of clean renewable energies in Ghana

24. Do the government and or NGOs involve the community when implementing renewable-related initiatives?

- a. Yes [] b. No []

(If No, Skip to question 28)

25. If YES, how does the government involve the community? Please, select one or more responses.

- a. Consults the people []
- b. The Community provides labour []
- c. It sensitizes and creates awareness []
- d. Other types of involvement (specify).....

26. Are the initiatives always sustainable?

- a. Yes [] b. No []

(If No, skip to question 28)

27. If YES, How sustainable are they?.....
.....
.....

SECTION F: Other Biogas adoption-related aspects

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

a) Advantages

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.....

b) Disadvantages

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.....

29. Do you have a permanent pit latrine?

- a. YES []
- b. No []

(If No, Skip to question 33)

30. How far is the pit latrine from the main house? (In Meters)

.....

.....

31. If you have a biogas digester, is it connected to the pit latrine?

a. Yes []

b. No []

(If No, skip to question 33)

32. If yes, how far is the latrine from the biogas digester? (In Meters)

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.....

33. Do you as a household carry out agriculture activities?

a. Yes []

b. No []

34. If yes, select one or more from below

a. Poultry []

b. Animal rearing (specify, Cattle, Goat, Pigs, etc.)

c. Crop cultivation (specify the type of plants/crops)

d. Mixed farming.....

(If No, skip to question 35)

35. Do you have a home garden?

a. Yes []

b. No []

(If No, skip to question 38)

36. If yes, what crops are cultivated in the home garden?

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.....

.....

37. What is the purpose of the agricultural activity?

a. Subsistence purposes []

b. Commercial purpose []

c. Both []

38. Where do you collect your water from?

- a. Borehole []
- b. Pipe borne []
- c. Well []
- d. Dam []

39. How far is the choice selected in (31) from the household?

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END OF INTERVIEW
Thank You for Your Time