

Appendix

Appendix A: Questionnaire

QUESTIONNAIRE

[Research Focus: Public Perceptions of Biogas Technology in Rural Areas of Nigeria.]

Target Area: Lagos, Nigeria

SECTION 1 General Questions

Basic and Regional Information:

1. Age: 18 – 24 25 – 34 35 – 44 45 – 54 55 and above
2. Gender: Male Female
3. Education level: Primary school Secondary school University No formal education
4. What is your main household occupation?
Fishing
Farming
Civil Servant
Private Firm Worker
5. How many members live in your household?
1-3members
3-5members
5 and above
6. What is the highest level of education within your household?
None
First School Leaving Certificate
Senior Secondary School Certificate (SSCE)
Bachelor Degree and above
7. What is the average income of your household?
N10,000 or less
Between N10,000- N50,000
Between N50,000- N100,000
N100,000 and above

Section II *Climate Change and Environmental Awareness*

Are you satisfied with the environmental awareness of your community?

(1-Strongly disagree, 2-Agree,3-Uncertain, 4-Disagree 5-Strongly agree)

0	1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

How strongly do you agree with the following statements about climate change and environmental awareness?

(1-Strongly disagree, 2-Agree,3-Uncertain, 4-Disagree 5-Strongly agree)

	0	1	2	3	4	5
Climate change has an adverse impact on social and economic development in Nigeria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Climate change is an important issue for Nigeria.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nigeria should take immediate action to address climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate change is of no concern to me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Have you heard of the following low carbon technologies?

(0-Indifferent, 1-Have never heard (or read) about it, 2-Have heard about it, 3-Know a little about it , 4- I know enough about it,5- I know a lot about it)

	0	1	2	3	4	5
Biogas Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wind power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Energy-conserving electric appliances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Solar power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hydrogen powered vehicles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biomass energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Carbon capture and storage (CCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10. Attitudes towards low carbon technologies.

How strongly do you agree with the use of the following technologies?
(1-Strongly disagree, 3-No opinion, 5-Strongly agree)

	1	2	3	4	5
Biogas Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solar energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wind energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy-conserving electric appliances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy-saving vehicles (including hybrid vehicles and hydrogen powered vehicles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biomass energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon capture and storage (CCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section III *Public Perception on Biogas technology*

11. What is the most important environmental problem that biogas technology addresses?

	1	2	3
Climate change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acid rain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resource depletion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ozone depletion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toxic waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Do you agree with integrating carbon BT equipment into your daily cooking routine?

(1-Strongly agree, 2-Agree, 3-No opinion, 4-Oppose, 5-Strongly oppose)

1 2 3 4 5

13. Are you willing to use a biogas stove?

(1-Strongly agree, 2-Agree, 3-No opinion, 4-Oppose, 5-Strongly oppose)

1 2 3 4 5

14. I am interested in new innovations.

1 2 3 4 5

SECTION IV *Biogas plant owners/workers*

15. How many members of your household work at the Biogas Plant?

1-3members

3-5members

5 and above

16. How did you acquire training before working in the BiogasPlant?

Government Training Programme

Private Training Programme

None of the above

17. How long did the training take?

1 month or less

Above a month but less than 3 months

Above 3 months but less than 6 months

6 months and above
None of the above

18. Have you received any form of certification for your training?

Yes

No

19. Which source of energy is mostly used around here?

Biogas Fossil fuel Firewood Kerosene Others

20. Is Biogas a popular source of energy around here?

No Yes

21. Should Biogas be seriously considered as an alternative to traditional fuel?

No Yes

22. How often does small-scale production of Biogas occur here?

Very often Often Sometimes Rarely

23. Is the Biogas produced sufficient to meet your energy demands?

No Yes Yes, it is produced in excess

24. Is there any cultural resistance to the use of Biogas because of its raw materials?

No Yes If Yes, kindly explain.

.....

.....

.....

.....

SECTION V: *Level of Usage of Biogas technology in Rural areas*

25. What type of Biogas Plant is yours?

- Fixed dome biogas plant Floating gasholder plant Plastic bag digester

26. What volume (m³) of Biogas does your Plant produce daily?

- 2m³ or less Above 2m³ but less than 5m³ Above 5m³ but less than 10m³

27. What sort of wastes are mostly generated around here?

- Animal waste Human waste Plants All of the above

28. How do you dispose these wastes?

- Dump on the street Government disposal trucks Bury at home All of the above

29. What sort of toilet systems are used here?

- Water closet Latrine Mobile toilets No toilets available

30. Which waste materials does the plant use as its primary source for production of Biogas? (Kindly tick as applicable)

- Animal waste Human waste Plants All of the above

31. Do you use any Biogas lamps?

- No Yes If No, Proceed to 39

32. What is the average power rating of your lamp? (Write the number in hours)

.....

32. On the average, how many hours per day do you use your lamp?

less than an hour 1-5hours 6-13 hours 14-24hours

34. What is the power rating of the burner on your biogas stove? (Kindly write in hours)

.....

35. On the average, how many hours per day do you use your burner for cooking and boiling water?

less than an hour 1-5hours 6-13 hours 14-24hours

36. Do you also burn excess biogas?

No Yes

37. On the average, how many hours per day do you use your burner to burn excess biogas?

less than an hour 1-5hours 6-13 hours 14-24hours

SECTION VI: *Small-scale Production of Biogas as a Tool for Rural Development*

38. Have you had any form of government assistance or external finance to help with this small-scale production of Biogas? No Yes

39. Do you think that government policies with respect to energy have stagnated rate of development in rural areas? No Yes

40. Are you familiar with the Renewable Energy Division (RED) created by the Federal Government in 2005 through Nigeria National Petroleum Corporation (NNPC) saddled with the responsibility of developing the Biogas industry in Nigeria? No Yes

41. Are you familiar with the Nigerian Bio-fuel Policy and Incentives, a policy document that was approved by the Federal Executive Council as a national bio-fuels policy?
 No Yes

42. How strongly do you agree with the following policies for promoting Nigeria's BT development?
(1-Strongly disagree, 2-Agree,3-Uncertain, 4-Disagree 5-Strongly agree)

	1	2	3	4	5
Financial support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reforms of the power industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BT laws and regulations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incentive polices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
International Cooperation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

43. How strongly do you agree with developing biogas technology in Nigeria?
(1-Strongly disagree, 2-Agree,3-Uncertain, 4-Disagree 5-Strongly agree)

	1	2	3	4	5
Biogas Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

End of survey.

Thank you for your support and cooperation.

2021/1

END NOTES

I appreciate your contribution to this study, which will contribute to the body of knowledge with respect to small-scale Biogas production in Nigeria.

Your responses will help understand and explore the impact of small-scale biogas production within Nigeria from a rural perspective. All responses will be treated with utmost confidentiality.

Please use the space below to write additional comments with respect to the research focus, whether or not it was covered in the questionnaire.

Additional Comment: