

# APPENDIX 1 - QUESTIONNAIRE

## AGROPASTORALIST CLIMATE CHANGE ADAPTATION STRATEGIES: A CASE OF NORTHERN GHANA

I am a student at the Czech University of Life Science Prague, Czech Republic, and I am conducting this study to learn more about the “*Pastoralist climate change adaptation strategies in northern Ghana* “. Kindly help me by filling out the questionnaire below. This exercise will only take few minutes. I would appreciate it very much if you would help in filling out this with utmost sincerity so as to obtain accurate results for the research. Thank You!

### Identification

Name of respondent.....

Phone number.....

Local government area.....

Date of interview.....

### Section A: Characteristics of farmers

|  |   |
|--|---|
| 1. When did you start rearing livestock?                                     |   |
| 2. How many members of your family are you living with?                      |   |
| 3. How many children of your family are you living with? (under age 15)      |   |
| 4. How did you get the farm/animals?   | Inherited <input type="checkbox"/> purchased <input type="checkbox"/>   |
| 5. How many older people of your family are you living with?(60yrs and over) |   |
| 6. Your gender please?   | Male <input type="checkbox"/> Female <input type="checkbox"/>   |
|  |   |
| 7. Have you had any form of education?                                       | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 8. If yes, what kind of education is it?                                     | Formal <input type="checkbox"/> Non-formal <input type="checkbox"/>   |
| 9. What is your highest level of education?                                  | Basic <input type="checkbox"/> Secondary <input type="checkbox"/><br>Tertiary <input type="checkbox"/> Vocational <input type="checkbox"/><br>Others..... |

|  |   |
|--|---|
| 10. Have you had any training in livestock production?                             | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 11. How long did you undergo such training?  |   |
| 12. If yes, If yes how long did you undergo such training?                         |   |
| 13.  |   |
| 14. In which month(s) did you experience feed shortage last year?                  | Nov <input type="checkbox"/> Dec <input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> March <input type="checkbox"/> April <input type="checkbox"/> |
| 15. In which month(s) did you experience water scarcity last year                  | Nov <input type="checkbox"/> Dec <input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> March <input type="checkbox"/> Apr <input type="checkbox"/>   |
| 16. Do you own a land?   | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 17. Do you possess any establish Pasture?  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 18. If Yes, what is the size of pasture (in Arces)                                 |   |
| 19. What species of animal are you keeping?  | Goat <input type="checkbox"/> Sheep <input type="checkbox"/> Cattle <input type="checkbox"/>  |
| 20. How many species do you have in your Farm? Each                                | Goat <input type="checkbox"/><br>Sheep <input type="checkbox"/><br>Cattle <input type="checkbox"/>  |
| 21. What is or are the main source of feed for your animals during the dry season? | Concentrate feed <input type="checkbox"/><br>Hay <input type="checkbox"/><br>Other(s).....  |
| 22.  |   |

**Section B: Characteristics of farm**

|  |   |
|--|---|
| 23. What is or are the main source of feed for your animals during the dry season?   | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 24. If yes, what type of ownership   | Customary <input type="checkbox"/> Statutory <input type="checkbox"/>   |
| 25. Do you possess any established pasture?  |   |
| 26. What is the size of your pasture?  | .....Acre(s)  |
| 27. What species of animals are you keeping?   | Goat <input type="checkbox"/> Sheep <input type="checkbox"/> Cattle <input type="checkbox"/> Poultry <input type="checkbox"/> |
| 28. How many animals do you have on your farm?                                       |   |
| 29. What is or are the main source of feed for your animals during the dry season?   | Rangeland <input type="checkbox"/> Agroforestry <input type="checkbox"/> Other(s) <input type="checkbox"/><br>.....           |
| 30. What is or are the main source of feed for your animals during the rainy season? | Rangeland <input type="checkbox"/> Pasture <input type="checkbox"/> Others <input type="checkbox"/>                           |
| 31. How large area of forages got extinct last year during the drought?              | ..... Acres   |

|  |   |
|--|---|
| 32. What production system do you practice?  | Extensive <input type="checkbox"/><br>Semi intensive <input type="checkbox"/><br>intensive <input type="checkbox"/> |
| 33. What is the reason for your choice of animal production system? E.g. Extensive, semi-intensive or intensive. system? |   |

**Section C: Institutional Characteristics**

|   |   |
|---|---|
| 34. Do you know of the 1D1F program?                  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 35. Have you ever profited from this program?         | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 36. Do you still profit from the 1D1F program?        | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 37. Do you have access to weather information?        | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 38. Who provides the weather information?             | Radio <input type="checkbox"/><br>TV <input type="checkbox"/><br>Internet <input type="checkbox"/><br>Other.....                      |
| 39. How frequent do you receive weather information?  | Every day <input type="checkbox"/><br>Several times a month <input type="checkbox"/><br>Several times a year <input type="checkbox"/> |
| 40. Do you receive extension services?                | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 41. Who provides the extension services to you?       | Ministry of Agriculture <input type="checkbox"/><br>NGOs <input type="checkbox"/><br>Other(s).....                                    |
| 42. How often do you receive extension services?      | ..... time(s) a week<br>..... time(s) a month<br>..... time(s) a year   |
| 43. Do you have access to credit?                     | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 44. Are there any Grant(s)?                           | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| 45. If yes, from which agency?                        | NGO <input type="checkbox"/> Government <input type="checkbox"/><br>(Specify) .....   |
| 46. Are you a member of farmers' cooperative society? | Yes <input type="checkbox"/> No <input type="checkbox"/>  |

**Section D: Behaviour perception of climate change and access to water**

Climate perception

|   |           |          |           |          |           |
|---|-----------|----------|-----------|----------|-----------|
| 40. Do you agree with following (consider about the last 10 years)? |           |          |           |          |           |
| <b>Event<sup>1</sup></b>  | <b>SD</b> | <b>D</b> | <b>UD</b> | <b>A</b> | <b>SA</b> |
| Temperature keeps increasing  |           |          |           |          |           |

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| Delay in coming of rainfall                     |  |  |  |  |  |
| Decrease in rainfall duration (days)            |  |  |  |  |  |
| Increase in frequency of drought                |  |  |  |  |  |
| Increase in frequency of flooding               |  |  |  |  |  |
| Increase in evaporation/drying of the soil      |  |  |  |  |  |
| Increase of livestock pest and disease outbreak |  |  |  |  |  |

<sup>1</sup> SD= Strongly disagree, D=Disagree, UD=Undecided, A=Agree and SA=Strongly agree

### Perceived impact of climate change on livestock

| 41. Have you experienced the following events on your farm in the last 10 years? |                                      |                             |                                |                                 |       |
|--|--------------------------------------|-----------------------------|--------------------------------|---------------------------------|-------|
| Event <sup>1</sup>   | Very often<br>(several times a year) | Often<br>(few times a year) | Sometimes<br>About once a year | Seldom<br>Once in several years | Never |
| Insufficient supply of drinking water for animal                                 |                                      |                             |                                |                                 |       |
| Insufficient feed from pasture   |                                      |                             |                                |                                 |       |
| Increase in livestock disease outbreak   |                                      |                             |                                |                                 |       |
| Emergence of new animal disease  |                                      |                             |                                |                                 |       |
| Pest infestation/attack  |                                      |                             |                                |                                 |       |
| Low response to treatment  |                                      |                             |                                |                                 |       |
| Low milk production  |                                      |                             |                                |                                 |       |
| Low proliferation  |                                      |                             |                                |                                 |       |

SD= Strongly disagree, D=Disagree, UD=Undecided, A=Agree and SA=Strongly agree

### Adaptation Strategies

|   |   |
|---|---|
| 42. What is the strategy /ies used in your livestock farming in the last three years to adapt on the changing weather (multiple choice is allowed)? | Periodic sales of animals <input type="checkbox"/> ,<br>Building of ponds and reservoirs <input type="checkbox"/> ,<br>Providing supplementary feeding <input type="checkbox"/> ,<br>Switching to crop production <input type="checkbox"/> ,<br>Moving animals from one place to another <input type="checkbox"/> ,<br>Changing the type of animal (eg. from cattle to goat) <input type="checkbox"/> ,<br>Changing breeds of animals of the same species <input type="checkbox"/><br>Vaccination of animal <input type="checkbox"/> ,<br>Combining crop farming with animal <input type="checkbox"/> ,<br>Provision of shade and ventilation <input type="checkbox"/><br>Others..... |
| 43. Are these some of the illnesses your animals struggle with in the past years?   |   |
| Cowdriosis  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| Botulism  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| Tuberculosis  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| Diarrhoea   | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| Anthrax   | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| PPR   | Yes <input type="checkbox"/> No <input type="checkbox"/>  |
| Bluetongue  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |

|  |               |
|--|---------------|
|  | Other(s)..... |
|  |               |

|   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
|---|---|-------------|-------------|-------------|-------------|-------------|--------------|--|--|--|--|--|----------------|--|--|--|--|--|-------------|--|--|--|--|--|--|
| 44. Which of these months do you struggle with water scarcity?  | November <input type="checkbox"/><br>December <input type="checkbox"/><br>January <input type="checkbox"/><br>February <input type="checkbox"/><br>March <input type="checkbox"/>         |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| <table border="1" style="width: 100%;"> <tr> <td style="width: 40%;"><b>Which of these months do you struggle with water scarcity?</b></td> <td style="width: 10%;"><b>Nov.</b></td> <td style="width: 10%;"><b>Dec.</b></td> <td style="width: 10%;"><b>Jan.</b></td> <td style="width: 10%;"><b>Feb.</b></td> <td style="width: 10%;"><b>Mar.</b></td> </tr> <tr> <td>Very serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Normal serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Non-serious</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | <b>Which of these months do you struggle with water scarcity?</b>   | <b>Nov.</b> | <b>Dec.</b> | <b>Jan.</b> | <b>Feb.</b> | <b>Mar.</b> | Very serious |  |  |  |  |  | Normal serious |  |  |  |  |  | Non-serious |  |  |  |  |  |  |
| <b>Which of these months do you struggle with water scarcity?</b>   | <b>Nov.</b>   | <b>Dec.</b> | <b>Jan.</b> | <b>Feb.</b> | <b>Mar.</b> |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| Very serious  |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| Normal serious  |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| Non-serious   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 45. Which water source(s) are available to you in times of extreme drought?   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 47. Are there times when water is completely unavailable in your area?  |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 48. How do you provide water for your animals in these times?   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 49. What does the veterinary or the extension agent suggest in these times?   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 49. Do you harvest rain water in the rainy season?  | Yes <input type="checkbox"/> No <input type="checkbox"/>  |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 50. If yes, how do you store it?  | Plastic drums <input type="checkbox"/><br>Plastic tanks <input type="checkbox"/><br>Cement tanks <input type="checkbox"/><br>Metal drum barrel <input type="checkbox"/><br>Other(s) ..... |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 50. Which period do you often sell your animals?  | Month<br>1,2,3,4,5,6,7,8,9,10,11,12   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 51. What are the reason for the sale of the animals?  | Water shortage, feed shortage, income purpose, disease outbreak   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 51. What does the veterinary or the extension agent suggest in these times?   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |
| 52. Please how old are you?   |   |             |             |             |             |             |              |  |  |  |  |  |                |  |  |  |  |  |             |  |  |  |  |  |  |

APPENDIX 2- PICTURES











