

Enhancing the Resilience of Food Systems to Climate Change In Agro-Ecological Zone I Of Southern Zambia

Individual survey questionnaire

Declaration

This survey is intended for only academic purposes. I assure you of your confidentiality and anonymity regarding your responses to the questions.

SECTION A: Vulnerability and risk assessment of food systems to climate change impacts in Southern Zambia

District:

Camp:.....

A1: Respondent Background Information

Demographic Information

Please answer the following questions by ticking the correct answer

Name (Optional)	
Age	[a] 18 to 24, [b] 25 to 35, [c] 36 to 44, [d] 45 to 55, [e] 56 to 65, [f] Above 65
Gender	[a] Male, [b] Female
Education level	[a] No education, [b] Primary, [c] Secondary, [d] Tertiary
Marital status	[a] Single, [b] Married, [c] Divorced/separated, [d] Widowed
Income levels (ZMW)	[a] < 500, [b] 600 to 1000, [c] 1,001 to 5,000, [d] 5,001 to 10,000, [e] 10,001 to 15,000 [f] 15,001 to 20,000 [g] > 20,000
Household size	[a] 1 – 3, [b] 4 – 7, [c] 8 – 11, [d] > 11
Size of farmland (Ha)	[a] < 5 [b] 6 to 10, [c] 10.1 to 15, [d] >15
Primary source of household income	[a] Crop farming, [b] Livestock sales, [c] Business, [d] Government grants (social welfare), [e] other (specify)

A2. Does your household engage in farming activities? [a] Yes [b] No

A3. If yes, what type of farming do you practice? [a.] Subsistence, [b]. Emergent [c]. Commercial, [d]. Mixed farming

SECTION C: Knowledge of Climate Change and Food Systems

C1. How long have you (or your family) been engaged in farming activities in this area?

[a] Less than 5 years, [b] 6 to 10 years, [c] 11 to 20 years, [d] 21 to 30 years, [e] Above 30 years

C2. (i) Describe the types of crops you grow crops grown

1	Cereals	
2	Legumes	
3	Tubers & roots	
4	Others (specify)	

C3. Why do you grow the above

crops.....
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C4. How would you describe climate change to someone in your

community?.....
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C5. Have you observed any signs of climate change in your area?

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C6. If yes, please specify

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C7. For how long have you been noticing these climatic changes

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Sources of Climate Change Information

C8. From where do you receive information about climate change? [a] community meetings, [b] radio, [c] television, [d] Traditional ceremonies, [e] internet, [f] NGOs, [g] rain gauge minders) [h] Others (specify).....

C9. Which source do you trust the most, and why?

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C10. What type of climate information do you receive?

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C11. Do you use this information in your farming? [a] Yes [b] No

C12. If YES, how do you use it, and what are the benefits you have seen?

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Section D: Indigenous Knowledge Systems

D1. Can you share any traditional practices or knowledge your community uses to deal with climate variability and agricultural production?.....
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D2. How is this knowledge passed down through generations?.....
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Indigenous knowledge and adaptations to climate change

D3. Do you adapt to the changes in climate? (a) Yes [] Go to E2 (b) No [] Go to F1

D4. (i) Do you use your indigenous knowledge in adapting to climate change? (a) Yes [] (b) No []

(i) If Yes, which practices do you adopt individually?.....
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D5. Is there indigenous knowledge among the community which is important for climate change adaptation? (a) Yes [] (b) No []

D6. Which indigenous practices are collectively implemented by community in adapting to climate change?

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D7. Has the use of your indigenous knowledge changed over time? (a) Yes [] (b) No []

D8. If you use indigenous knowledge, where did you get it from? (a) Family (b) Community (c) Agricultural extension department (d) NGOs (e) Others specify.....

D9. If you obtained it from the family, which family member did you learn this knowledge from? (a) Grandparents (b) Parents (c) Aunties (d) Uncles (e) Siblings (d) Others specify.....

D10. Is this knowledge a common practice in the community? [a] Yes [b] No

D11. Has the use of your indigenous knowledge changed over time? [a] Yes [b] No

D12. If yes, could you elaborate on your answer?

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D13. How effective is indigenous knowledge to you in dealing with climate change risks? [a] Very effective [b] Effective [c] No idea [d] Not effective [e] Not very effective

D14. How accessible is indigenous knowledge in this village?

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D15. What is motivating you to use Indigenous knowledge?.....

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D16. If you use modern knowledge only, explain the motivation for doing that.

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D17. If you integrate indigenous knowledge with modern knowledge, explain the motivation for doing that

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D18. Have you adjusted your entire farming system to deal with climate change? [a] Yes [b] No

D19. If yes, could you elaborate on your answer?

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D20. Do you engage in off-farm activities to diversify your income to adapt to climate change? [a] Yes [b] No

D21. If yes, could you elaborate on your answer?

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D22. Do you do things as a community that are important for adapting to climate change? [a] Yes [b] No

D23. Have you always done that? [a] Yes [b] No

D24. Is it a new idea? [a] Yes [b] No

D25. Is it something that your ancestors did? [a] Yes [b] No

D26. In your experience, how effective are these traditional practices in managing climate change impacts on agriculture?.....

D27. Have these practices changed over time? [a] Yes [b] No

D28. If so, how?

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Section E: Integration of Scientific Knowledge

E1. Are you aware of any scientific methods or technologies to adapt to climate change impacts on agriculture? [a] Yes, [b] No

Please describe

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E2. Have you or your community been able to access or use these scientific methods? [a] Yes [b] No

Why or why not?

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E3. Have there been any efforts to combine indigenous knowledge with scientific knowledge in your community?

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Please provide examples

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E4. What challenges, if any, have you faced in integrating these types of knowledge?

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E5. How is knowledge about climate change and adaptation shared within your community?

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E6. Are there formal structures or events for sharing this knowledge? Please describe

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E7. How involved are community members in decision-making processes related to climate change adaptation?

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E8. What could be done to improve community engagement and knowledge exchange on this topic?

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E9. What are the main barriers to using indigenous or scientific knowledge in adapting to climate change impacts on your food system?

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E10. How could these barriers be overcome?

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E11. What suggestions do you have for strengthening the use of knowledge systems in adapting to climate change impacts on agriculture?

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E12. Do you get support from government institutions? [a] Yes [b] No

E13. If yes, what support do you get from government institutions?

	Support systems	YES	NO
i	Financial		
ii	Training		
iii	Community development		
iv	Materials		
v	Others specify		
			

E14. Is there anything else you would like to add about your experiences or ideas related to knowledge systems and climate change adaptation in agriculture?.....

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SECTION G: Investigating the options for enhancing food systems' resilience to climate change

G1. How concerned are you about the impacts of climate change on food systems?

[a]. Not at all, [b]. Slightly, [c]. Moderately, [d]. Very, [e]. Extremely

G2. Have you observed any changes in climate patterns over the past years? [a] Yes [b] No

If yes, please describe.

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G3. In your opinion, what aspects of the food system are most vulnerable to climate change?

[a] Crop Production, [b]. Livestock, [c]. Water Resources, [d]. Other (please specify).....

G4. Why do you think so?

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G5. What practices are currently employed in your community to enhance food system resilience to climate change? [a]. Crop diversification. [b] Improved irrigation techniques, [c]. Use of drought-resistant crop varieties, [d]. Other (please specify)

G6. How effective do you find these practices? [a]. Not effective, [b]. Somewhat effective, [c]. Moderately effective, [d]. Very effective, [e]. Extremely effective [f] Other (specify).....

Rate each of the practices:

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G7. What are the main barriers to implementing these resilience-enhancing practices?

[a] Financial, [b]. Lack of knowledge, [c]. Lack of resources (e.g., water, land), [d]. Cultural/Traditional constraints, [d]. Other (please specify)

- G8. Which of the following strategies do you believe would be effective in enhancing food system resilience to climate change? [Check all that apply and rate each on a Likert scale of 0 to 5 for perceived effectiveness (*0 – not effective, 1 - Slightly effective; 2 - Moderately effective; 3 - Somewhat effective; 4 - Very effective; 5 - Extremely effective*)

Strategies to enhance the resilience of food systems	0	1	2	3	4	5
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☐ Improved water management and irrigation systems						
☐ Diversifying crops and livestock						
☐ Adopting drought-resistant crop varieties						
☐ Enhanced agricultural extension services and training						
☐ Promoting agroforestry						
☐ Implementing soil conservation practices						
☐ Financial support and incentives for adopting resilient practices						
☐ Community-based adaptation strategies						
☐ Integration of traditional knowledge with scientific research						
☐ Implementing soil conservation practices						
☐ Investing in early warning systems						
☐ Others (specify).....						

G9. What role can local communities play in enhancing the resilience of food systems to climate change?

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G10. In what ways can government and non-governmental organizations support communities to enhance food system resilience?

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G11. Are there any innovative practices or technologies you are aware of that could help improve resilience to climate change?

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G12. What kind of research or information would most help you or your community adapt to the impacts of climate change on food systems?

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G13. Please provide any additional comments or suggestions regarding enhancing the resilience of food systems to climate change.

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Key Informant Interviews

Agriculture Officers/Extension Workers:

1. Describe the main types of crops and livestock raised in the region.
2. What are the most significant challenges farmers face regarding food production?
3. Have you observed any changes in climate patterns that impact agriculture?
4. What existing programs or initiatives support farmers adapting to climate change?
5. In your opinion, what are the most promising strategies for enhancing food system resilience?

Researchers:

1. What are your current research priorities related to the region's food security and climate change?
2. What are the key findings from your research on climate impacts on food systems?
3. What gaps in knowledge exist regarding adaptation strategies?
4. How can research findings be translated into practical solutions for farmers?

NGO Representatives:

1. Describe your organization's programs and activities supporting food security and climate adaptation.
2. What are the main challenges you face in implementing these programs?
3. What are the key factors contributing to the success of adaptation initiatives?
4. How can collaboration between NGOs, government agencies, and local communities be improved?

Community Leaders/Elders:

1. How have traditional farming practices and knowledge adapted to changing climate conditions over time?
2. What are the main concerns and priorities of the community regarding food security and climate change?
3. What traditional coping mechanisms are still used to deal with climate variability and extremes?
4. What role can community leadership play in promoting adaptation and building resilience?

Focus Group Discussions

Aligned Focus Group Discussion Guide for Smallholder Farmers:

Objective: Understand farmers' perceptions of climate change, their adaptation strategies, and existing support mechanisms.

Themes:

1. Perceptions and Risks of Climate Change:

○ Understanding and observations:

- What changes in weather patterns have you observed in the past 5 decades?
- How would you describe the severity and pace of these changes?
- How do you predict weather patterns in the community? (local indicators)

○ Impacts and concerns:

- How has climate change impacted your farm production and income?
- What are the most critical impacts you anticipate in the next decade?
- What are your biggest concerns about food security and climate change?

2. Adaptation Strategies:

○ Traditional practices:

- What traditional knowledge and practices do you use to cope with climate variability?
- How effective are these practices in adapting to changing conditions?
- How have these practices evolved over time?

○ Modern approaches:

- What new technologies or practices have you adopted or are willing to try?
- What information and resources do you need to adapt effectively?
- How can modern and traditional approaches be combined for better resilience?

3. Institutional Support:

○ Existing support:

- What support do you receive from government or other institutions for climate change adaptation?
- Does this support address both indigenous and modern knowledge?
- How effective is this support in enhancing your resilience?
- **Integration and recommendations:**
 - Do you think indigenous knowledge should be integrated with existing policies and programs?
 - How can support mechanisms be improved to better promote your indigenous knowledge?
 - What additional support would be most helpful for adapting to climate change?

4: Options for Enhancing Food System Resilience

Key Informant Interviews:

- **Extension Workers/Agricultural Professionals:**
 - What are the most promising existing and emerging technologies and practices for adapting to climate change?
 - What are the challenges and opportunities for scaling up and adopting these options in the local context?
 - How can social safety nets and community-based organizations be strengthened to support vulnerable groups?
- **Researchers/NGOs:**
 - What are the results of research and interventions related to climate-smart agriculture and resilience building?
 - What are the potential trade-offs and unintended consequences of different adaptation options?
 - How can traditional knowledge and practices be integrated with modern approaches for enhanced resilience?

Focus Group Discussions:

- **Farmers:**
 - What are your thoughts on different adaptation options (e.g., drought-resistant crops, water harvesting techniques, early warning systems)?
 - What are the main barriers to adopting new technologies or practices?
 - What kind of support and resources would be needed to implement these options effectively?
- **Community Leaders:**

- What traditional practices and knowledge have been successful in coping with climate variability and shocks?
- How can existing community resources and social networks be used to build resilience?
- What are the priorities and challenges in fostering community-based adaptation strategies?