Gender and climate risk management: evidence of climate information use in Ghana

RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CGIAR

CCAFS

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Gender webinar 23 Jan 2019

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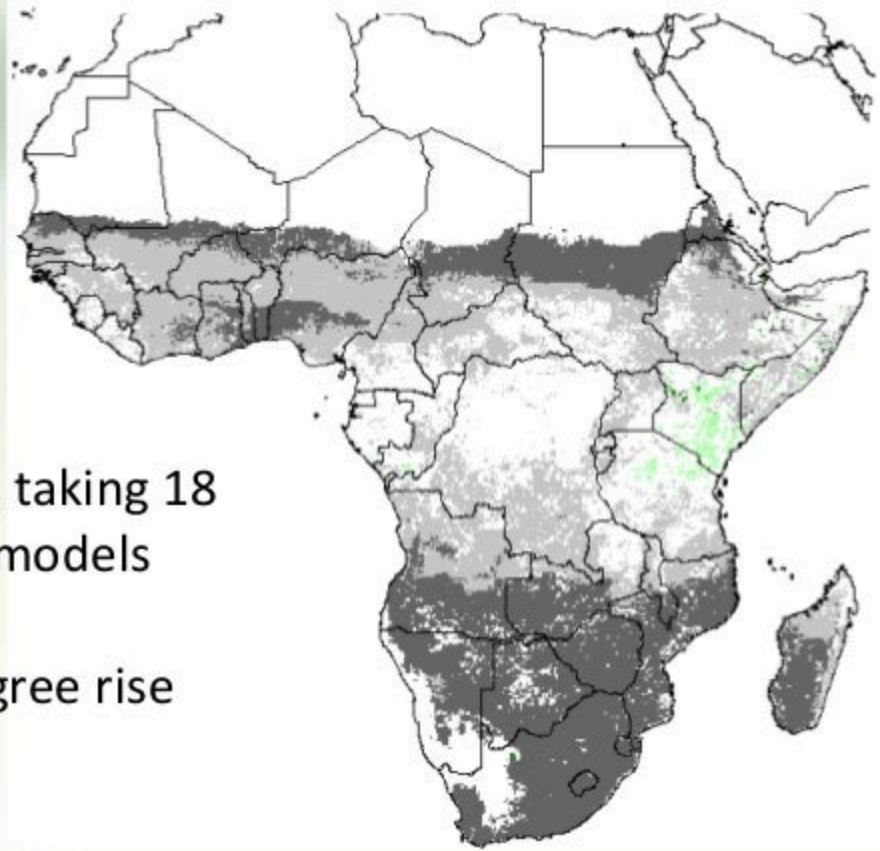
Outline

- Background and rationale
- Developing and piloting a public-private partnership (PPP) model for CIS in Ghana
- Gender analysis
- Results and discussion
- Conclusions and next steps

Background and rationale

Length of growing season is likely to decline..



Length of growing period (%)

- >20% loss
- 5-20% loss
- No change
- 5-20% gain
- >20% gain

To 2090, taking 18 climate models

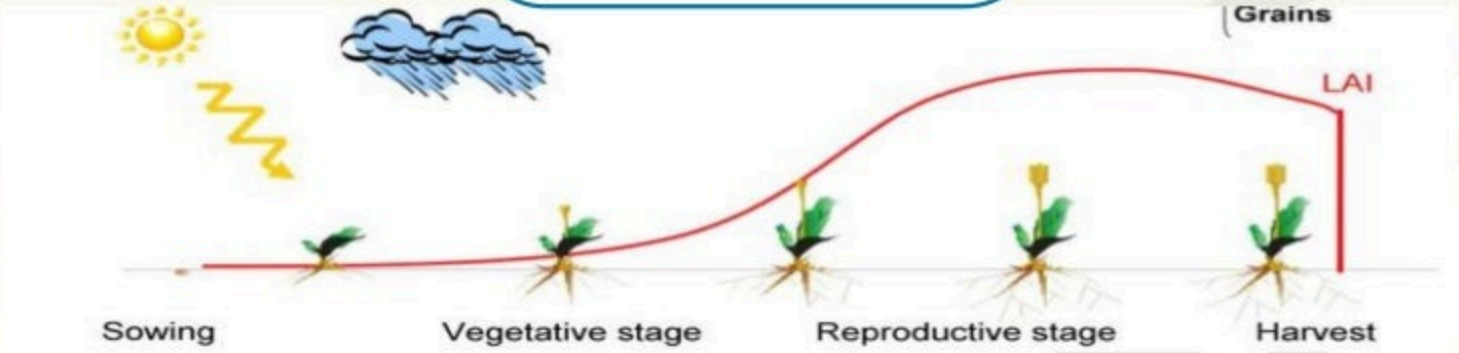
Four degree rise

Thornton et al. (2010) Proc. National Academy Science

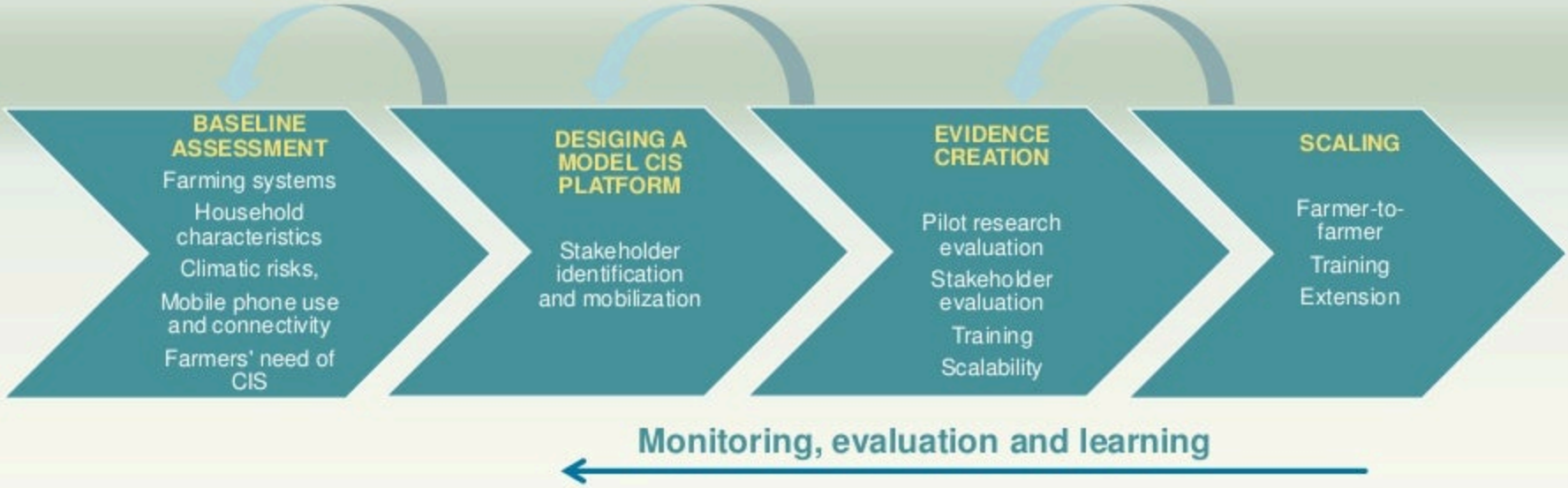
Access and use of climate information services (CIS) is one mainstream opportunity to mitigate climate-related risks

- Better preparedness
- Better responses

Before	During cropping season	Maturity/end season
Seasonal forecast ▪ crop variety ▪ varieties **Onset forecast** ▪ farm preparation ▪ optimum planting	**Nowcasting** ▪ flooding saving life (thunder) **Daily forecast** ▪ use of fertilizer / pesticide **Ten-day forecast** ▪ weeding, field work **Updating seasonal forecast** ▪ second cropping	**Ten-day forecast** ▪ optimum harvesting period ▪ rain during dry season



Developing and piloting a public-private partnership (PPP) model for CIS in Ghana



Steps for the designing and implementation of a PPP model for disseminating CIS. Implementation steps are based on stakeholder engagement and seldom follow a simple linear model.

Public-private partnership (PPP) business model for CIS in Northern Ghana

- The overall goal: generate a PPP that allows sustainable and equitable dissemination of CIS to farmers through the use of Information and Communication Technology (ICT) platforms.
- Duration (1st phase): 4-5 years involving 1000 farmers (33% women)

Gender analysis

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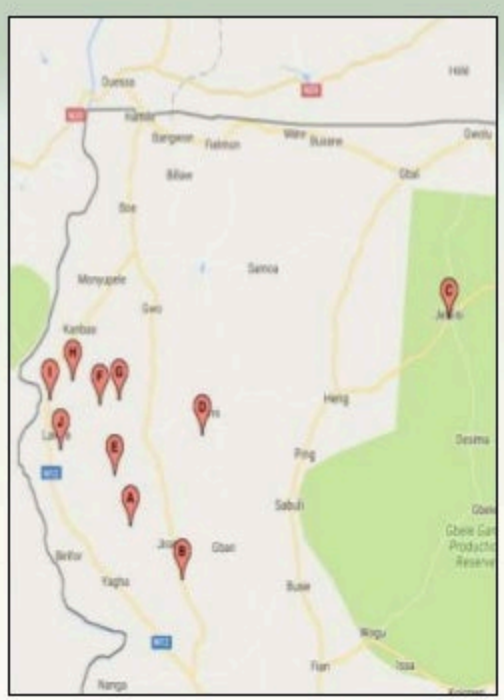
Study location: Lawra-Jirapa climate-smart village sites



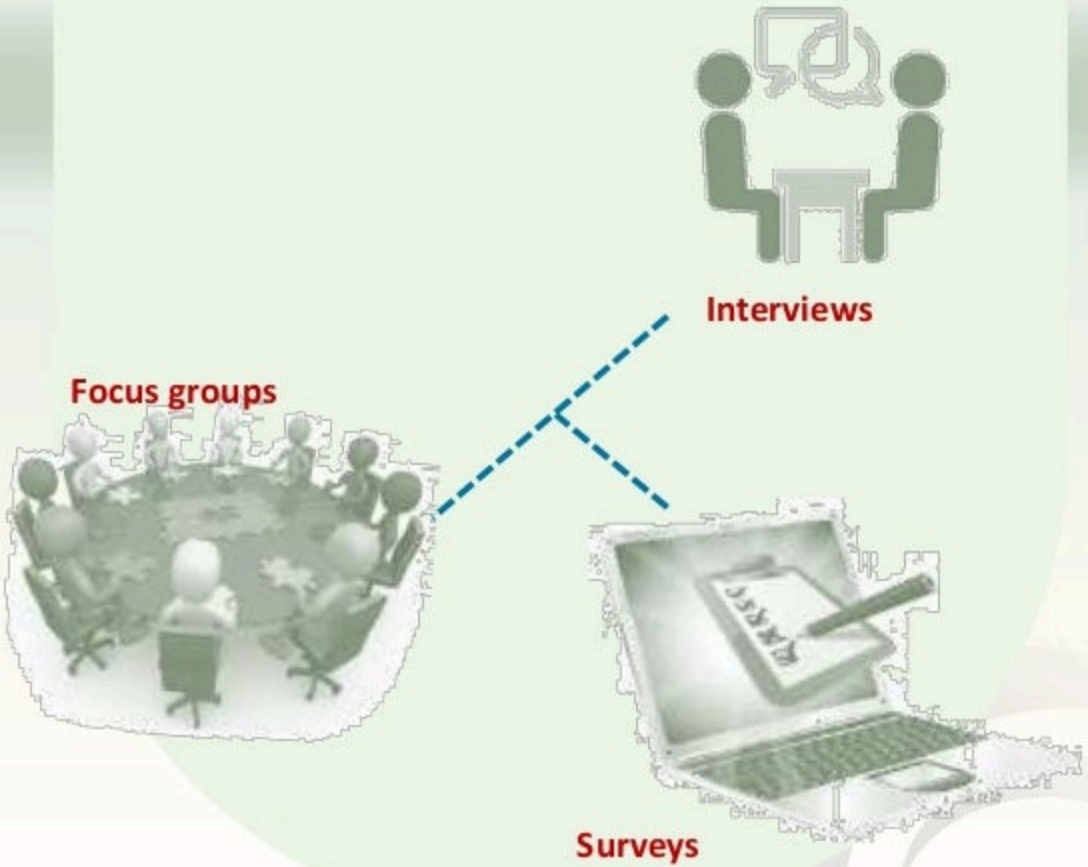
Doggoh District Jirapa A
Baazu District Jirapa B
Jeffo District Jirapa C
Dir District Jirapa D
Wuling District Jirapa E
Bompari District Lawra F
Dapuori District Lawra G
Taber District Lawra H
Orbil District Lawra I
Tuori District Lawra J

Key research questions:

1. Do perceptions on climate change and variability differ between men and women farmers?
2. Is gender a determinant of climate information use?
3. Do men and women benefit and face similar constraints to the use of climate information services?

Information & Data gathering

- Questionnaire survey
  - 900 respondents (51% receiving CIS through the PPP model)
  - 50% women
- Data analysis
  - Descriptive and inference statistical approaches



Results and discussion

Does perception on climate change and variability differ between men and women farmers?

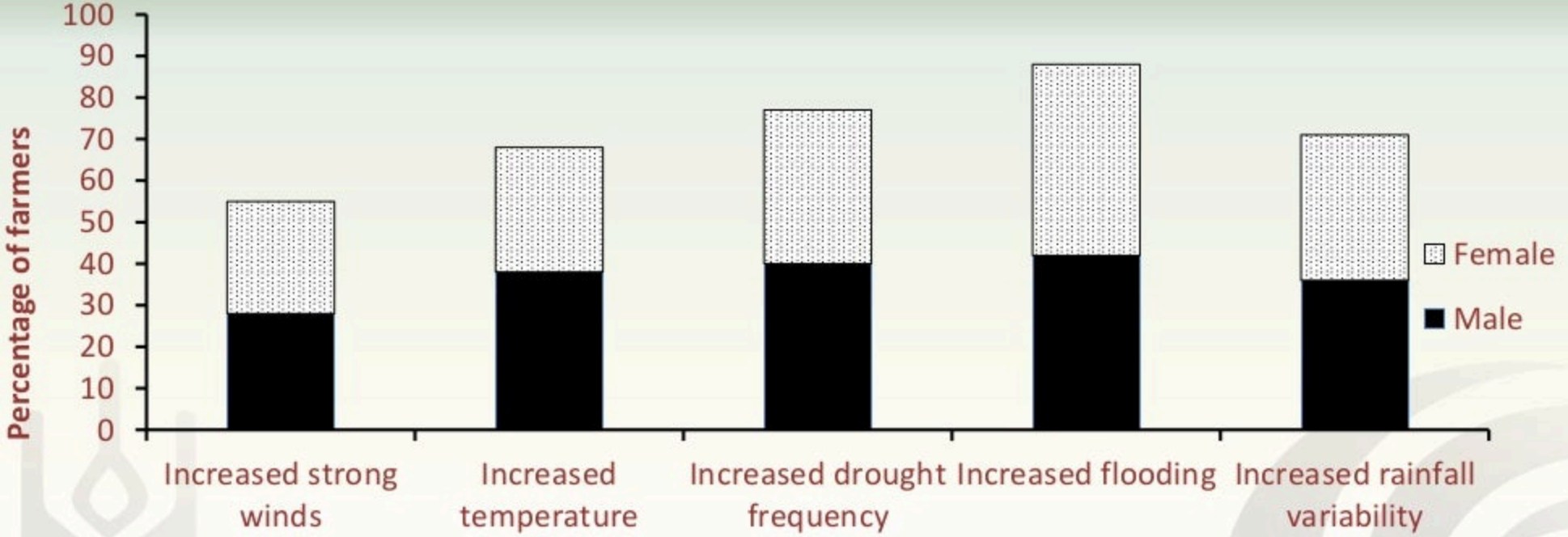


Figure 1: Perceived climate change manifestations by farmers at the CCAFS CSV sites in the Lawra-Jirapa district of the Upper West Region of Ghana. N = 900

What climatic event (s) is/are driving farmers to use CIS?

Table 1: Logistic regression of perceived climatic events influencing the use of CIS

Use of climate information services	Coefficient	Std. Err.	z	P>z	[95% Confidence interval]	
Increased strong winds	-0.091	4.659	-0.02	0.984	-9.223	9.040
Increased temperature	0.946	4.537	0.21	0.835	-7.946	9.837
Increased rainfall variability	**5.258*** **	**0.692**	**7.60**	**0.000**	**3.902**	**6.614**
Increased drought frequency	**8.440*** **	**0.703**	**12.00**	**0.000**	**7.062**	**9.819**
Increased floods	-0.268	1.218	-0.22	0.826	-2.655	2.119
Constant	-5.343	0.690	-7.74	0.000	-6.696	-3.991

N = 900; Prob > chi2 = 0.0000; Log likelihood = -69.269785; Pseudo R^2 = 0.8889. Significant variables are highlighted in yellow

Is gender a determinant of climate information use?

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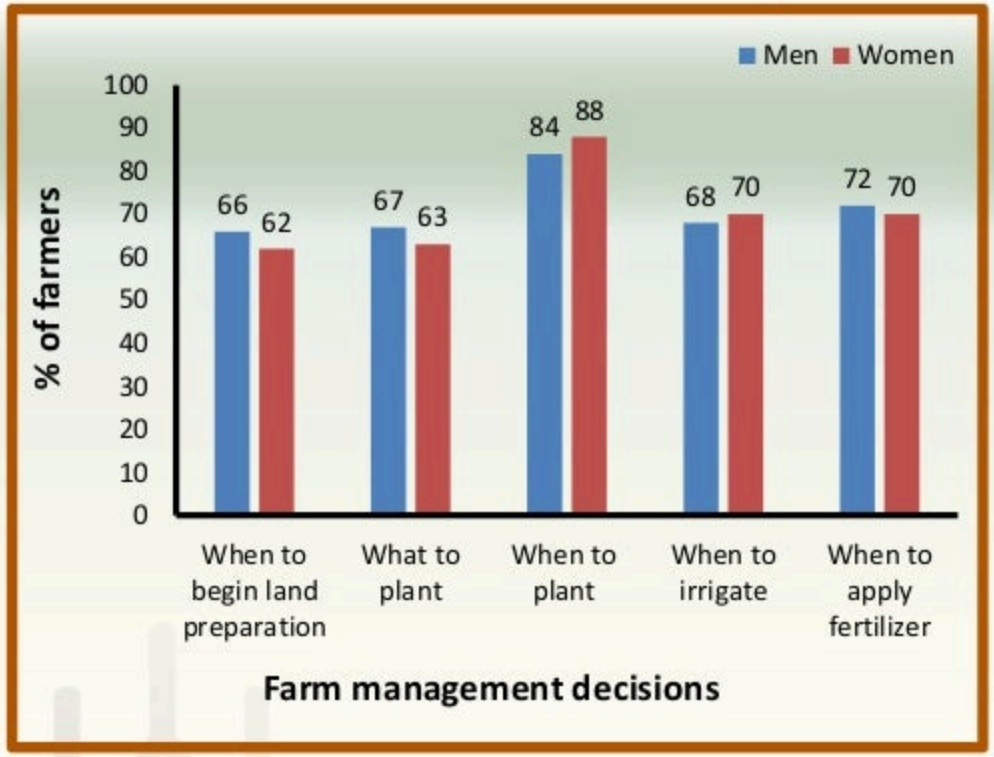
Table 2 Logistic regression of farmer characteristics influencing the use of climate information services

Farmer characteristics	Coefficient	Std. Err.	z	P>z	[95% Confidence interval]	
Age	-0.050	0.377	-0.13	0.895	-0.789	0.689
Gender (male)	2.282***	0.571	3.99	0.000	1.162	3.402
Income	0.333	0.467	0.71	0.476	-0.583	1.249
Being educated	0.001	0.359	0	0.998	-0.703	0.705
Length of farming	0.335	0.341	0.98	0.325	-0.332	1.002
Access to agric extension	0.313	0.537	0.58	0.560	-0.740	1.366
Access to radio	0.063	0.577	0.11	0.913	-1.068	1.194
Access to TV	-0.731	0.494	-1.48	0.139	-1.700	0.238
Access to telephone	7.722***	0.630	12.25	0.000	6.486	8.958
Access to improved seeds	0.461	1.005	0.46	0.647	-1.509	2.430
Access to fertilizer	-0.638	0.798	-0.8	0.424	-2.203	0.926
Access to irrigation	-1.148**	0.511	-2.25	0.025	-2.150	-0.147
Engaged in crop production	3.176**	1.310	2.42	0.015	0.607	5.744
Engaged in livestock production	5.987***	1.349	4.44	0.000	3.342	8.632
Land ownership	1.045***	0.395	2.65	0.008	0.272	1.819
Constant	-9.929	1.606	-6.18	0.000	-13.076	-6.781

N = 900; Prob > chi2 = 0.0000; Log likelihood = -140.6329; Pseudo R^2 = 0.7745. Significant variables are highlighted in yellow

Do men and women use and benefit from CIS differently?



CIS is helping farmers make strategic decisions with precision. Effective implementation of actionable agro-advisories are helping farmers improve overall productivity on their farm lands. N = 462

"After receiving agricultural messages... from Esoko....The yields of my two favourite crops (maize and millet) have increased." Mampong Naa, Beneficiary

https://ccafs.cgiar.org/blog/how-climate-smart-village-approach-impacts-farmers-livelihoods-ghana#.Wh5u9FWRqpo

https://ccafs.cgiar.org/blog/mobile-phones-help-northern-ghana%E2%80%99s-farming-families-beat-climate-change#.Wh5u91WRqpo

What problems/constraints do men and women face with accessing and using CIS?

Table 3 Constraints to effective use of climate information delivered through mobile phones in the CCAFS CSV sites in the Lawra-Jirapa district of the Upper West Region of Ghana

Men	Women
Limited training on interpreting weather information received	Little or no formal education hindering our ability to read and understand the text messages sent by the Esoko platform
The forecast information is sometimes different from the actual weather condition	Periodically, educated community members unable to correctly interpret text messages
Bad network connection	Expensive call charges
Long waiting times on calls placed to the call center	Lack of access to mobile phones as the service is phone based
Periodically, the translators at the Esoko call centre are not available and they do not call back either	Lack of means of transportation on reported market days in various communities prevents farmers from moving to sell farm produce

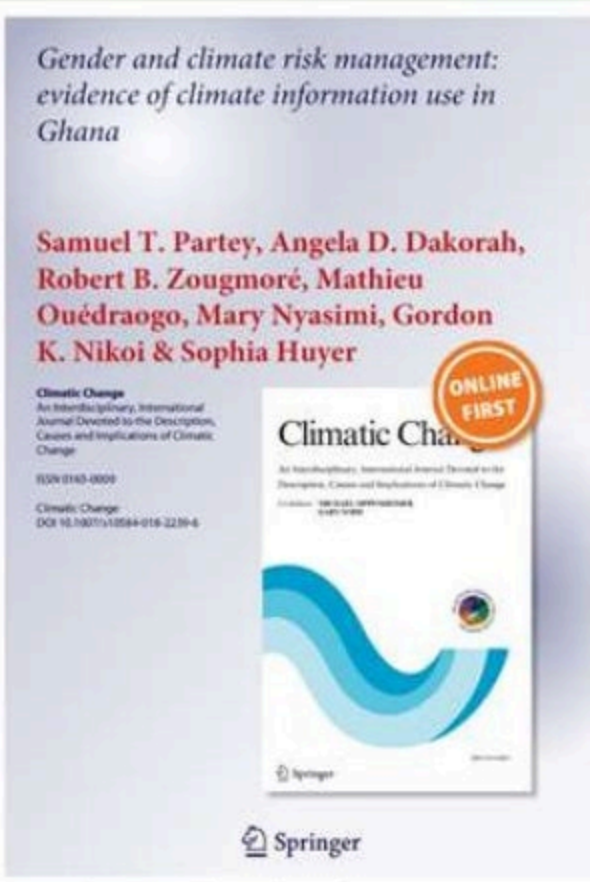
Conclusions and further studies

- The study confirmed increased awareness of climate change with no significant differences in climate change perception between men and women.

- Gender may influence CIS access and use. CIS design must consider gender-specific needs including exploring various dissemination channels that address the constraints experienced by women, to ensure the development of a gender-responsive decision support service

- Regardless of gender, CIS through mobile platforms is helping farmers make strategic decisions with precision with effective implementation of actionable agro-advisories helping farmers improve overall productivity on their farm lands.

- **Next steps and further studies:** Scaling up efforts targeting 1 million farmers started, economic evaluation studies (e.g. Benefit-cost analysis; willingness to pay)



Thanks for your attention

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Questions & Answers