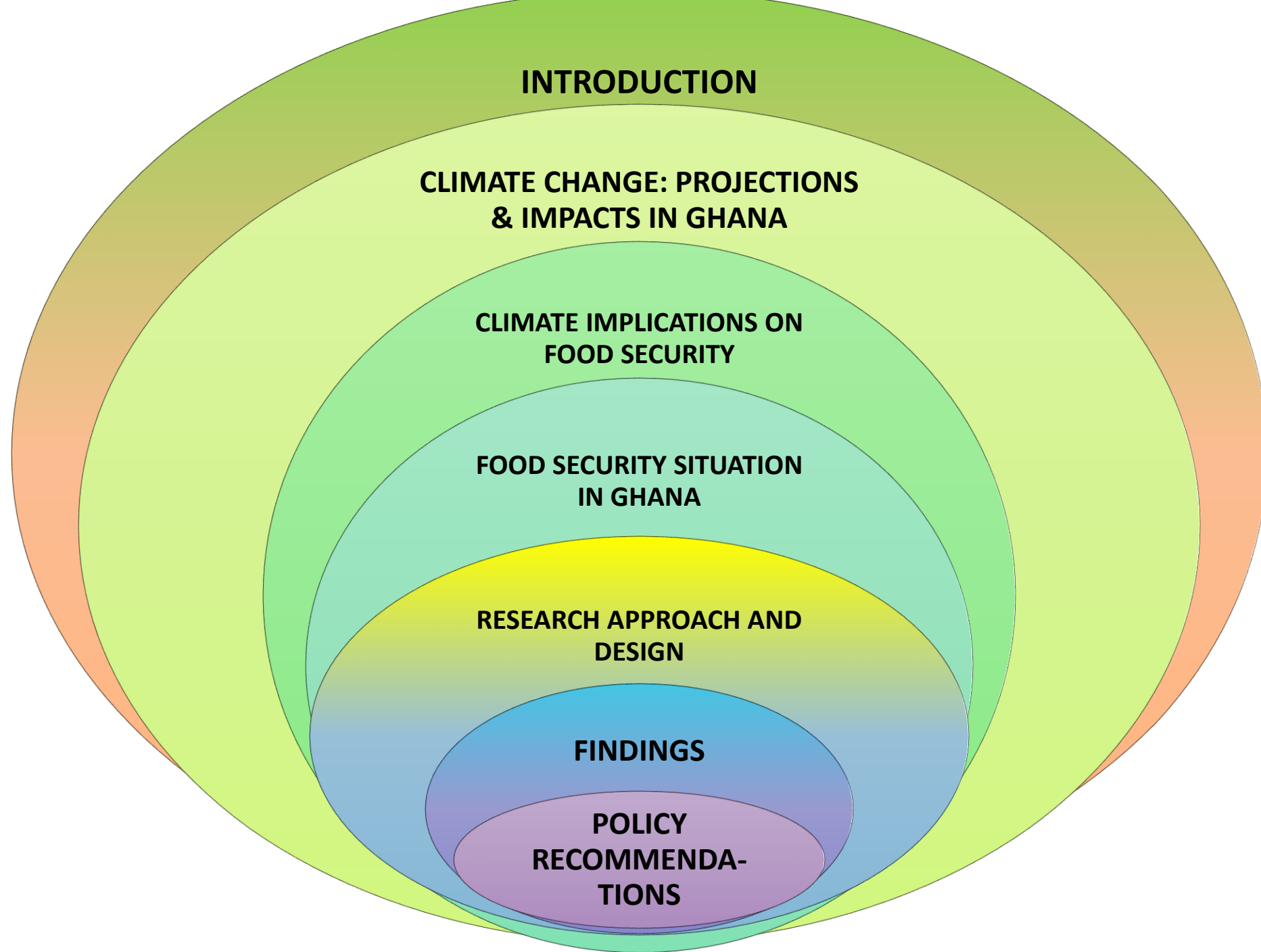


Climate Variability and Extremes and Household Food Security among Crop-Livestock Smallholder Farmer Households in the Semi-arid Guinea Agro-ecological Zone of Ghana

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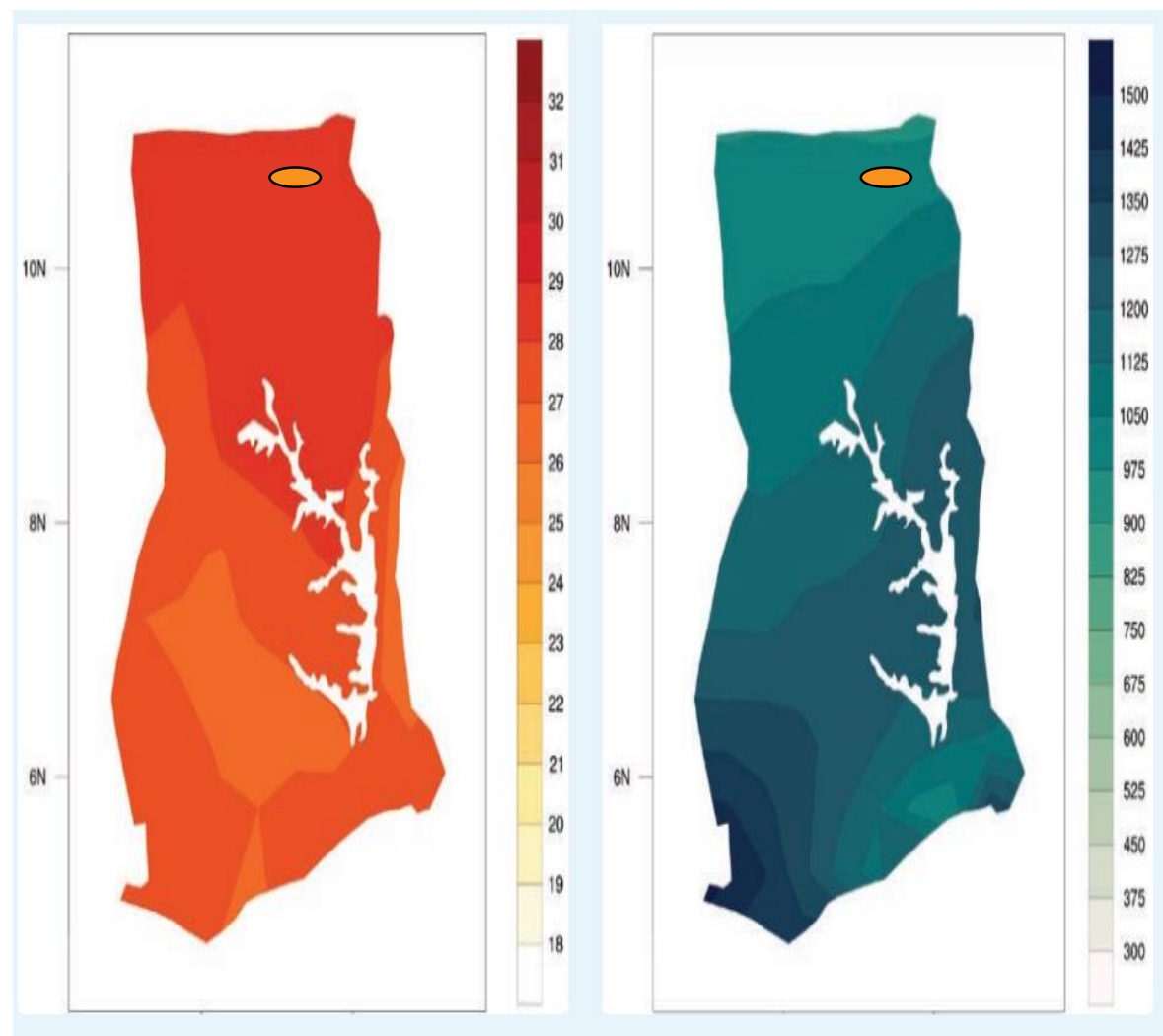
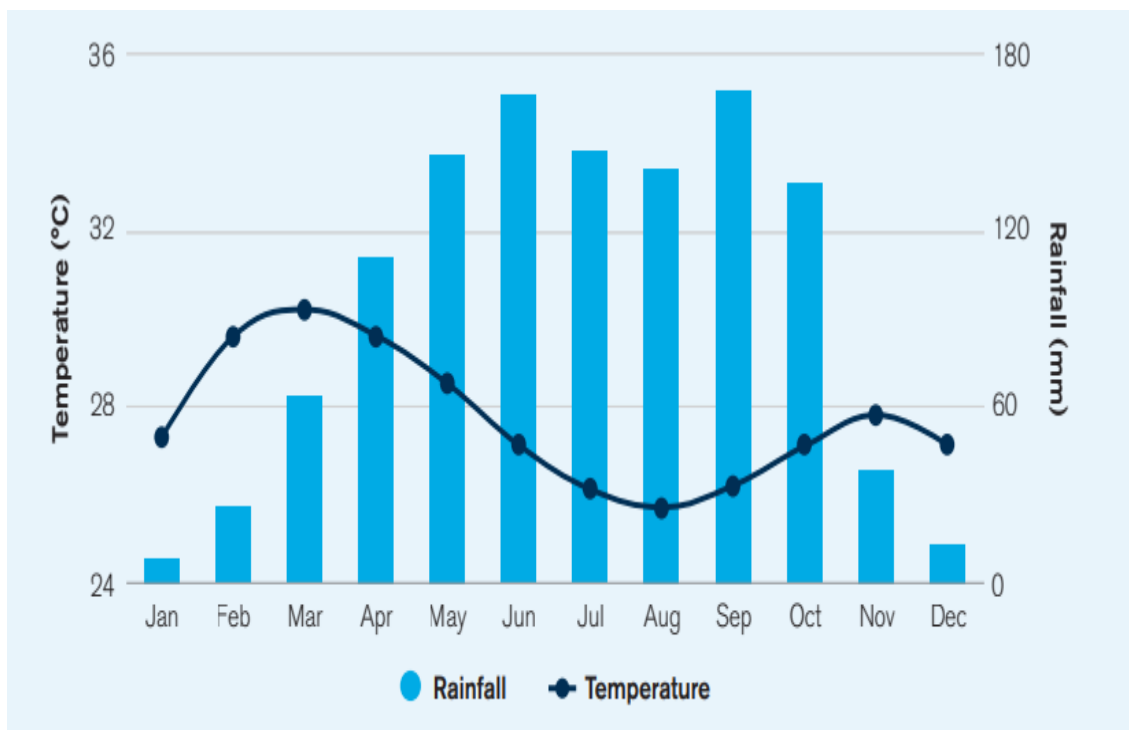


INTRODUCTION

CLIMATE CHANGE: PROJECTIONS & IMPACTS IN GHANA

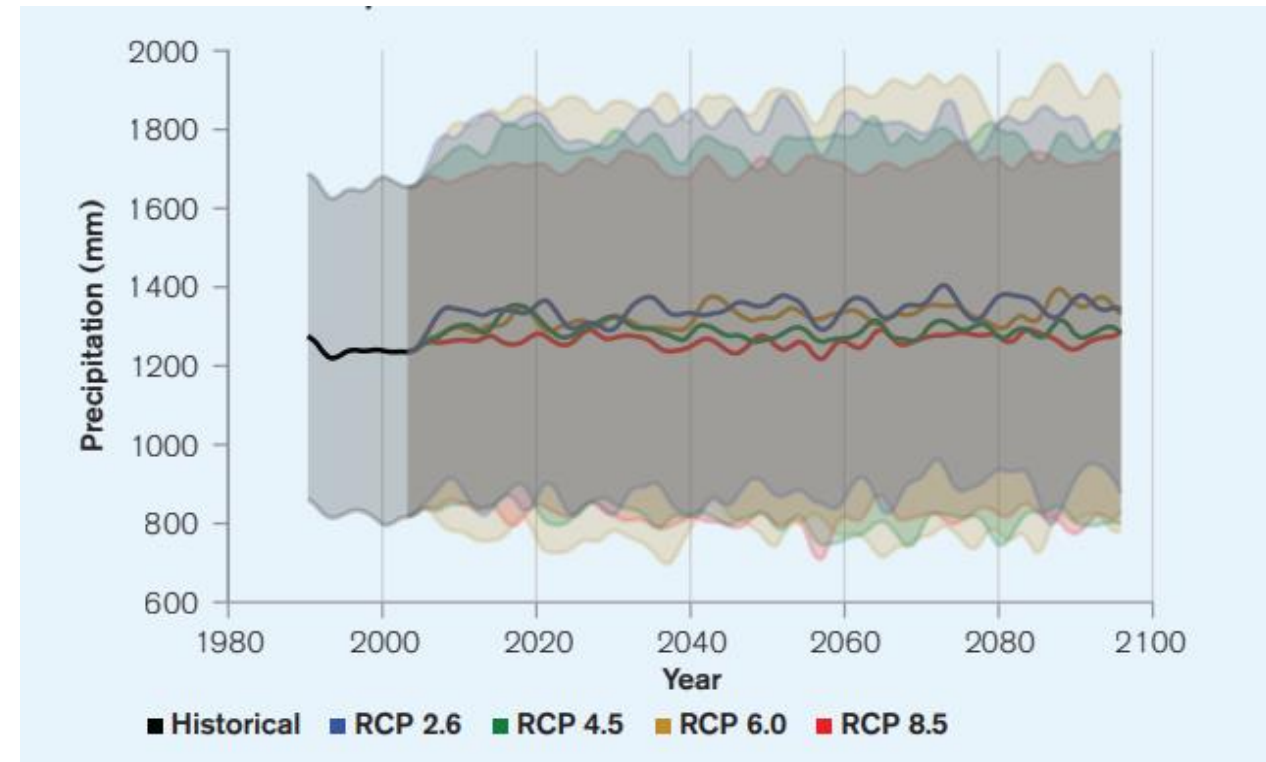
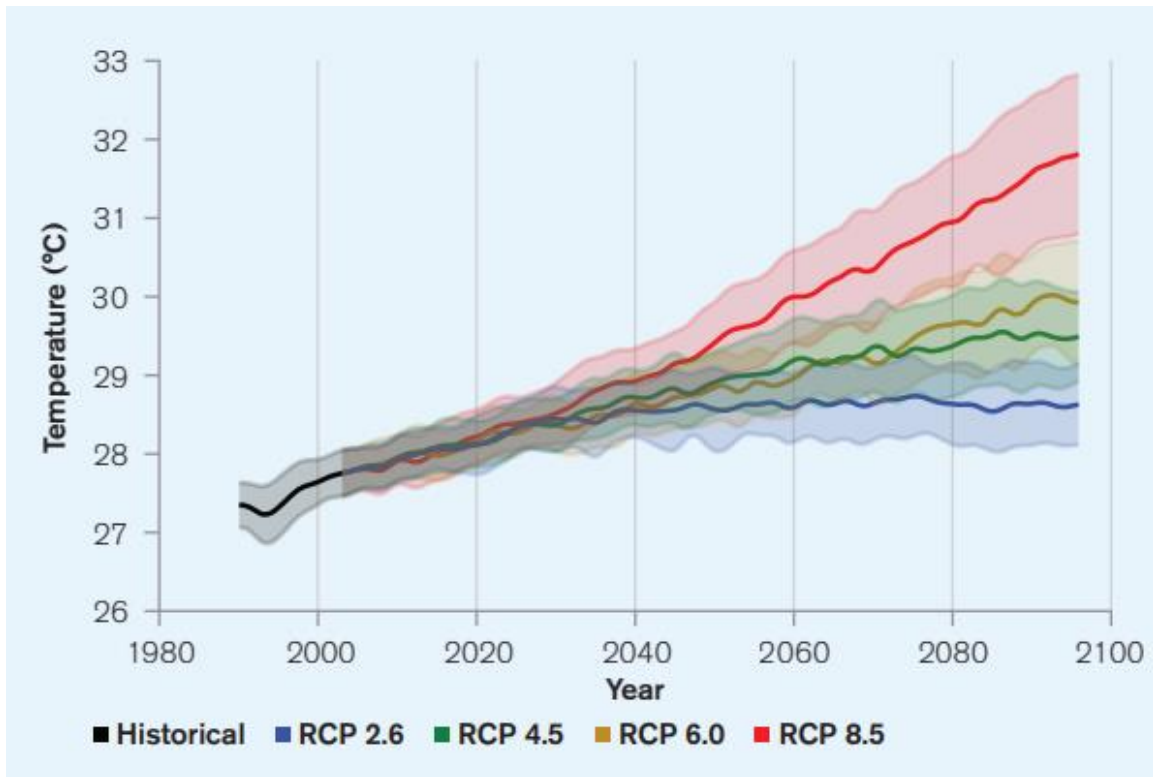
Ghana's Climate Profile

Climate Variables	1901-2020
Mean Annual Temperature (°C)	27.3°C
Mean Annual Precipitation (mm)	1,189.9 mm
Mean Maximum Annual Temperature (°C)	32.5°C
Mean Minimum Annual Temperature (°C)	22.1°C



Ghana's Climate Projections

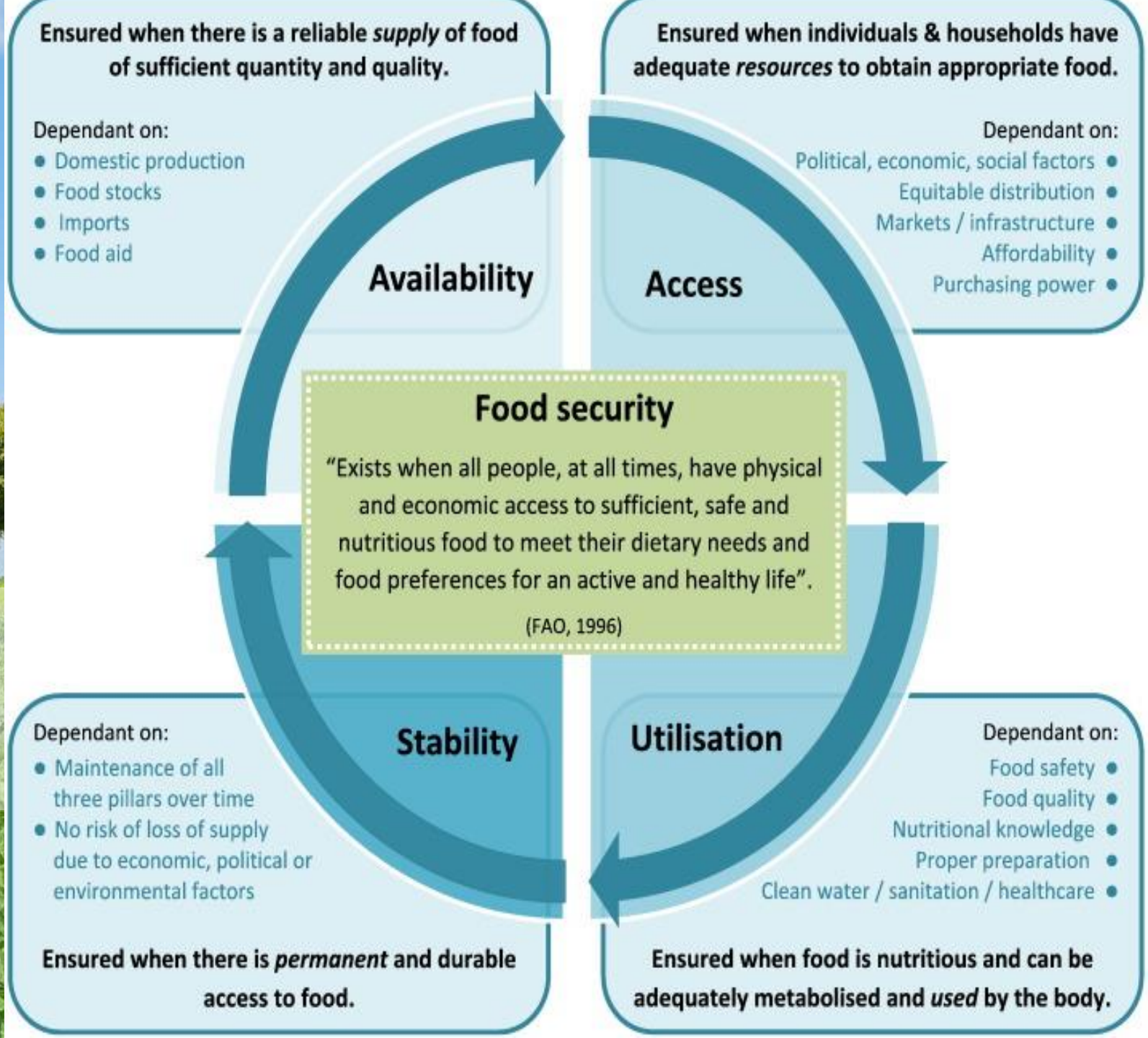
Cmip5 Ensemble Projection	2020–2039	2040–2059	2060–2079	2080–2099
Annual Temperature Anomaly (°C)	+0.6 to +1.5 (+0.9°C)	+1.2 to +2.7 (+1.7°C)	+1.7 to +3.8 (+2.7°C)	+2.3 to +5.3 (+3.6°C)
Annual Precipitation Anomaly (mm)	-16.7 to +22.0 (+0.9 mm)	-22.2 to +30.4 (+0.3 mm)	-22.9 to +38.9 (+2.9 mm)	-29.7 to +45.2 (+1.6 mm)



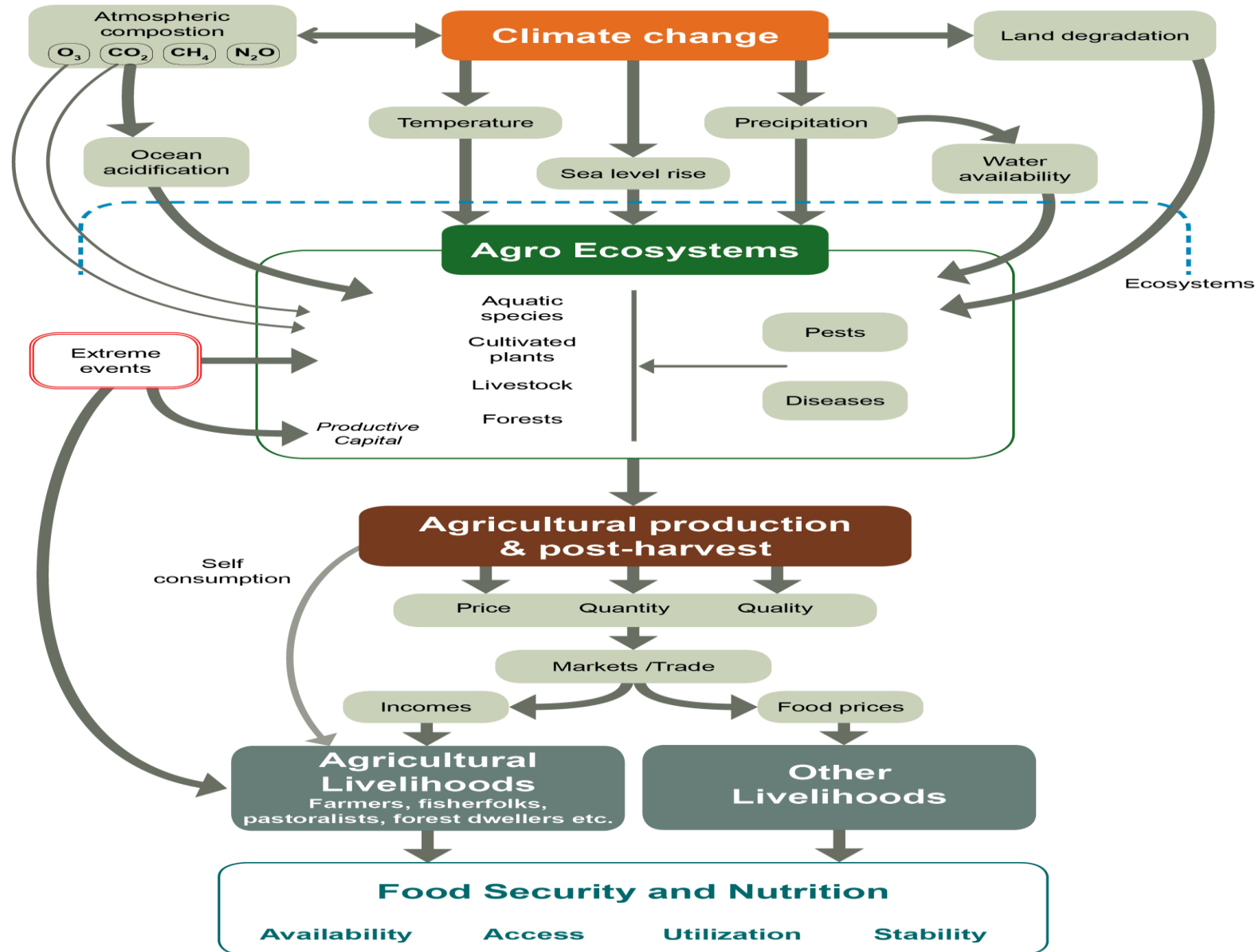
CLIMATE IMPLICATIONS ON FOOD SECURITY



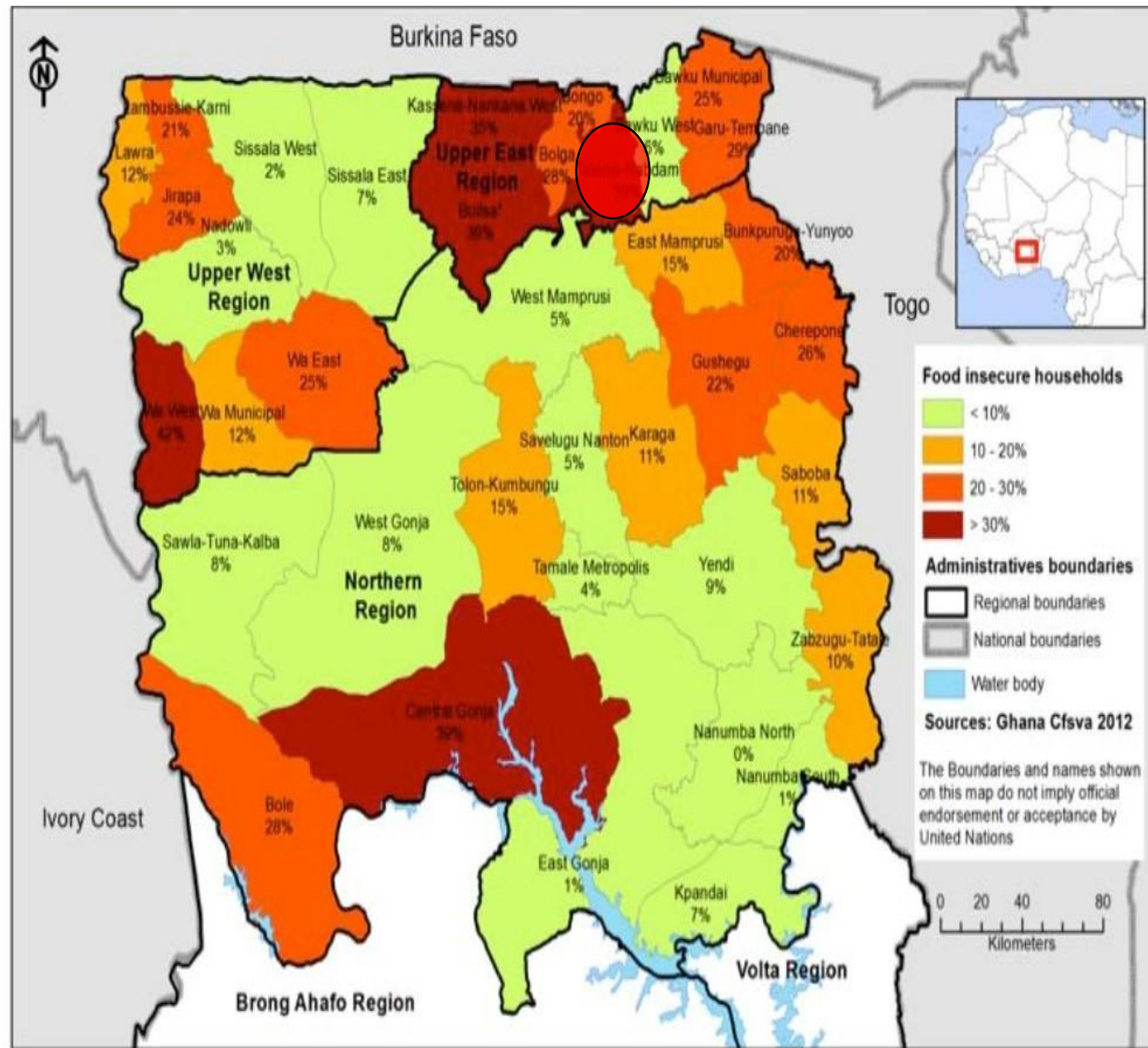
FOOD SECURITY AND ITS PILLARS



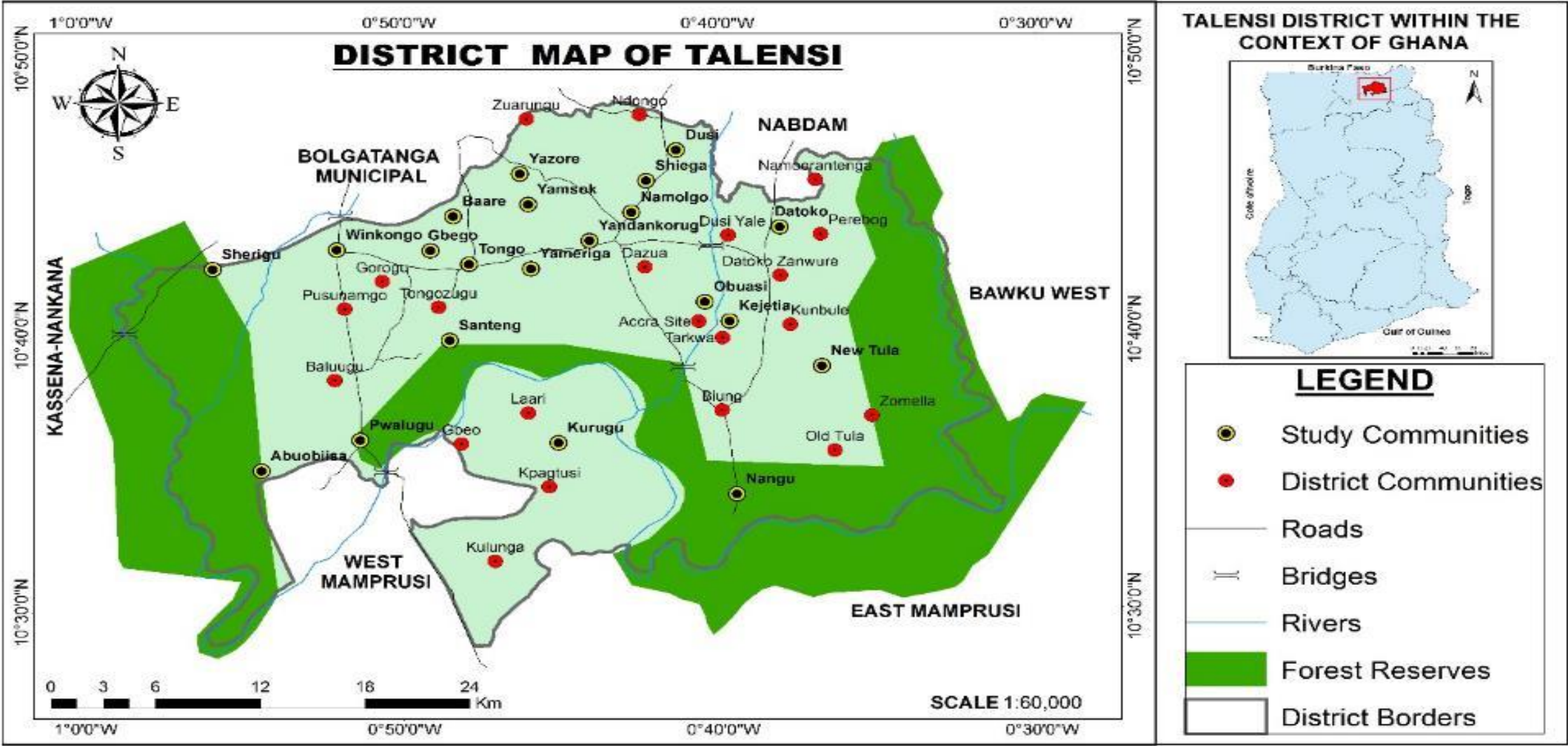
Cascading effects of climate change impacts on food security



FOOD SECURITY SITUATION IN GHANA



Study Site: Talensi District



RESEARCH APPROACH AND DESIGN



Stage 1
Selection of study communities

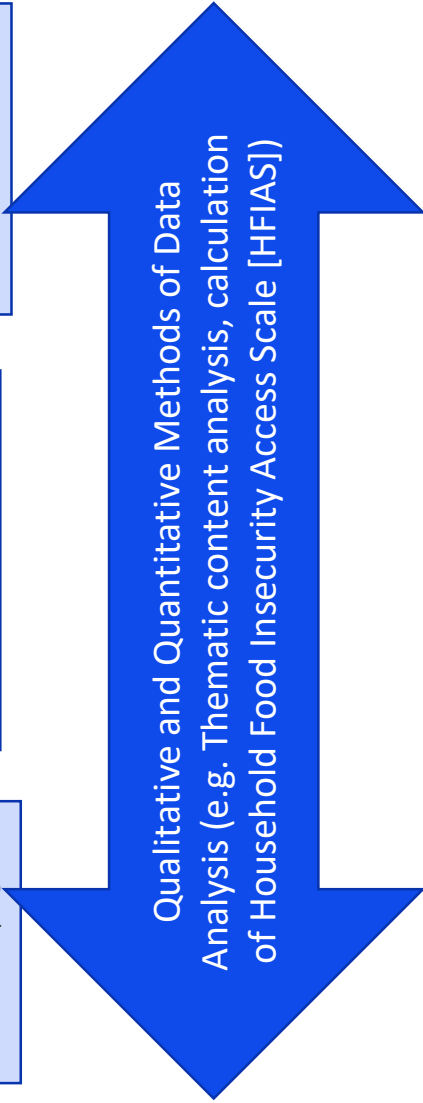
With the help of staff from the district's Department of Agriculture and the Ghana Meteorological Agency, 21 communities (Figure 1) that highly sensitive and exposed to climate variability and extremes were selected. 7 communities were randomly selected from each of the district's 3 area councils to provide valuable context for in-depth analysis

Stage 2
Household Surveys

- Crop-livestock smallholder farmer households were naturally identified as the unit of analysis.
- Using the Slovin's formula, a sample size of 390 participants were selected
- A questionnaire coded with Open Data Kit (ODK) was used to collect data from crop-livestock farmer household heads

Stage 2
Focus Group Discussions and Key Informant Interviews

- 3 FGDs were conducted per community and comprised 5 to 10 household heads. Each focus group was made up of male-only, female-only, and youth-only groups
- 63 key informants (3 per community) were engaged



FINDINGS

Manifestation of Climate Variability and Extremes in the Talensi district



Drought
(32.5%)



High temperatures
(30.3%)



Rainfall variability
(13.4)



Flood
(12.5)

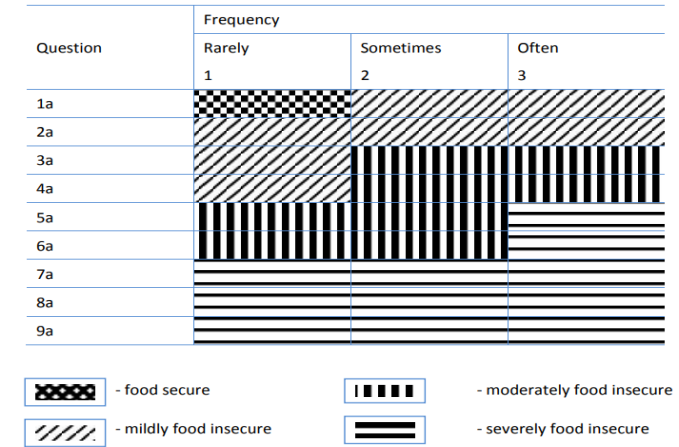


Land degradation
(11.3%)



Household Food Security in the Talensi district

Indicator	Occurrence		Frequency-of-Occurrence		
	Yes (%)	No (%)	Rarely (%)	Sometimes (%)	Often (%)
1. In the past four weeks, did you worry that your household would not have enough food?	87.3	12.7	10.2	36.5	53.3
2. In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	76.3	23.7	32.3	17.7	50
3. In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	83.2	16.8	28.1	23.2	48.7
4. In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	78	22	5.8	15.1	79.1
5. In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	80.1	19.9	11.9	5.2	82.9
6. In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?	72.8	27.2	12.6	5.8	81.6
7. In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	39.1	60.9	12.4	7.2	80.4
8. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	37	63	14.7	6.3	79
9. In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	19	81	12.5	7.3	80.2



Coates, Swindale and Bilinsky (2007, p. 19)

Food In(security) Status	Average HFIAS Scores
Severely food insecure (1)	42.2%
Moderately food insecure (2)	25.2%
Mildly food secure (3)	32%
Food Secure (4)	10.2%
Food Insecure (1+2)	67.4%

POLICY RECOMMENDATIONS

Promote climate-smart and conservative agriculture practices

Promote integrated natural regeneration

Major public and private sector investments in irrigation, efficient water management and water resources development

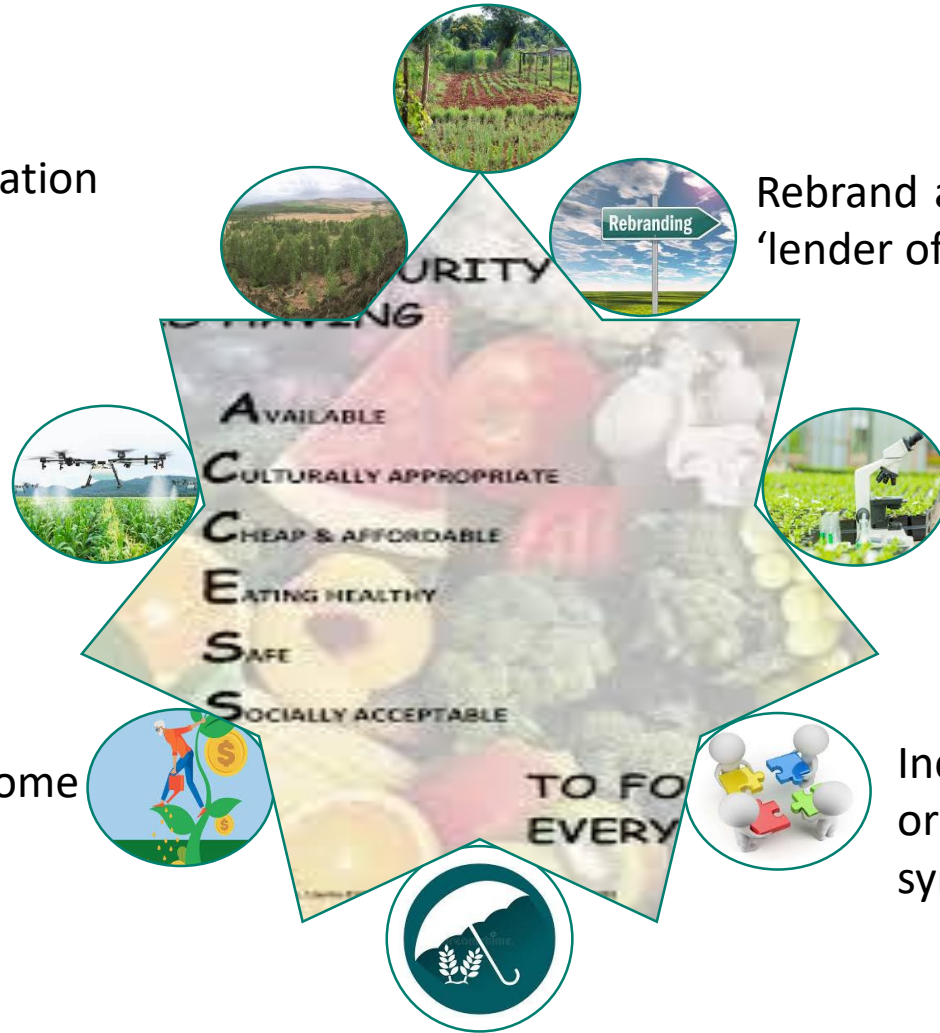
Diversification to livelihood and income sources

Promote agricultural insurance as a tool to manage climate-related shocks

Rebrand agriculture as a lucrative venture and not 'lender of last resort'

Agricultural research and extension and other methods to reduce food production losses

Increased cross-sectoral coordination/collaboration to enhance synergies



THANK YOU