

# Gambian Farmers' Perception of and Access to Climate Services on Early Warning and Adaptation

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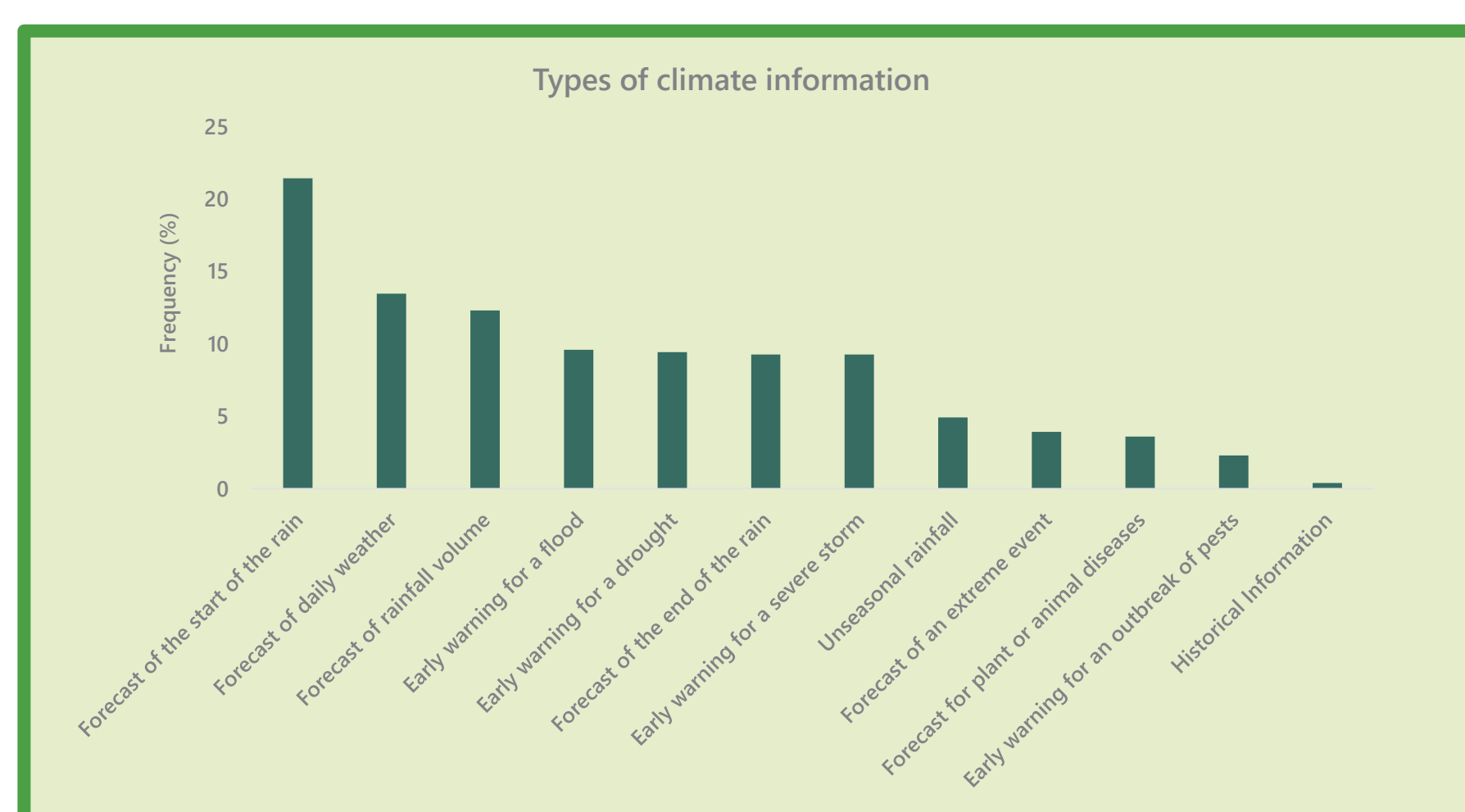
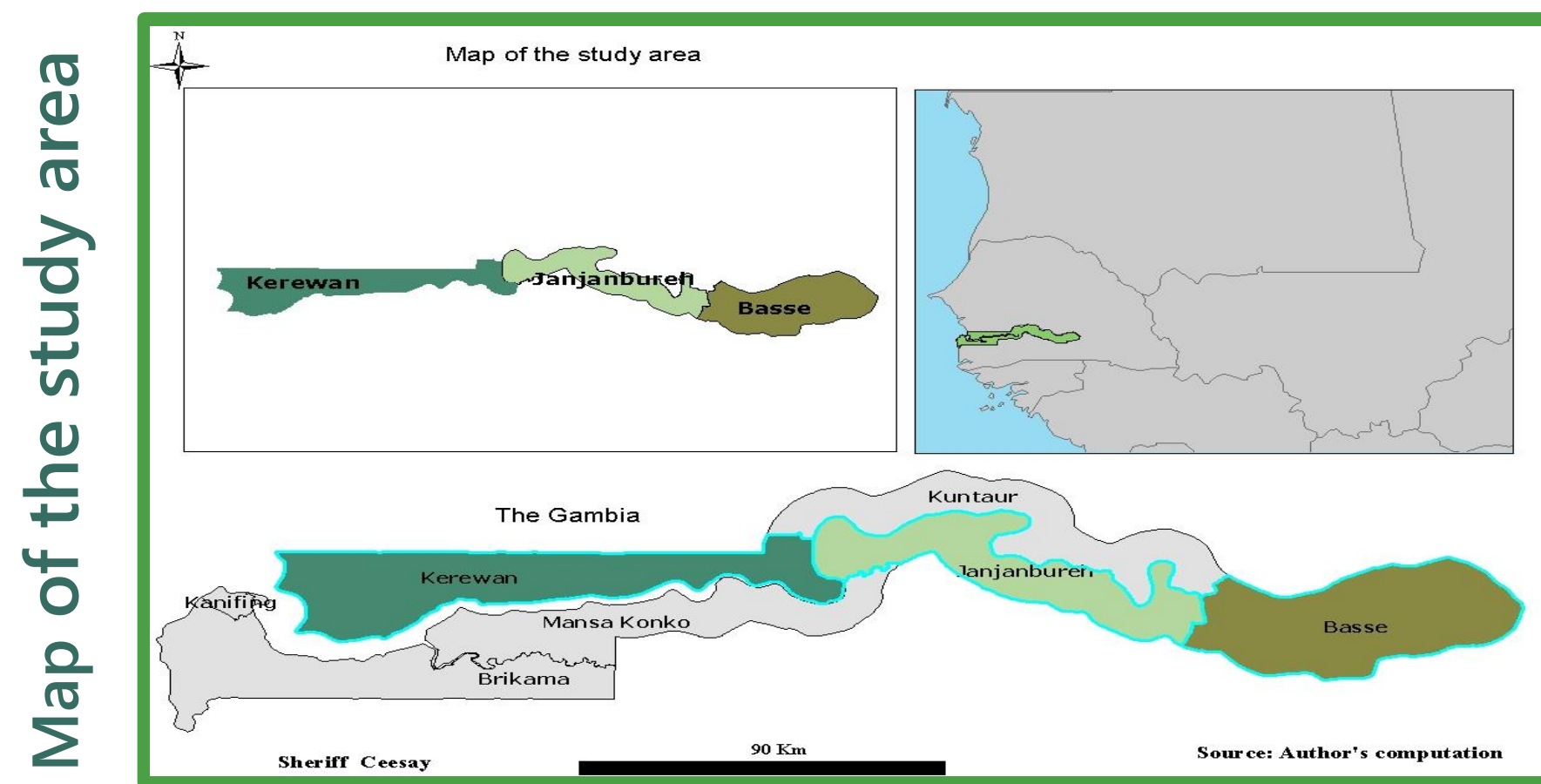
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## Introduction

- The Gambia is a low-lying country located in West Africa. Its tidal swamps, covering 20% of its land. Additionally, The Gambia is prone to different **weather-related risks** such as floods, rising sea levels, wind storms, and drought.
- These events have a **devastating impact** on the **agricultural sector**, which is the main **source of livelihood** for many Gambians.



- The most prevalent type of **climatic information** available to Gambian farmers is information on the start of the **rainy season**. **Radio** is the most prevalent **source** of early warning climate information.

## Objective, Methods and Data

- Objective:** To investigate the effect of early warning climate information in adopting climate risk adaptation strategies among Gambian farmers
- Data:** A survey of 420 farmers in 3 regions of the country: data on climate info access, adaptation, and perception of the reliability and usefulness of early warning climate information.
- Methods:** Mixed-method approach is used
- Multistage random sampling**
- Binary logistic, recursive bivariate probit and multinomial models.**

## Results

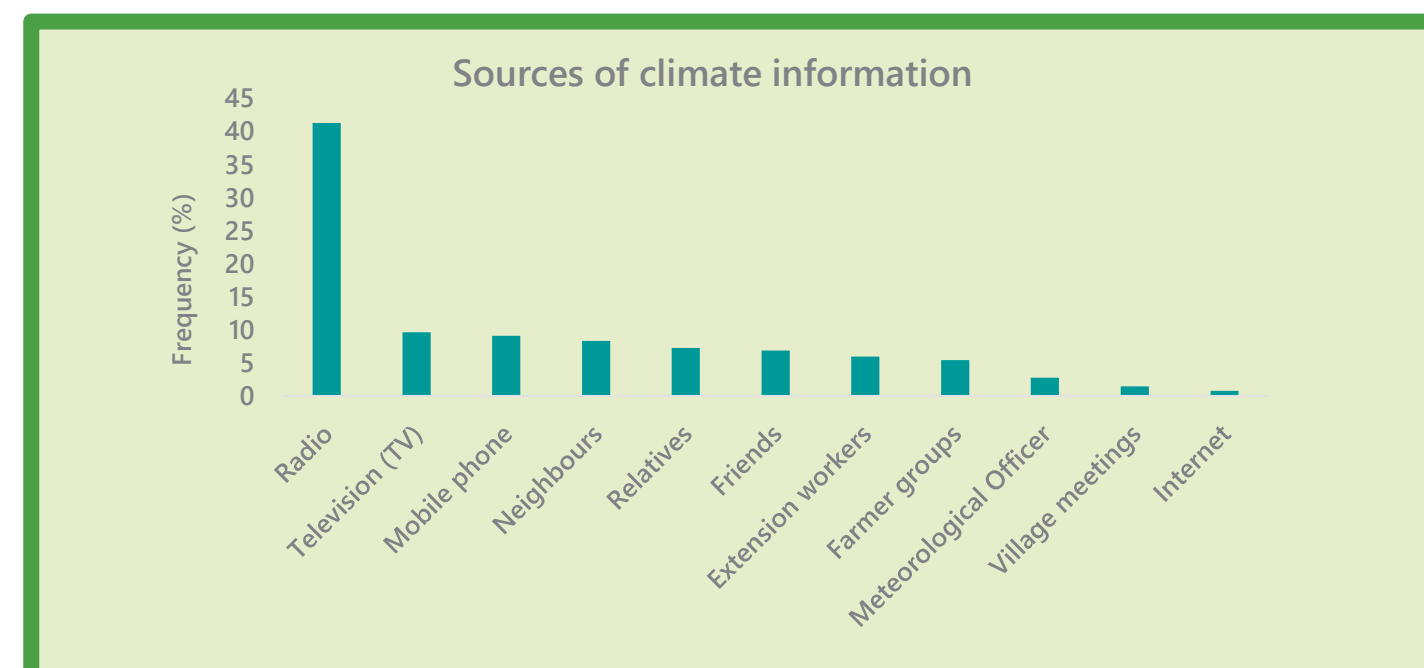


Table 1: Logistic regression of factors influencing access and use of climate information

Variable	Access to climate information		Use of climate information	
	Coef.	P>=	Coef.	P>=
Female	-0.479	0.173	-0.276	0.409
Middle age farmers	0.797	0.063	0.783	0.045
Old farmers	0.133	0.772	0.211	0.616
No formal education	0.533	0.357	-0.009	0.986
Primary	0.678	0.335	0.842	0.181
Secondary	-0.329	0.749	0.305	0.780
Access to gov's support	-0.291	0.463	-0.220	0.576
Access to marketing information	<b>1.704</b>	<b>0.000</b>	<b>1.363</b>	<b>0.001</b>
Access to extension services	<b>0.713</b>	<b>0.031</b>	0.391	0.209
Training	<b>1.675</b>	<b>0.031</b>	<b>1.227</b>	<b>0.024</b>
Member of a social farm group	-0.785	0.165	-0.432	0.399
Trust in the media	<b>2.181</b>	<b>0.000</b>	<b>3.089</b>	<b>0.000</b>
Witness unexpected weather event	<b>1.130</b>	<b>0.004</b>	<b>2.043</b>	<b>0.000</b>
Constant	<b>-2.662</b>	<b>0.000</b>	<b>-4.891</b>	<b>0.000</b>
N	420		420	
Log likelihood	-135.116		-151.732	
LR chi2	138.770		193.480	
Prob>chi2	0.000		0.000	
Pseudo R2	0.339		0.389	

- Results of the **binary logistic model (Tab. 1)** show that the following factors influence **farmers' access** to and use of early warning climate information:
- Access to marketing information, training, trust in the media and witnessing unexpected weather events**
- Farmers' trust in channels boosts their motivation to use information, while females tend to find climate information less accurate. Training shapes farmers' views on climate info credibility and trust.

Table 2: MNL factors influencing farmer's perception of climate information service

Variable	Perceive change in average reliability of climate information (base: not reliable)		Perceive change in average usefulness of climate information (base: not useful)	
	Reliable	Very reliable	Useful	Very useful
Female	<b>-0.879**</b>	-0.641	<b>-0.799**</b>	-0.72
Middle age farmer	0.368	0.566	0.509	0.589
Old farmer	0.539	0.04	0.479	0.132
No formal education	-0.12	-0.067	0.434	0.464
Primary education	0.169	0.087	0.277	0.465
Secondary education	-0.297	-0.739	-0.088	-1.128
Access to gov's support	-0.033	-0.911	0.006	-0.672
Access to marketing infor.	<b>1.907***</b>	1.413	<b>1.530***</b>	<b>2.195***</b>
Access to extension services	0.255	0.388	0.26	<b>0.835**</b>
Training	<b>1.215*</b>	<b>2.546***</b>	<b>1.234*</b>	<b>2.374***</b>
Member of a social farm group	-0.166	-0.563	-0.432	-0.592
Trust in the media	<b>3.159***</b>	<b>2.968***</b>	<b>2.749***</b>	<b>3.042***</b>
Witness unexpected weather event	<b>1.808**</b>	<b>3.557***</b>	<b>1.165**</b>	<b>2.704***</b>
Constant	-4.413	-6.424	-3.663	-6.711
N	420		420	
Log likelihood	-327.225		-336.644	
LR chi2	243.480		220.640	
Prob>chi2	0.000		0.000	
Pseudo R2	0.271		0.247	

- For the **MNL model (Tab. 2)**: **access to marketing information, trust in the media, witness unexpected events, and training** are the variables that **positively** influence **farmers' perception** of how reliable and useful are climate information.

Table 3: Recursive bivariate probit estimation

	Use of climate information (Treatment Variable)		Adaptation strategy (Outcome Variable)	
	Coef.	P>=	Coef.	P>=
Use of climate information				
Female	<b>-0.510***</b>		-0.171	0.966*
Primary Education	-0.213		0.345	
Secondary Education	0.319		-0.14	
Tertiary Education	-0.081		<b>6.554***</b>	
Age	0.002		0.013	
Household size	0.002		-0.008	
Household size square	0.000		<b>0.000***</b>	
log Average annual	-0.09		<b>0.345***</b>	
Membership of farm/social group	0.04		0.379	
Access to extension services	0.154		0.136	
Distance to the main market	-0.003		0.015	
Perceived climate change	<b>1.535***</b>		<b>1.557***</b>	
Trust in the media	<b>2.381***</b>		-0.008	
Constant	<b>-1.933***</b>		<b>-4.652***</b>	
Treatment effects				
ATE			0.161	
ATT			<b>0.183*</b>	
anato			<b>0.189*</b>	
rho			0.186	
N	420			
Wald chi2(27)	696.610			
Log pseudo likelihood	-231.463			
Prob>chi2=0.000				

- Results of the recursive bivariate probit model (Tab. 3) found a statistically **significant impact of farmers' use of early warning climate information on the adoption of adaptation strategy**.
- These findings show that **providing farmers with accurate and up-to-date climate information can play an important role in helping them adapt to the challenges of climate change**.

## Conclusion

- Climate information plays a crucial role in enabling farmers in rural Gambia to adapt to the impact of changing climate.**
- The findings of this study highlight the need for policymakers to ensure timely, accurate, and farmer-tailored climate information.**
- Thus, providing farmers with relevant climate information can play a crucial role in helping them to adapt to the negative impact of climate change.**