



## THE EFFECTS OF AGRICULTURAL PROGRAMS ON THE ADOPTION OF CLIMATE-SMART AGRICULTURE AND FOOD SECURITY IN ZIMBABWE

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### INTRODUCTION

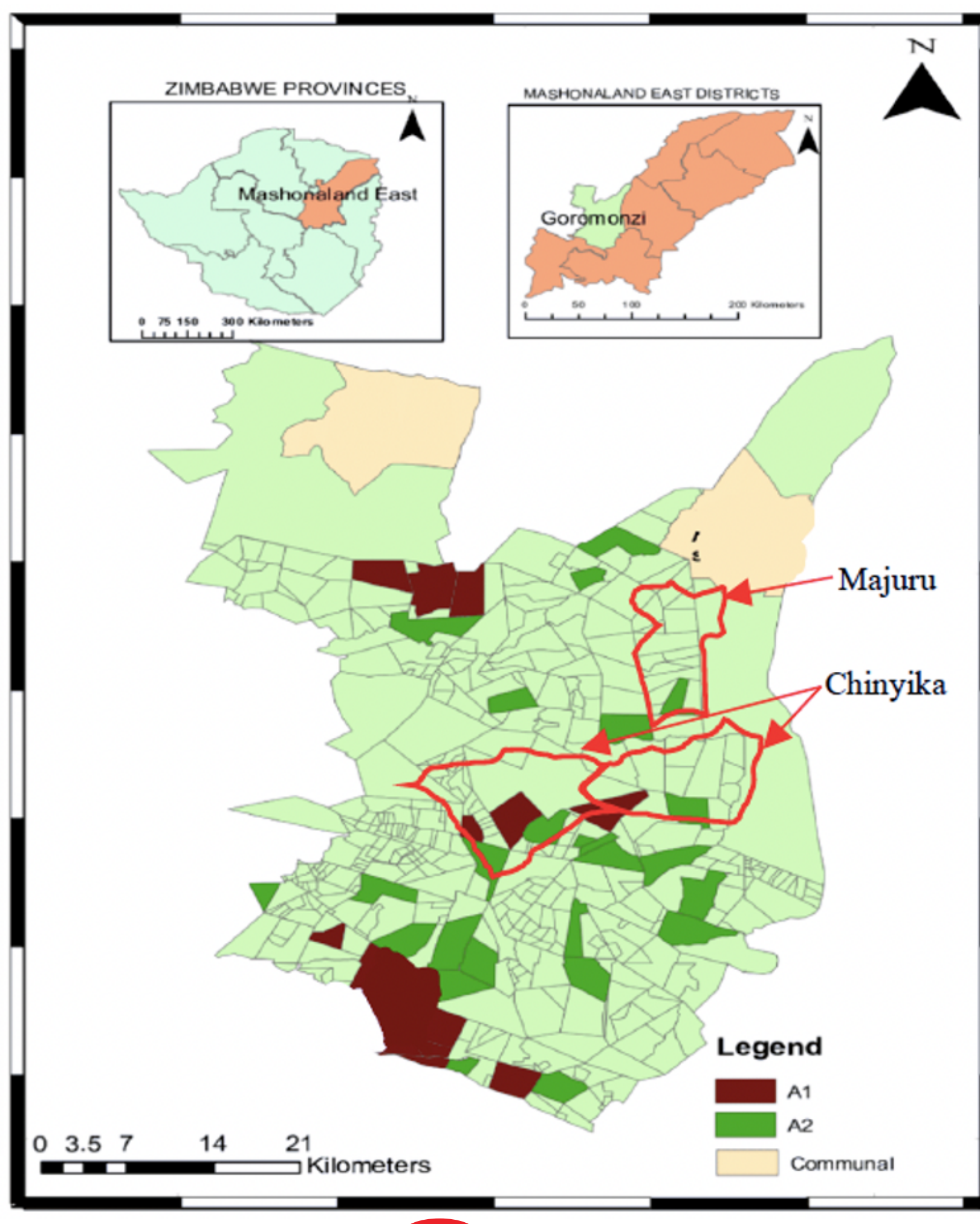
- The agriculture sector in Zimbabwe contributes significantly to the economy; accounts for 15% of the GDP, 60-70% of the labor force, and is a source of livelihood for the majority of the rural population.
- In Sub-Saharan Africa and particularly in Zimbabwe, predominantly rainfed farming systems have succumbed to the impacts of climate change.
- There has been a reduction in household food security levels, as a result of climate variability; 35% of the total population in Zimbabwe is in a crisis or emergency state of food insecurity. 70% of Goromonzi's population experiences some form of food insecurity.
- Smallholders – the major producers of the country's staple crop (maize) – are affected most by climate variability and food insecurity.
- The adoption of CSA practices can increase agricultural productivity, enhance food and nutrition security, improve household income, and boost ecosystem multifunctionality.

i. **Livelihoods and Food Security Programme (LFSP) Pfumvudza** was rolled out in 2020 with the intention of boosting overall agricultural production and promoting the use of planting basins amongst smallholders in areas or regions experiencing climate and/or rainfall variation and

ii. **Special Maize Programme for Input Substitution (SMPIS)** was implemented in 2016 by the government of Zimbabwe, in order to address the issues relating to climate variability, reduced productivity, and declining food security levels.

- These programs, provide smallholders with agricultural input subsidies, extension services, and training on the adoption of climate Smart Agricultural Practices (CSA), which have the ability to enhance agricultural yield, address issues relating to low food and nutrition security, increase land usage, improve water conservation, and more.

### STUDY AREA



Goromonzi is a district in Zimbabwe, which lies within the Agro-ecological Zone (AEZ) IIA and has a subtropical climate with average rainfall of between 750-1000mm, and temperatures ranging from 23 and 27°C. It is prone to climate variability (droughts, sporadic rainfall, and excessive rainfall).

### OBJECTIVES

- To determine the perception of smallholder farmers on Government Input Support Programs (GISP).
- To assess the prevalence of household food security in Goromonzi.
- To examine the effect of institutional factors on the adoption of CSA
- To evaluate the influence of institutional factors on GISP.

### ANALYSIS

- After data cleaning, 109 responses were used; 11 were outliers.
- 53.2% of the 109 respondents interviewed were males, whilst 46.8% females.
- Data was sorted, coded and processed in Microsoft Excel.
- Sorted data was then transferred to the Statistical Package for Social Sciences (SPSS) software 27.0 for further processing and analysis.
- Furthermore, a Chi-Square test was used to analyze the influence of certain demographic factors on household food security.
- Finally, FCS and rCSI were used to calculate the prevalence of household food security.

**Objective 1:** Descriptive analysis: Percentages, and Likert Scale (1 – 5).

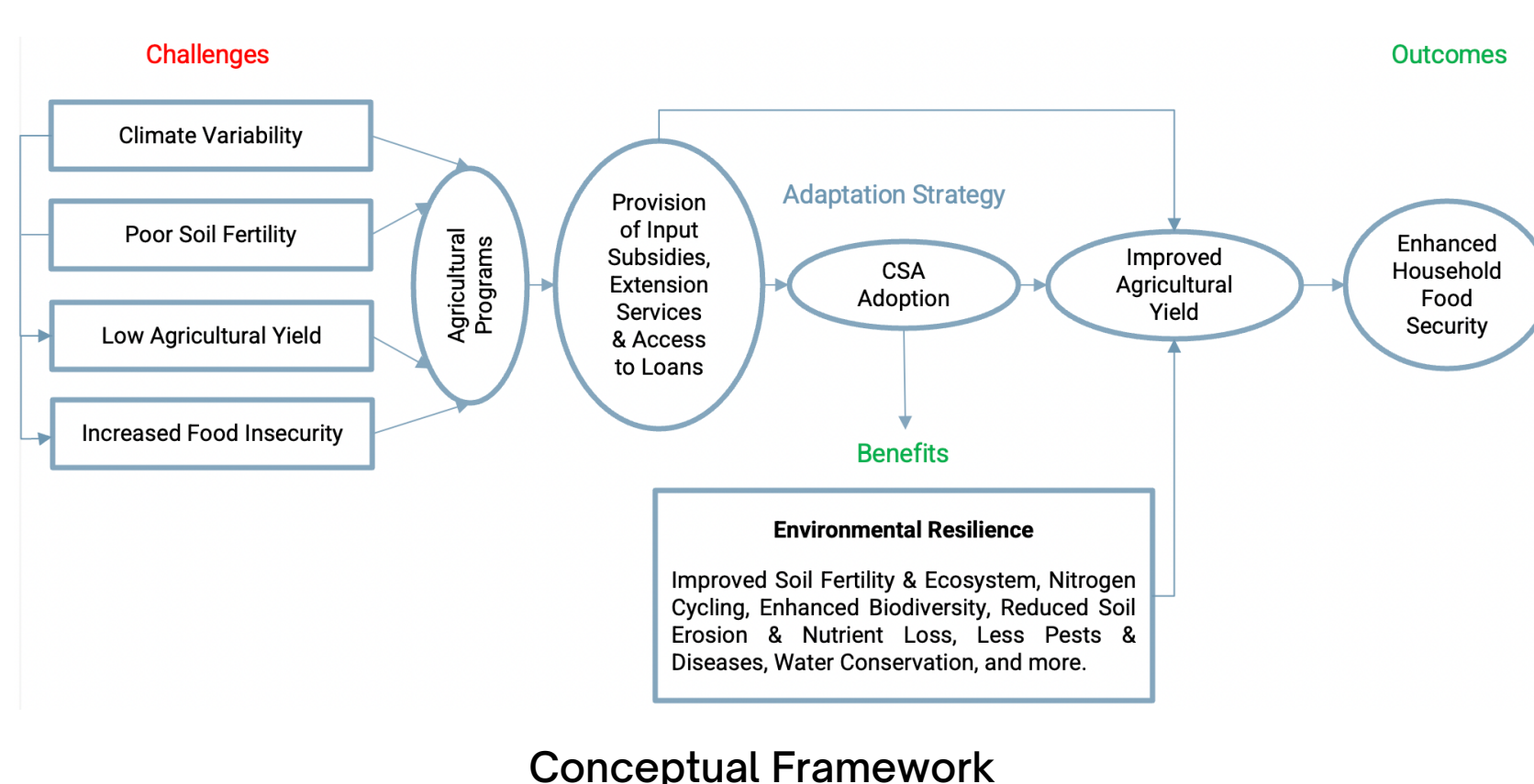
1 = minimum benefit; 2 = below average benefit; 3 = average benefit; 4 = above average benefit; 5 = maximum benefit.

**Objective 2:** Descriptive analysis: Mean, frequency, percentage.

Food Security Indicators: Food Consumption Score (FCS) & Reduced Coping Strategy Index (rCSI).

**Objectives 3 & 4:** Chi-square Test: Statistical differences.

### METHODOLOGY

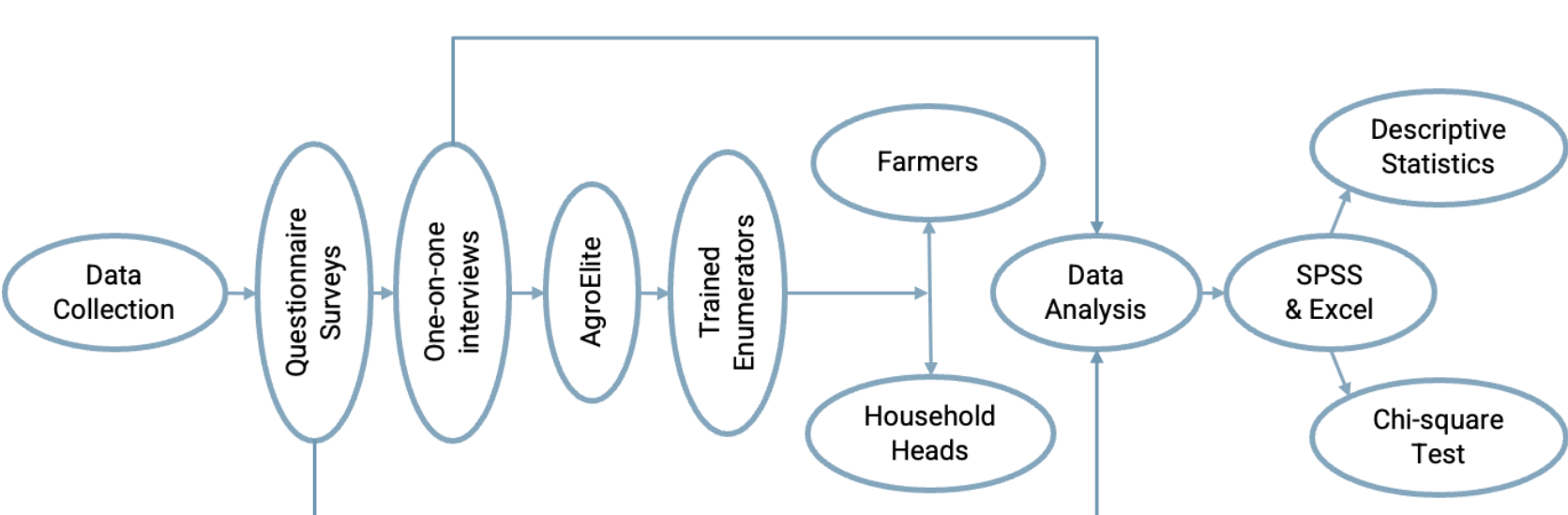


### Conceptual Framework

- Questionnaire: Physical copies and Google Forms.
- Respondents: 120 from Majuru and Chinyika, Goromonzi, Zimbabwe.
- Enumerators: 3 trained enumerators.
- Pilot testing: 7 respondents.

Multi-stage Sampling – Purposive, convenient, and snowball technique.

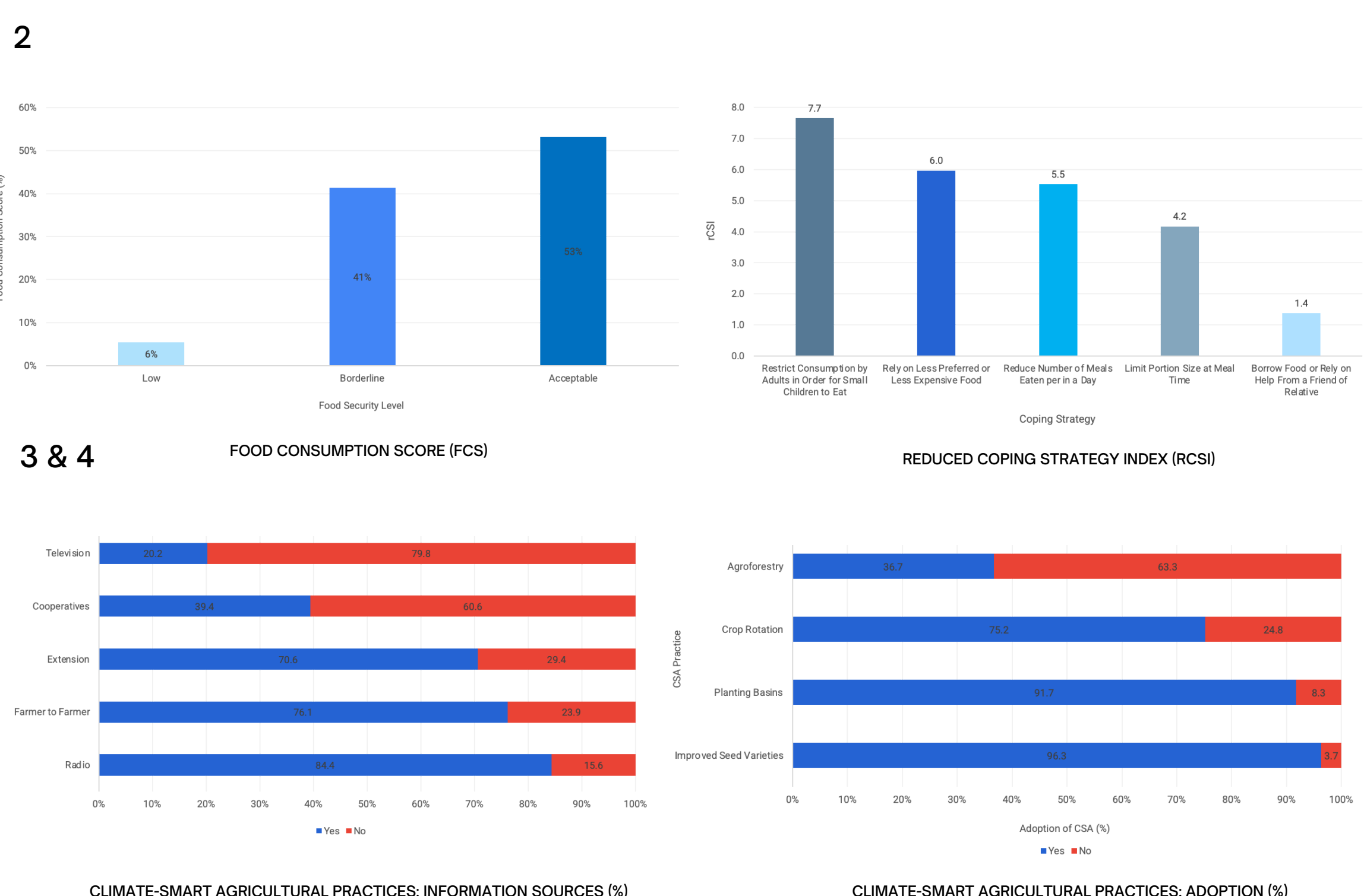
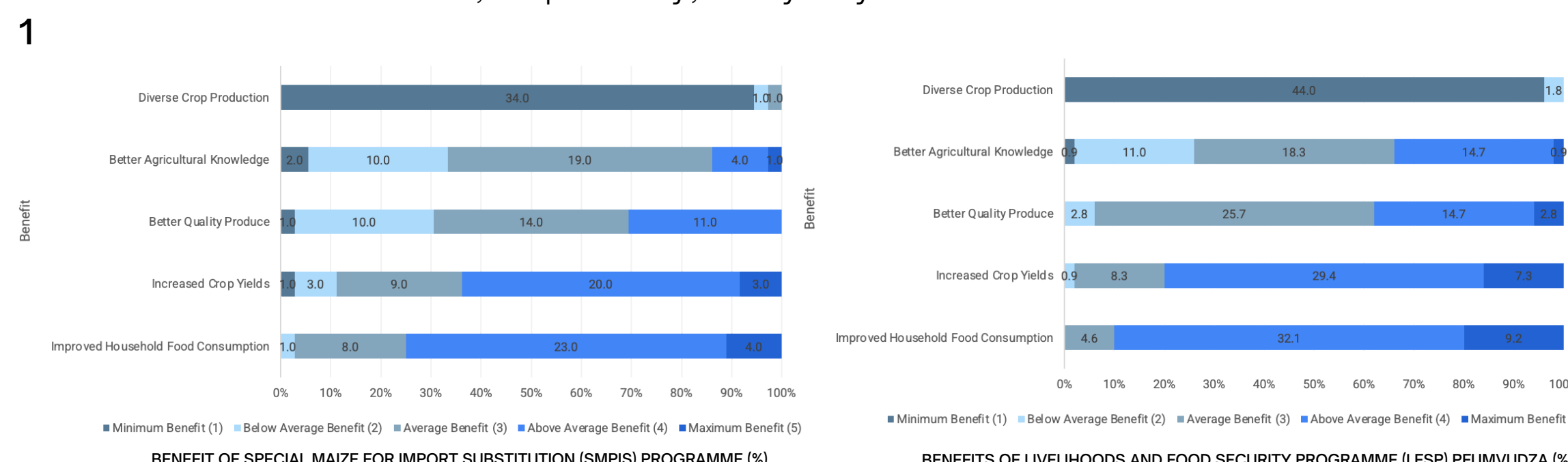
- A Microsoft Excel workbook was generated from Google Forms (<https://docs.google.com/forms/>).



Climate Smart Agricultural Practices Examined

### RESULTS & DISCUSSION

The study revealed that 67.0%, and 54.0% of the 109 respondents did not benefit from the SMPIS and Pfumvudza, respectively, in any way.



- 53% of the respondents belong to the acceptable food security category.
- The majority of respondents benefited from both Pfumvudza and SMPIS in the areas of increased crop yields, improved household consumption, and better quality produce.
- Farmers Field School attendance was found to have a significant influence on both the adoption of CSA and GISP. Cooperatives, farmer group membership, and information from extension officers were also associated with the adoption of CSA, as well as Pfumvudza and SMPIS.
- As a policy implication, policymakers should promote combinations of different CSA methods and GISP focused on increasing agricultural yields, which will in turn enhance household food security.
- By applying a participatory approach (bottom-up approach) throughout the program implementation course, smallholder farmers should be given the chance to address issues affecting them most, and at the same time gain the much-needed technical knowledge, through capacity building. This would also create increased revenue streams from the diverse crop production, thus, reducing risks tied to mono-cropping systems.
- Furthermore, instead of cooperatives simply providing a channel through which smallholders can access agricultural input subsidies and market outputs, they should provide all-in-one support to farmers, i.e., inputs, assistance during the production process, marketing of output, insurance, and even access to credit, which would lead to increased agricultural production, and enhanced household food security.

- 19.0% of the farmers obtained better agricultural knowledge from SMPIS and similarly, 18.3% benefited from Pfumvudza in the same area.
- In the categories of improved household food consumption and increased crop yields, there was a 23.0% and 20.0% above average benefit realized from SMPIS and 32.1% and 29.4% from Pfumvudza, in the same categories.
- The majority of respondents belong to the acceptable food security category (53%), whilst 41% and 6% belong to the borderline and low food security categories, respectively.
- The study revealed that most of the respondents resorted to restricting consumption by adults in order for small children to eat, as the most preferred coping strategy, followed by reliance on less preferred or expensive food and a reduction in the number of meals eaten in a day.
- Improved seed varieties were the most used CSA practice, with 96.3% adoption. This was followed by planting basins (91.7%), and crop rotation (75.2%). Agroforestry, however, had the lowest adoption rate of only 36.7%.
- 84.4% of farmers received information via radio, 76.1% via Farmer to Farmer (F2F), 70.6% through extension, 39.4% via cooperatives and only 20.2% through television.

CHI-SQUARE TEST		
Independent Variable	Dependent Variable	P-Value
Farmer Group	SMPIS	0.005
	Pfumvudza	0.014
	Usage of Improved Seed Varieties	0.089
Farmer Field School Attendance	Pfumvudza	0.080
	Adoption of Crop Rotation	0.048
	Adoption of Agroforestry	0.073
	Usage of Crop Rotation	0.069
Extension (Info Source)	SMPIS	0.073
	Adoption of Improved Seed Varieties	0.041
Cooperative (Info Source)	SMPIS	0.005
	Pfumvudza	0.014
	Usage of Crop Rotation	0.088

### CONCLUSION & RECOMMENDATIONS

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