Impact of Village Savings and Loan Associations on Food Security in Zimbabwe: A Case Study of Marange Community in Mutare District

Dereck Moyo (Mr)[1] and Tough Chinoda (PhD)[2]

[1]*Dereck Moyo. Principal Author of this paper. Currently pursuing a Doctor of Philosophy degree in Development Studies at the Women's University in Africa, Harare, Zimbabwe.*

[2]*Tough Chinoda (PhD), Co-author for this paper. Senior lecturer, University of Zimbabwe.*

***Abstract*:**

***Objective*: The study aimed at evaluating the impact of the Village Savings and Loan Associations (VSLAs) on food security.**

***Methods*: Guided by a pragmatist philosophy, the study applied mixed methods approach with an exploratory sequential design beginning with qualitative research phase. It explored the views of participants from four focus group discussions (FGDs) and seven key informant interviews (KIIs) to identify and specify variables to be measured through the second phase which was quantitative research. The quantitative phase used a household survey questionnaire to collect data from 204 respondents exclusive of participants of the first phase. Data from FGDs was analysed using NVivo, while One-Way ANOVA Test was used to analyze data from individual households.**

***Results*: The results showed that non-VSLAs members experience poor food availability and utilization throughout the year. Participation in VSLAs increased household food availability by 0.349 and utilization of food by 0.222, as evidenced by eating of balanced meal by household members. The results also indicated that participation in VSLAs led to better access to food, and stability of access, availability and utilization of food than non-VSLAs households.**

***Conclusion*: The findings suggest that there is a positive relationship between household's participation in VSLAs and its food security.**

***Keywords*: Food availability, food security, savings and credit cooperative society, stability, village savings and loan associations, utilization of food.**

I. INTRODUCTION

In the past few decades, concerns have been increasingly expressed about poverty and hunger due to droughts and malnutrition. Typically, the phenomenon of hunger is experienced more in developing countries (FAO, 2017) in which vulnerable populations are predominantly smallholder farmers dependent on rain-fed agriculture for food security (Mutea et al, 2019). Researchers have documented that drought and low incomes are the most prominent threats to smallholder farmers' food security (Dzanku, 2018). In addition, these smallholder farmers already face limited or no access to formal financial services (Nyamwanza et al, 2014). Thus, the low-income small holder farmers require an alternative option to finance their acquisition of agricultural inputs, supplement their food reserves in the event of a drought (Maiangwa, 2012).

In the context of sub-Saharan Africa, Mukuna (2015) posited that 30% of the 800 million people dependent on rain-fed agriculture for food security out of the 1.5 billion people in Sub-Saharan Africa will suffer from hunger by 2017. Likewise, in 2016 the United Nations Development Programme (UNDP) argued that in Zimbabwe hunger and poverty affect small holder farmers reliant on rain-fed agriculture for food, predominantly those experiencing poor access to financial services, such as in Marange communal area in Manicaland province. In line with this, the impact of declining food security in Marange communal area was further exacerbated by reduced government social support which dropped from 63% in 2018 to 47% in 2019 (ZimVac, 2019). Thus, this study focused on investigating the impact of Village Savings and Lending Associations on sustaining food security for smallholder farmers.

Despite food being a basic human right, there are many factors that threaten food security (any source). The UNDP (2016) posited that drought and fluctuations in prices of maize and livestock are the significant factors that threaten food security for rural communities. Dzanku (2018) argued that drought is the greatest climatic shock that causes food insecurity in Sub-Saharan Africa including Zimbabwe.

The research was guided by four research questions formulated from the four research objectives. The first question was, what is the relationship between household's participation in VSLAs and household food accessibility in Zimbabwe? Second question was, what is the relationship between household's participation in VSLAs and household food availability in Zimbabwe? Third, how is household's participation in VSLAs related to household food utilization in Zimbabwe? Fourth, what is the relationship between household's participation in

[1] Dereck Moyo (Mr)
[2] Tough Chinoda (PhD)

VSLAs and stability of its access to food, food availability, and utilization of the food within the households in Zimbabwe?

According to Karlan et al (2016) and, Flynn and Sumberg (2018), there is evidence on the positive role of VSLAs on household income, food expenditure, health, and investment in household assets in Africa, Asia and Latin America. The SEEP Network (2017) indicated that 53 studies were done between 2004 and 2016 on the role of VSLAs on household income, food expenditure, health, and investment in household assets. Of these studies, 44 (88%) were in Africa, 4 (8%) in Latin America, 4 (8%) in Asia and 1 (2%) global. Furthermore, of the 44 studies done in Africa, 59% were in East Africa, 23% in West Africa, 14% in Southern Africa and 5% in Central Africa.

However, there is limited literature to suggest that studies were done to evaluate the impact of community savings and lending schemes on achievement of food security in Africa particularly in Zimbabwe. Therefore, significance of the study was drawn from this background and is described below.

The significance of the study is three-fold. First, this study contributes to the body of knowledge that may be applicable in scholarly and academic debates in explaining the impact of VSLAs on achieving household food security, as viewed from its four theoretical pillars. In particular, the study is expected to fill in a gap in the literature as there is limited evidence for research done to evaluate the role of village savings and lending models to enable households achieve food security with particular focus on the four pillars of food security. Empirical evidence from other studies such as those conducted by Dawuni et al (2021) in Ghana, Ngegba et al (2016) in Sierra Leonne and Nnama-Okechukwu et al (2019) in Nigeria showed that VSLAs contribute to increased agricultural productivity. However, there is limited evidence of studies conducted to evaluate the impact of VSLAs on food security across Africa, or specifically in Zimbabwe. This glaring information and knowledge gap necessitated this study. Also, the study sought to evaluate whether the VSLAs model can be used by rural households in Zimbabwe to achieve food security. The recommendations of this study are useful to donors, NGOs, Government and policymakers when developing strategies of promoting VSLAs as means to ensure food security in developing countries.

Study Setting

This research was conducted in Mafararikwa ward 16 in Marange communal area under Mutare rural district. Mutare rural district is one of the seven districts in Manicaland Province which is in eastern Zimbabwe and shares a border with Mozambique on the east. The city of Mutare is the provincial capital and lies about 266km east of Harare, the capital city of Zimbabwe. Marange communal area is located 70km southwest of Mutare city. According to Manicaland Provincial Census Report (ZimStat, 2012), Mutare district had 262 124 people comprised of 136 274 females and 125 850 males. This population is 15% of the provincial population of 1 752 698 (830 697 males and 922 001 females) people. The same report noted that there were 57 683 households in Mutare rural district with an average five people per household. 44% are headed by females aged between 15 and 75 years.

According to the Zimbabwe National Statistics Agency (2012:84), Mutare rural district has 48% male and 52% female population that is economically active, of which 55.7% are communal farmers. These statistics reflects well the provincial average of 48.7% male and 51.3% female who are economically active. This is in agreement with Chingarande et al (2020), who posited that dry-land subsistence smallholder agriculture is the mainstay for community livelihoods in Mutare district, particularly in Marange communal area. Smallholder livestock production, horticulture and field crop farming are the main agricultural activities which are also the main sources of livelihood for the predominantly rural communities. In the communal area of Marange, households rely heavily on agriculture for survival, including food security

II. THEORETICAL FRAMEWORK AND STUDY HYPOTHESIS

The Theory of Access (Ribot and Peluso 2003) was published 19 years ago and modified by Myers & Hansen (2018). With almost 1600 publications citing it, the Theory shares with some other frameworks with similar concerns for example, (1) entitlements framework, (2) sustainable livelihoods approach, (3) powers of exclusion; and it has been applied in broader theoretical and conceptual debates in the social sciences: (4) gender, (5) materiality, (6) property and authority, and (7) power.. According to Myers & Hansen (2018), substantial attempts to modify a Theory of Access were varied and often used it to develop other social theory rather than to modify it.

In this study, the researcher observed that there is significant linkage between the research objectives and the tenets of The Theory of Access. For example, as depicted in the Conceptual scope of the study, it is the households' s access to VSALS which enable them to access inputs and knowledge gained through training. In turn the access to inputs enables the VSALs members to grow their own food, as well as engage in income generating activities which ultimately enable the households to make food available, access food from the market, help them to consume diverse food products and stabilize on the three pillars of food security. On the other hand, the study argue that households without access to VSALS loans are unlikely to achieve food security. First, they cannot buy inputs for agricultural production, second, they cannot purchase food from the market, third, their dietary diversity is limited and hence likely fail to stabilize the three pillars of food security. Thus, the Theory of Access explains why the VSALS participants are likely to achieve food security as compared to households not participating in VSALS.

A conceptual framework entitled: Sustained Food Security Conceptual Framework in Figure 1.0, was developed to assist in the explanation of the phenomenon under study.

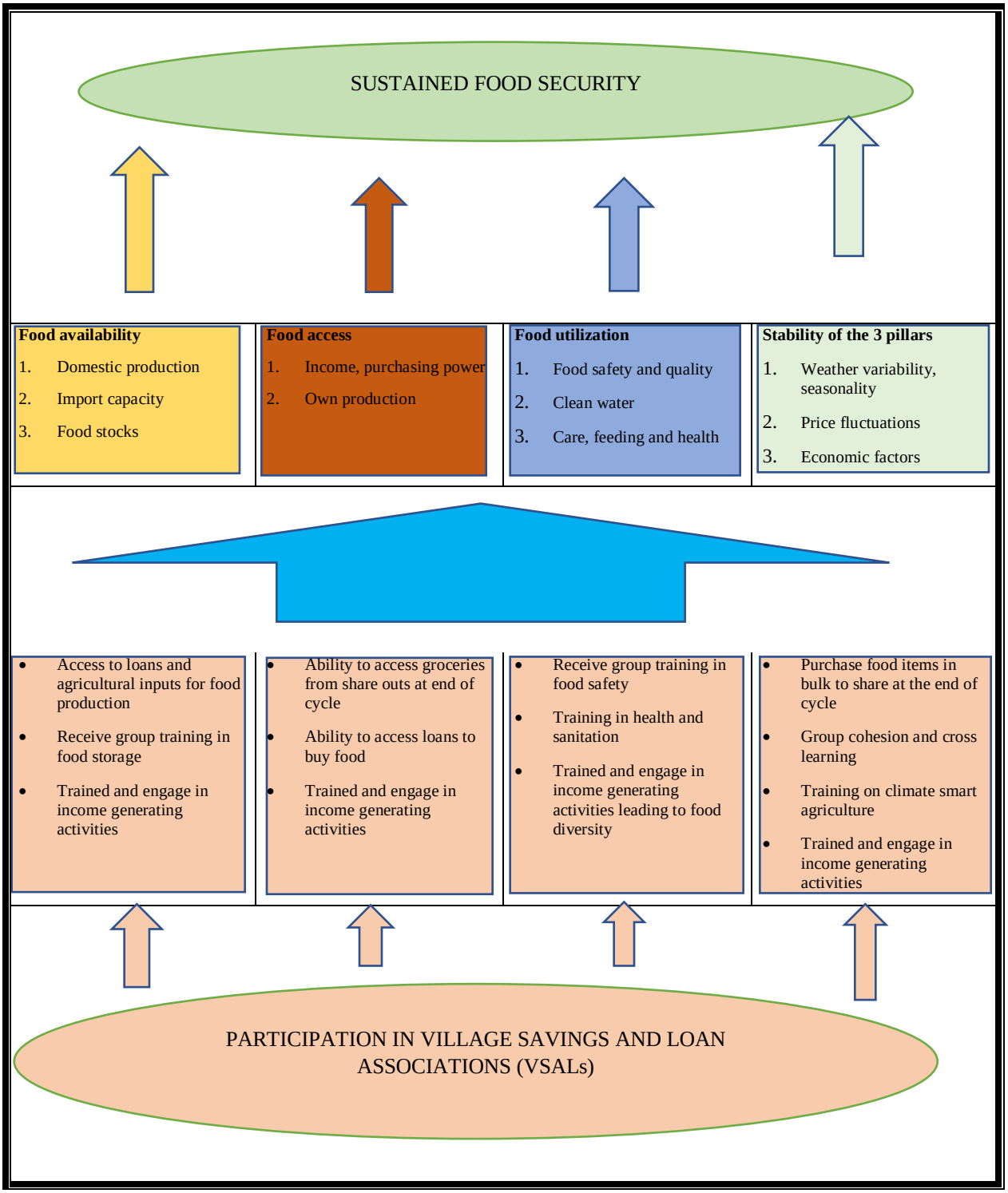

Figure 1.0 Sustained Food Security Conceptual Framework (Author developed)

It was based on FAO (2017)'s definition of food security which argued that food security is made up of four pillars, namely food availability, food access, food utilization, and stability of the three pillars over time. The framework went on to link VSLAs participation to respective pillars of food security, thus illustrating the linkage between participation in VSLAs to the four pillars of food security. The conceptual framework identified the four pillars and participation in VSLAs as the basis for designing the 4 research objectives and questions. In addition, the framework identified the four food security as the key concepts upon which to draw the variables or constructs to be studied and the presumed relationships between them. This is in line with Grant and Osanloo (2020), and Adom et al (2018) who posited that a conceptual framework describes and

simplify how ideas in a study are related to one another. This argument resonates with Imenda (2014)'s opinion that the conceptual framework gives life to research.

The study tested one hypothesis that is listed below, based on the main research question;

Null hypothesis (Ho): There is insignificant difference in food security between households with members participating in VSLAs and households without members participating in VSLAs in Zimbabwe.

Alternate hypothesis (H1): Households with members participating in VSLAs have improved food security than households not participating in VSLAs in Zimbabwe.

III. RESEARCH DESIGN

The study adopted the mixed methods research to best examine and understand the impact of village savings and lending models on food security in Marange community of Zimbabwe. This approach was adopted to better understand the problem of food insecurity among the rural households and how they solve/mitigate the problem based on their experiences. The study, thus used both qualitative and quantitative approaches to collect data that helped to provide the best understanding of the research problem as recommended by Creswell (2014:76), Furthermore, the mixed research method is an approach that has been used by other researchers for many years. In line with this, Maarouf (2019:2) contends that over the past two decades, the mixed research approach has been increasingly acknowledged as the third methodological movement (Biddle & Schafft, 2015, Cameron, 2011, Hall, 2013, Ma, 2012 & Molina-Azorin, 2016). Quantitative and qualitative approaches are no longer seen as two discreet opposite approaches. Instead, they represent two ends of a continuum as a study can be seen as more quantitative than qualitative or vice versa.

Thus, the Exploratory Sequential Mixed Method design used in this study was denoted as 'QUAL quant' research approach (Johnson and Christensen, 2017:478), which means a sequential mixed method design that is driven by a qualitative phase. Creswell (2012) calls this type of research design exploratory sequential design, implying that the first phase of qualitative research is followed by quantitative research method. Data collection for the study involved qualitative data collection using Focus Group Discussions (FGDs) and Key Informant interviews (KIIs). Focus Group Discussions (FGDs) were conducted first and influenced and led to the Key Informant Interviews (KIIs). The themes that emerged from the two qualitative data collection methods were used to design a structured questionnaire that was used to collect quantitative data through a cross-sectional household survey. The research design is described in detail to outline the data collection process, instrument development process and the sampling process (Bhattacherjee, 2012), as well as data analysis that was adopted for the study.

The choice of the design was justified by its ability to enhance the study's conclusions (Creswell, 2012) and providing conclusions that are more comprehensible, reliable, and useful than when used as individual (Sattar et al 2017:540). Furthermore, the mixed method design was chosen to explore, describe, and to test and predict the impact of VSLAs on household food security, as applied by Ngegba et al (2016) to study the impact of VSLAs on poverty alleviation in Sierra Leone. Noteworthy, this study used qualitative approach first to gain a better understanding of the views and opinions of the research participants (Creswell, 2012) on what they considered to be the impact of VSLAs on food security.

IV. DATA COLLECTION

In line with the Exploratory Sequential mixed method research design, qualitative and quantitative approaches were used to collect data for this study. The qualitative phase was the first one to be applied in a sequential mixed method research design that is driven by a qualitative phase (Johnson and Christensen, 2017:478). It was subdivided sequentially into the focus group discussions (FGDs) and key informant interviews (KIIs), respectively. Lastly, the study conducted the quantitative phase which applied a cross-sectional survey as the data collection method. The specific methods used to collect data are described in detail below:

The Qualitative phase

According to Leavy (2017:9), researchers use qualitative research to explore; to robustly investigate and learn about social phenomenon; to unpack the meanings people ascribe to activities, situations, and events or to build a depth of understanding about some dimension of social life. Guided by Exploratory Sequential mixed method, thus, in this study, qualitative research method was required to enable the study to reveal that deeper understanding which can only be provided by the individual who is living the reality of food insecurity caused by drought (Sattar et al, 2017), such as experienced by the inhabitants of Marange communal area.

Therefore, in evaluating the impact of VSLAs on household food security, this study investigated the social phenomena of the household members themselves on how they viewed the relationship between participation in VSLAs and their household's food security.

Four focus group discussions (FGDs) were used in this study to collect data in the first category of qualitative phase. The four FGDs comprised two FGDs for VSLAs group members attended by nineteen participants and another two FGDs for non-VSLAs group members which were attended by sixteen participants. All the FGD participants were women aged between 22 and 67 years. Each focus group comprised eight to ten purposively selected participants and the duration of the discussions was 60 to 90 minutes as suggested by Hoque et al (2017).

Two adult female facilitators were trained to conduct the FGDs and KIIs in November 2020. These were selected from a pool of Community-based training facilitators (CBFs) trained and deployed by a non-governmental organisation (NGO) that used to implement a livelihoods and food security program in Marange between 2014 and 2020. Their skills to engage with

communities and knowledge of Marange community was considered a positive attribute for their ability to conduct FGDs. The training of FGD facilitators involved going through the semi-structured FGD guide to make sure the two facilitators understood the questions. Furthermore, the training involved techniques to conduct a successful FGD, the techniques to ask questions which should not be closed-ended. Facilitators were also trained on how to engage all the FGD participants in a more interactive discussion. The training which lasted for five days was conducted in Marange wards 24, 25 and 28. These wards were selected for training purposes because they had active VSLAs but are away from ward 16 which was the actual site for the research. Besides being trained on facilitation techniques, the two facilitators were trained on how to take notes from responses or conversations of FGD participants, as well as KIIs. In addition, the facilitators were trained on how to use phone-based voice recorders to capture the conversations of FGDs. After the training, the facilitators conducted the FGDs and KIIs.

As alluded to earlier, the purpose for using KIIs after FGDs was to triangulate and validate qualitative data that emerged as themes from the FGDs, conducted from the same ward. The key informants involved were two village heads, one ward councillor, three Community-based Facilitators (CBFs) and two AGRITEX Officers from ward 16 in Marange community. The KIIs were conducted using a semi-structured interview guide (Setia, 2017) prepared specifically for each category of the KIIs based on key focus areas identified from the FGDs, as illustrated in Table 1.0 below.

Table 1.0 Key interview areas for KIIs in ward 16, Marange Communal Area

Key Informant	Key area of interview
AGRITEX Officer	1. Household income sources 2. Use of household resources 3. How to address food insecurity 4. Agricultural production
Community-based Facilitator	1. Existence of savings and lending groups in community 2. Relationship of participation in savings groups to food availability 3. Relationship of participation in savings groups to food access 4. Relationship of participation in savings groups to food utilization
Ward Councillor and Village Heads	1. Household income sources 2. Use of household resources 3. How to address food insecurity in the community

Thematic Analysis (Nikku, 2020) was used to analyze KIIs data for the study as applied by Nnama-Okechukwu et al (2019) when they studied the impact of VSLAs in Nigeria.

The Quantitative phase

Guided by the Exploratory Sequential mixed method, the study collected quantitative data through household survey after the qualitative research phase. This was intended to prove, disprove, or lend credence to existing theories as posited by Leavy (2017:9). Furthermore, quantitative research measures independent and dependent variables, in order to reveal patterns, correlations or causal relationships; thus helping to reveal the effects of a project or treatment on the project participants (Sattar et al, 2017). Findings from quantitative research are used to generalize patterns and causal relationships across a study population.

In evaluating the impact of household's participation in VSLAs on its food security, this study sought to establish the causal relationship or correlation between participation in VSLAs, and the level of food security for the household members. In order to investigate these relationships, the study used quantitative research method to generalize the results obtained earlier using focus group discussions and key informant interviews in the same study. Ngegba et al (2016) used a similar design in evaluating the impact of VSLAs on poverty alleviation in Sierra Leone, to follow up on qualitative data using data collected from a cross-sectional survey.

Sampling

According to the ZimStat (2012), ward 16 (Mafararikwa) had a total of 3582 households and 15 356 (8569 female, 6787 male) people. It is made up of twenty villages as confirmed by the local councillor and agricultural extension officers.

In sampling villages, first, the researcher collected a list of all 20 villages in ward 16 from the ward councillor and validated by CBFs and AGRITEX Officers. The researcher engaged in discussions with the ward 16 councillor, the two CBFs and two AGRITEX officers to identify all the villages with VSLAs, of which six were identified. Table 2.0 below shows the 6 villages and numbers of households participating in VSLAs and non-VSLAs households. Thus, the researcher used stratified sampling technique (Acharya et al 2013) in the six villages to sample on one hand, households participating in VSLAs (treatment group) on one hand and households not participating in VSLAs (control group) on the other hand, in line with the approach used by Ngegba et al (2016) in Sierra Leone and Mwansakilwa et al (2017) in Zambia. Thus, the current study applied stratified random sampling to select 107 VSLA members labelled as treatment group, and 363 (control group) non-VSLAS members, labelled as control group who participated in a cross-sectional survey.

Calculation of sample size

There were six villages that had functional VSLAs groups out of the twenty villages in ward 16. Therefore, the study categorized ward 16 population into two strata. The first stratum had all the six villages that had VSLAs groups. The second stratum had all the villages without VSLAs groups. This stratum had 1358 households from six villages. Records from CBFs indicated there were 102 people who are members to VSLAs in the six villages (stratum one) as shown in table 2.0 below.

A sample of 470 households (107 VSLAs, 363 non-VSLAs) was determined through a used of online sample size calculator. Random under-sampling technique was applied to correct the sample size to 204 (102 VSLAs; 102 non-VSLAs) to calculate a sample size that eliminates the outliers (Yen and Lee, 2009).

Table 2.0 Households with VSLAs members and those without VSLAs members

Name	HHs Total	Total VSLAs	VSLAs Sample	Non-VSLAs Total	Non-VSLAs Sample	Total Sample
Mafararikwa	463	35	35	428	118	153
Mushipe	120	9	9	111	31	40
Chikuni	46	3	3	43	12	15
Muchaangira	64	5	5	59	16	21
Dhaisi	255	19	19	236	65	84
Torera	410	31	31	379	104	135
Total	1358	102	102	1256	346	448

Data Analysis

NVivo, a qualitative data analysis software (QDAS) was used to analyse qualitative data from focus group discussions (FGDs) and key informant interviews (KIIs) to determine themes and content from the data. The data was analyzed to understand the contribution of VSLAs on four variables, or four pillars of food security. The four variables are food availability, access to food, utilization of the food and sustainability of the three pillars of food security. The Statistical Package for Social Sciences (SPSS) version 23.0 was used to analyse quantitative data to provide descriptive and inferential statistics. The impact of participating in VSLAs on food security was analyzed using regression analysis, using the regression model (Sarstedt and Mooi, 2014) to investigate how strongly the dependent and independent variables under research were related. The Generalized Linear Regression Model (GLM) (Sarstedt and Mooi, 2014) is described as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

In the model described above:

- Y is the variable whose value will change depending on the values of other variables.
- X_1, X_2,…, X_k are the explanatory variables whose influence on the dependent variable is being observed.
- β_1, β_2,…, β_k are coefficients which measure the degree of change in the outcome variable for every 1-unit of change in the respective explanatory variable.

In addition SPSS was used to analyse data using cross-tabulations, investigate the relationship between participation in VSLAs and food access, food availability, food utilization, and stability of the former 3 pillars. Furthermore, Chi-square test was used to test for association or relationship between two categorical variables, while regression analysis was used to investigate the relationship between one independent and one dependent variable. For example, regression analysis was done to investigate the relationship between food availability (stocks in household) and membership to VSLAs. Thus, this approach of analysis was applied to all the 4 pillars of food security, namely food availability, access to food, utilization of the food and sustainability of the three pillars of food security. The results from quantitative data analysis were presented and visualized in form of tables generated from SPSS outputs, and charts which were designed from SPSS tables using MS Excel.

V. RESULTS

Qualitative results are presented first, followed by quantitative results. These were presented in line with the four pillars of food security or key qualitative variables of the research, described below.

Qualitative Results

1. Relationship between participation in VSLAs and food availability.

The study asked the following question to explore the relationship between participation in VSLAs and food availability in the household: *What is the relationship between household's participation in VSLAs and food availability in the household?*

Some examples of individual responses received from FGD participants are shown below.

Participant 'B5' (non-VSLAs): Those participating in VSLAs groups use their loans to buy food for their families. Those in VSLAs also use their loans to pay school fees for their children.

Participant 'B7' (non-VSLAs): Yes, those in VSLAs groups can buy food for their families. But we do not have money to buy food for our families.

Participant 'E1' (non-VSLAs): We borrow money from VSLAs to buy food such as sugar, mealie-meal and vegetables.

These responses were analysed with NVivo software. Results of the analysis of data were presented as shown in figure 2.0 below.

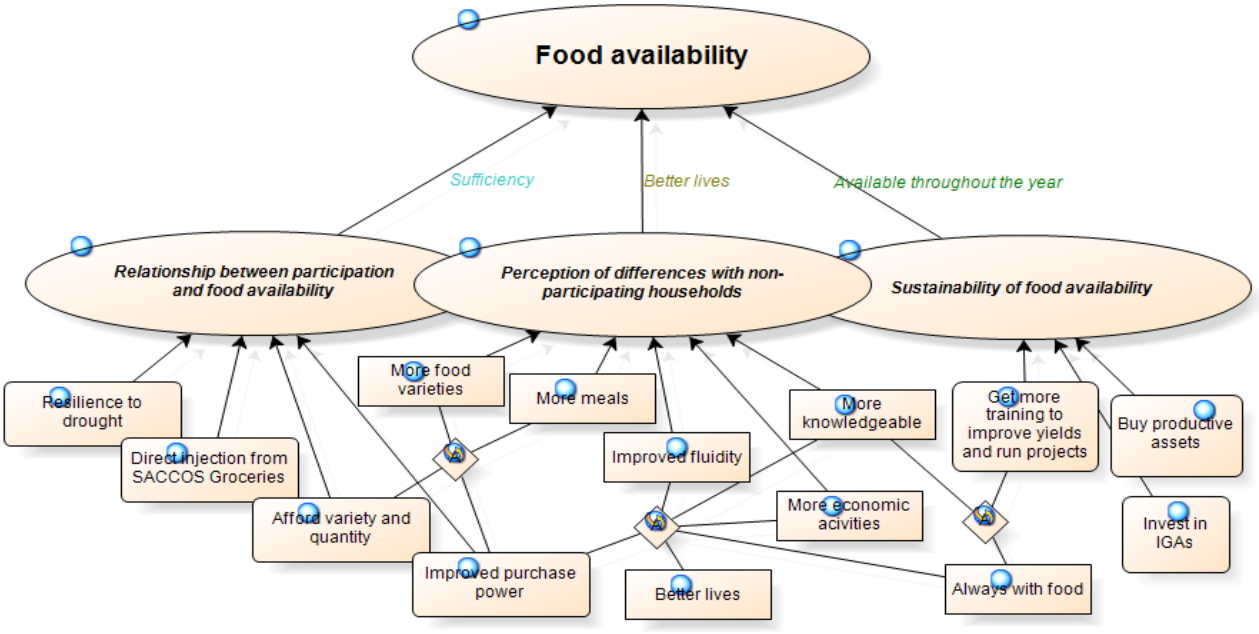

Figure 1.0 VSLAs participation and food availability

1.1 Differences between VSLAs households and non-VSLAs households

In order to gain deeper understanding of FGD participants on whether there is a difference between food availability for VSLAs members households, and non-VSLAs members households, the study asked the following question from FGD participants. *Are there any differences in availability of food between households participating in VSLA and those that do not participate?* There were varying perceptions from participants of the four FGDs. Some examples of responses are shown below:

Participant 'D3' (VSLAs): Food is always available all times, mostly staple and legume.

Participant 'F6' (VSLAs): Group members use borrowed money to buy food for their families while non-members have nowhere to borrow money from.

These responses from all the four FGDs were analysed using NVivo and results showed that non-VSLAs members of the community experienced food shortages mainly between August and January. The same community members think they experienced poor food

availability and hence utilization throughout the year. Furthermore, FGD participants who participated in VSLAs had better food availability from better crop produce than the non-VSLAs members. This was because VSLAs members were better able to buy inputs and could plant on time and more crops than non-VSLAs members.

2. Relationship between participation in VSLAs and food access

Still under food security in the community, the study inquired from the FGD participants on their access to food. The main question asked here was: *What is the relationship between household's participation in and its access to food?* The FGD participants provided a variety of responses according to their experiences. Some examples of the responses are provided below.

Participant 'A7' (VSLAs): We sell garden products and buy food for our families.

Participant 'F1' (VSLAs): Yes, but in order for us to grow the vegetables we need to get money from VSLAs so that we can buy the seeds required. VSLAs provide us a foundation to do projects and generate more money and profit. We then use that profit and extra income to buy food and other needs for the family.

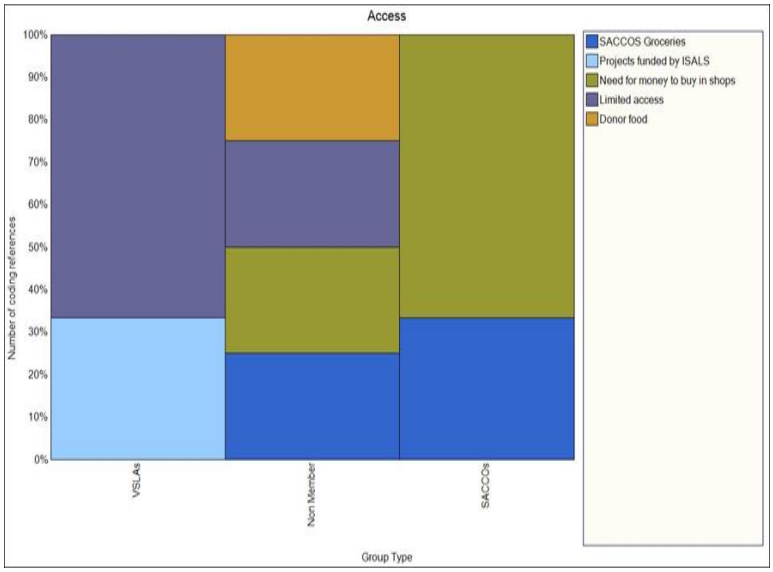

Figure 2.0 Food access situation

Participant 'A5' (VSLAs): Households in the VSLAs group have access to food since they can get money from the group to buy food...

Participant 'A8' (VSLAs): Yes, those with money can access the food they want to consume. Otherwise, we look at the meat in the butcher and cannot buy it because we do not have money.

From these responses, it was understood that non-VSLAs households had limited access to food and therefore relied on food aid programmes implemented by NGOs. It was however a different story for the households that participated in VSLAs, which did not rely on food aid programmes, since VSLAs provided start-up loans for members to engage in income generating activities (IGAs). In turn the income generated from IGAs was used to buy food from neighbours, shops or towns. This helped VSLAs households to have better access to food than non-VSLAs households.

3. Relationship between participation in VSLAs and food utilization

The study explored the relationship between household participation in VSLAs and its utilization of food by asking the question to four FGDs: *What is the relationship between household's participation in VSLAs groups and food utilization by members of the household?*

There were different responses based on the understanding and experiences of individuals. Some of the responses brought forward were:

Participant 'F1' (VSLAs): Non-VSLAs households do not have food at all throughout the year. As such we cannot talk about food utilization because they eat one meal a day.

Participant 'F4' (VSLAs): Households without a VSLAs group member suffer serious poverty because they do not have enough food. They cannot buy food for themselves because they do not have money or loans.

The responses provided by FGD participants revealed that households participating in VSLAs had better diets with diverse food items than non-VSLAs member households. The reason for this difference was that VSLAs use their loans to start IGAs which give them income to buy food they want to consume. Non-VSLAs members who participated in FGDs claimed that sadza is the main food for households in Marange. Those households with access to loans use the loan to engage in some income generating activities and petty business resulting in them raising more income than non-VSLAs members. Therefore, VSLAs households could afford to buy meat and other food products that help to diversify the household diet than for non-VSLAs households. In addition, the VSLAs groups buy and save groceries which they share among group members either after 6 or 12 months further providing a variety of products which non-VSLAs members can hardly afford. As such, it was understood, from testimonies of FGD participants, that VSLAs households consume food of better nutritional quality when compared to the non-VSLAs member households.

4. Relationship between participation in VSLAs and stability of food availability, access and utilization.

The fourth variable to be explored was stability of food availability, access and utilization according to the research's conceptual framework, objectives and questions.

Findings from FGDs were that generally the food security situation in Marange community is made unstable as a result of poverty and recurrent droughts. As such, FGD participants indicated that most households in Marange community do not experience stability of food availability, access to food and utilization of food. The instability was however worse for those households not participating VSLAs since they did not have access to loans and credit. On the other hand, VSLAs members households could use their loans to start up income generating projects, leverage on group groceries that are bought and shared among members.

Quantitative Results

The study surveyed 204 respondents who were stratified as 102 VSLAs group members (Experimental group) and 102 non-VSLAs members (Control group). The 204 respondents were composed of 29 male (14%) and 175 female (86%). The sample distribution by sex was almost comparable to composition of respondents in Zimbabwe's national surveys such as the ZimVac assessment in 2021, in which there were 29% male and 71% female respondents (ZimVac, 2021). As such, the sample size was considered as adequately and normally representing the female and male populations participating in national surveys.

Besides sex composition of survey respondents, the study also found that the respondents for the household survey belonged to households with three to thirteen people (Figure 4.0). Household size is a critical variable to understand when one is analyzing the household food security. The bigger the household the more food they require when compared to a smaller household.

In line with the key research questions and objectives, the quantitative results were presented following the four pillars of food security, which were also followed in the qualitative phase of the study. Therefore, the results were presented under:

1. Relationship between participation in VSLAs and food access,
2. Relationship between participation in VSLAs and food availability,
3. Relationship between participation in VSLAs and food utilization, and
4. Relationship between participation in VSLAs and stability of food availability, access and utilization.

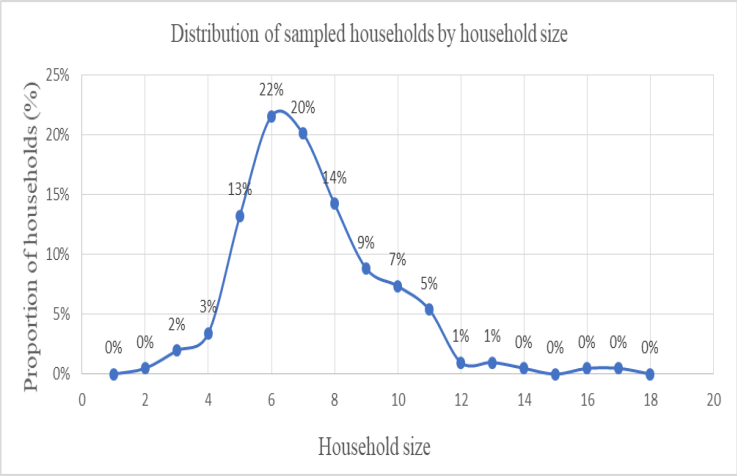

Figure 3.0 Number of people in surveyed households

The sampled respondents had most of their household sizes ranging from 3 to 13 members per family with the highest number of households having 6 members. The modal household size of 6 is comparable to the mean household size for households that participated in the ZimVAC Assessment in 2021 (ZimVAC, 2020) which was 4.9 members per household. Also, according to ZimStat (2012), average household size in Manicaland province was 4.2 people. Therefore, the distribution of household sizes in the study' sample is considered normal in a Zimbabwean context, especially that Marange community is predominantly of the Johanne Marange Apostolic Church whose doctrine encourages polygamous marriages with many children (Musevenzi, 2017).

1. Relationship between participation in VSLAs and access to food

The study sought to answer the research question, "What is the relationship between household's participation in VSLAs and its access to food?". To answer this question, the researcher used research data to examine the relationship between households' participation in VSLAs and its access to food. This examination emanates from objective 1 of the study, which reads "To examine the relationship between households' participation in VSLAs and household access to food". Thus, the theme being explored was "access to food".

Table 3.0 Descriptive Statistics for food access.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Yes	102	3.0098	.80216	.07943	2.8522	3.1674	1.00	4.00
No	102	2.7255	.70580	.06988	2.5869	2.8641	1.00	4.00
Total	204	2.8676	.76701	.05370	2.7618	2.9735	1.00	4.00

A quick glance at the descriptive statistics generated by SPSS shows that the sample data produced a difference in the mean scores of the two levels (membership and non-membership to VSLAs) of observation (Table 3.0). A mean score of 3 (VSLAs households) is better oriented to the research question, "What is the relationship between household's participation in VSLAs and its access to food?" as compared to a score of 2 (Non-VSLAs households).

A One-Way Analysis of Variance (ANOVA) was carried out. The outcomes of this test are displayed in the table 4.0 below.

Table 4.0 One-Way ANOVA Test Results for food accessibility (Source: Author's Compilation from SPSS)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.123	1	4.123	7.222	0.008
Within Groups	115.304	202	0.571		
Total	119.426	203			

The output in Table 4.0 shows that a significant result, a p-value of 0.008 (which is less than the 0.05 alpha level) was realised. This means there is a statistically significant difference in the accessibility of food between the VSLAs households and the non-VSLAs households. The results indicate that VSLAs households have better access to food than non-VSLAs households. In other words, participation in VSLAs by a member of the household significantly contributes to increased access to food for that particular household. Not many of the impact studies on VSLAs used the ANOVA test. Among the ten studies reviewed, only one by Osei-Fosu (2019) performed a similar analysis in an impact study of VSLAs in Ghana. The p-value obtained was $p<0.05$, which was considered significant difference between the variables under investigation.

2. Relationship between participation in VSLAs and food availability

A question was asked to respondents *"During the past 12 months prior to March 2021, was there a time when you or others in your household were worried you would not have enough food to eat because of a lack of money or other resources? 1. Yes 2. No*

Cross tabulation was used to determine the proportion of respondents out of total 204 who answered "Yes", meaning they experienced food shortage, and the proportion for those who answered "No", meaning they did not experience food shortage in the period specified in the question. Results from this analysis are presented in table 5.0 below.

Table 5.0 Food availability among respondents

		Frequency	Percent	Cumulative Percent
	Yes, food unavailable	129	63.0	**63.0**
	No, food available	75	37.0	**100.0**
	Total	**204**	**100.0**	

From the individual question that was asked in the survey concerning the availability of food within a household, 63% (N=129) of the 204 respondents agreed that they experienced some food shortages during the time prior to December 2020. On the other hand, 37% (N=75) indicated they did not experience food shortage in the period under investigation. The results show that more survey respondents experienced food shortage (food unavailability) in the period under investigation, including some VSLAs member households.

Table 6.0 Chi-Square test results on food availability

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	32.071	1	0		
Continuity Correction	30.447	1	0		
Likelihood Ratio	33.287	1	0		
Fisher's Exact Test				0	0
Linear-by-Linear Association	31.913	1	0		
N of Valid Cases	204				

The test carried out revealed that there is a significant relationship between ($p<0.05$) availability of food within households that participate in VSLAs and those that are non-VSLAs members. In other words, the Chi-square test confirmed that households that participated in VSLAs and had better food availability for most of the time when compared to those households without a member participating in VSLAs. To further strengthen this claim, results from the cross tabulations analysed in Table 7.0 below, it is worth noting that, of the 129 respondent households that experienced food shortages in the past year, 84 of these were non-VSLAs members against 45 VSLAs members.

Table 7.0 Cross-tabulations: Food availability vs VSLAs membership and non-membership

			Food Unavailability		Total
			Yes, food unavailable	No, food available	
Membership Type	Yes, is a member	Count	45	57	102
		% Within Membership Type	44.1%	55.9%	100.0%
	No, not a member	Count	84	18	102
		% Within Membership Type	82.4%	17.6%	100.0%
Total		Count	129	75	204
		% Within Membership Type	63.2%	24.8%	100.0%

Cross-tabulation results above (Table 7.0) suggest that 55.9% (N=57) of the members of VSLAs did not experience food shortage in the period prior to March 2021 with 17.6% (N=18) of the non-members also not experiencing food shortage in the same period. In other words, more households for VSLAs members had better food availability than non-VSLAs members. This result can be compared to results from studies conducted by Mwansakilwa et al (2017) and those presented by SEEP Network (2017). Mwansakilwa et al (2017) in Zambia reported higher agricultural yields (food availability) and high consumption among VSLAs members than among non-members.

3. Relationship between participation in VSLAs and food utilization.

Thirdly, this study analysed quantitative data to investigate the relationship between participation in VSLAs and consumption of food rich in macro-nutrients such as carbohydrates and proteins. Results for this analysis are presented in table 8.0 below.

Table 8.0 Carbohydrates Consumption Assessment (Source: Author's Compilation from SPSS)

			Carbohydrates Consumption		Total
			No	Yes	
Membership Type	Yes, is a member	Count	1	101	102
		% within Membership Type	1.0%	99.0%	100.0%
	No, not a member	Count	0	102	102
		% within Membership Type	0.0%	100.0%	100.0%
Total		Count	1	203	204
		% within Membership Type	0.5%	99.5%	100.0%

The results showed 99.5% of the sampled households consumed food rich in carbohydrates in the previous 24 hours of participating in this study. There was no major difference between the proportion of VSLAs member households consuming carbohydrates (99%) and the non-VSLAs member households consuming carbohydrates (100%). This result could be reflecting the fact that the staple food in Zimbabwe and particularly in rural small holder households is sadza which is rich in carbohydrates. As a result, majority of the rural households consume carbohydrate-rich food daily. This is not the acceptable food consumption situation which resonates with findings from national surveys in Zimbabwe. For example, the ZimVAC (2021) report in indicated that consumed acceptable diets for households in Zimbabwe dropped from 47% in 2019 to 31% in 2020. This decrease in 2020 could be attributed to the continued economic challenges in Zimbabwe.

unique to the Zimbabwe context perhaps there is much of influence from the prevailing economic challenges. in Zimbabwe. According to Tawodzera and Chigumira (2018:250), food insecurity in Zimbabwe was exacerbated by "a number of policies government policies which have negatively impacted on food availability in the country". An example of such policies is the Statutory Instrument 64 of 2016 that banned the importation of certain food products (Tawodzera and Chigumira, 2018), limited the importation of others, and imposed heavy duties on others. In terms of access to food, it was found that households have limited access to food. As such, households with limited or no access to food rely on food aid programmes implemented by donors, particularly for those households that do not participate in VSLAs. It was however a different story for the households that participate in VSLAs, which do not rely entirely on donor food aid programmes.

Protein consumption.

Protein is usually found when people consume food stuffs that are rich in protein, such as meat, milk, eggs and legumes. The body requires proteins for its growth, and generation of new tissues. Children and physiologically active members of the population need more proteins than the elderly.

The study used cross-tabulations to analyse data (Osei-Fosu et al, 2019) and (White 2003) for frequencies to investigate the relationship between participation in VSLAs and the level of protein consumption. The study established that 88.2% (N=90) of the members of the VSLAs had consumed food with proteins compared to 64.2% (N=60) of the non- VSLAs members who had consumed food with proteins 24 hours prior to the survey. Of the 150 households that had consumed food with proteins in the previous 24 hours, 60% were members of VSLAs and 40% were not members of VSLAs groups. This result shows that more people who consume proteins are those from VSLAs groups. However, the overall proportion of people who consume protein (73.5%) is less than those who consume carbohydrates (99.5%). The likely explanation for this difference is that carbohydrates are found in cereals and vegetables which most rural people consume almost daily.

Testing the hypothesis of the research

The study used a technique called Moderator Analysis to determine the sustainability of food security in households with membership in VSLAs in the context of drought. This technique is used to determine whether the relationship between two variables depends on (is moderated by) the value of a third variable. Results show that the overall model is not significant ($p>0.05$, at the 0.05 level of significance). The parameters of the model with the drought variable are insignificant in the model. Thus, households with members participating in VSLAs did not have food security that is significantly better than households not participating in VSLAs in times of drought.

Findings were that membership to VSLAs affects food security in a positive way. However, further tests to this claim indicated that households with members participating in VSLAs do not necessarily have improved food security better than households not participating in VSLAs only when there is drought. The study therefore failed to reject the null hypothesis which states that: *There is insignificant difference in food security between households with members participating in VSLAs and households without members participating in VSLAs in the context of drought*.

Considering this result, drought per se is not a critical variable when evaluating the impact of VSLAs on food security.

VI. DISCUSSION

Findings from the study showed that VSLAs members have better food security than non-VSLAs members.

Evidence from qualitative and quantitative data demonstrated that VSLAs have a positive contribution towards food availability, food access, food utilization as well as the stability of these former three. VSLAs contribute to food availability through members' access to loans they use to start income generating activities, purchase of agricultural inputs and food. either after 6 or 12 months. The grocery included a variety of food items which would not be produced on the farm, particularly in the context of drought in Marange. Thus, the groceries improved dietary diversity and hence nutrition for the VSLAs households when compared to non-VSLAs member households. In terms of access to food, it was found that non-VSLAs households had limited access to food. The study found out that, households with limited or no access to food, particularly the majority of non-VSLAs member households relied on food aid programmes implemented by donors and NGOS. VSLAs provide start-up loans for members to engage in income generating activities (IGAs) and the income generated is used to pay up loans, buy food and inputs for farming and other business enterprises. These observed practices led to improved food access for VSLAs households. Buying food from the shops also required money which most households did not have. This study found it challenging to compare and relate these results to previous studies. Studies reviewed did not use the conceptual definition of food security to analyse the impact of VSLAs on food security. For example, Ngegba et al (2016) reported that VSLAs had positive results on food security in Sierra Leonne but their study did not evaluate the impact of VSLAs using the pillars of food security lens. As such, these studies, even if they report positive impact on food security, it is not easy to understand the claimed contribution on food utilization in a way it was considered in the approach used by the current study. Results from this study are comparable to unpublished reports from AGRITEX, the ward councillor and village heads in which it is indicated that Marange is perennially affected by drought-induced crop failure. The period before March of every year in Zimbabwe coincides with the lean season when most food stocks are depleted at household level, and as such majority of households in Marange experience food shortage. In terms of policy implication, this points to the fact that policy makers should come up with policies that support establishment and performance of VSLAs as they demonstrated positive impact on accessibility of food by households in drought prone settings.

VII. CONCLUSIONS AND RECOMMENDATIONS

The study concluded that in ward 16 of Marange community, households that participate in VSLAs have better access to food, increased availability of food, utilization of food and stability of the former three when compared to those households which are not involved in VSLAs.

Based on these key findings, the study therefore concluded that VSLAs have positive impact on household food security. In line with this conclusion, the study came up with four key recommendations.

Non-VSLAs members, in most cases fail to buy the food they need and finding startup capital to establish income generating activities that would improve household income and spending power. Some VSLAs groups used their loans to buy and accumulate grocery items which were shared among members

Firstly, it is recommended that livelihood challenges in Marange need to be addressed through integrated support from government, development players such as NGOs and the private sector to diverse income sources and livelihoods.

Secondly, in terms of policy formulation, government and NGOs as well as private sector players such as seed houses should cooperate to come up with agricultural support programmes that provide climate smart agricultural technologies such as appropriate crop varieties to minimize the risk of drought on farmers. That way, farmers in Marange community are likely to realize improved yield, thereby contributing to enhanced food security.

Thirdly, Government of Zimbabwe through Ministry of Finance should support the operations of VSLAs. The government should address economic challenges that are currently acting as barrier for VSLAs to fully exploit the potential to promote and broaden financial inclusion for the rural poor, particularly women in parts of Zimbabwe with unstable food insecurity.

Fourthly, the researcher recommends a more explicit study to establish the impact of VSLAs on agricultural and livestock productivity. Such a study will help to address the question 'To what extent is agricultural and livestock productivity related to the household's participation in VSLAs?'. The findings could contribute to informed promotion of VSLAs as vehicle for improving food security among rural communities.

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