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REVIEW OF Rural Resilience Praxis

RRP 1 (1&2), 2022

ISSN 2957-7772(Print)

Published by the Zimbabwe Ezekiel Guti University Press
Stand No. 1901 Barrassie Rd,
Off Shamva Road
P.O. Box 350
Bindura, Zimbabwe

Typeset by Divine Graphics
Printed by Divine Graphics

SUBSCRIPTION AND RATES
Zimbabwe Ezekiel Guti University Press Office
Stand No. 1901 Barrassie Rd,
Off Shamva Road
P.O. Box 350
Bindura, Zimbabwe
Telephone: ++263 8 677 006 136 | +263 779 279 912
E-mail: zegupress@admin.uz.ac.zw
http://www.zegu.ac.zw/press

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JOURNAL PURPOSE

The *Review of Rural Resilience Praxis* provides a forum for disaster risk mitigation, adaptation and preparedness

CONTRIBUTION AND READERSHIP

Sociologists, demographers, psychologists, development experts, planners, social workers, social engineers and economists, among others whose focus is on rural resilience.

JOURNAL SPECIFICATIONS

Review of Rural Resilience Praxis

ISSN 2957-7772(Print)

SCOPE AND FOCUS

As much as the urban territory is increasing daily, the rural economy in many developing countries retains a great proportion of the extractive and accommodation industry. Retaining some space in rural areas remains critical given the sector's role in providing ecosystem services to both wildlife and humanity. In this light, rural resilience as practice beckons for critical studies, especially in the face of extreme weather events and climate change that then impact the livelihoods and lifestyles of rural communities. The *Review of Rural Resilience Praxis (RRRP)* comes in as a platform for critical engagement by scholars, practitioners and leaders as they seek to debate and proffer solutions for the rural sector and try to champion the philosophy of the right to be rural. The issue of conviviality between different constituencies of the sectors, coupled with the competing challenges of improving rural spaces while also making the conservation and preservation debates matter, is the hallmark of this platform of criticality. The journal is produced bi-annually.

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Articles must be original contributions, not previously published and should not be under consideration for publishing elsewhere.

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A total number of words: 5000-7000 words and set in 12-point font size width with 1.5-line spacing.
Language: British/UK English
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Body: Where the authors are more than three, use *et al.*
Italicise *et al.*, *ibid.*, words that are not English, not names of people or organisations, etc. When you use several authors confirming the same point, state the point and bracket them in one bracket and in ascending order of dates and alphabetically separated by semi-colon e.g. (Falkenmark, 1989, 1990; Reddy, 2002; Dagdeviren and Robertson, 2011; Jacobsen *et al.*, 2012).

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Contents

The Impact of Village Savings and Loans on Rural Women's Livelihoods: Evidence from Honde Valley, Zimbabwe

COURAGE MASONA, EDSON CHAGWEDERA[1] AND CHOMONOGWA PANDE[2]

Abstract

Abject poverty is a reality for women in Africa, especially those living in rural areas, and Zimbabwe is not an exception. For the past two decades, women in rural areas have been involved in several income-generating activities in a bid to escape poverty. However, access to the capital needed to fund these activities is a major stumbling block for many women since they are financially excluded from formal financial institutions. Women in rural areas have embraced the Village Savings and Loans Scheme (VSLS) programme. Informal saving schemes in rural areas are at the centre stage and have attracted the attention of researchers as a poverty alleviation programme. Many women are participating in these schemes, but their incomes are still meagre. Generally, several women' standards of living is still have very poor. The study aims at estimating the effects of VSLSs on women's livelihoods in the Honde Valley, Zimbabwe. Although the effect of VSLSs on livelihoods is common knowledge, prior studies did not estimate the separate effects of savings and loans on the livelihoods of women in rural areas. Therefore, the novelty of this study is anchored on the use of regression analysis to estimate the separate effects of savings and loans on rural livelihood outcomes among women. Study results reveal that VSLS members increase their chances of improving their livelihoods. Conversely, members who borrow, decrease their chances of improving their livelihoods.

Keywords: *poverty, women empowerment, financial system, microfinance, education, horticulture*

INTRODUCTION

The poor are financially excluded from formal financial systems in Africa, Zimbabwe included. Thus, in recent years, researchers across the globe have given considerable attention to informal financial systems as an alternative to

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provide sustainable financial services to the rural poor. This pursuit has been inspired by the unavailability of formal microfinance institutions (MFIs) that can reach out to the poorest people living in rural communities. MFIs and banks find it too expensive to provide services to rural areas due to poor infrastructure, low population density, small transaction sizes and risky returns in agriculturally concentrated economies (Chivasa, 2018). Having realised the limitations of formal MFIs, women in rural areas in Zimbabwe recently adopted and popularised VSLS to fight poverty and deal with their financial vulnerabilities (*ibid.*). The VSLS concept was introduced in 1991 in Niger by CARE International to solve the drawbacks of formal MFIs (Allen, 2006). Such savings groups have become the pith of the development strategies of many development agencies across the globe. For instance, Oxfam and Plan International, among other global and local organisations, have spearheaded the programming in over 65 countries with over 10 million members (Ashe and Neilan, 2014). Around the world, about 70% of VSLS members are women (Allen and Panetta, 2010).

The concept of the VSLS involves individual members who opt to save their money as a group of trusted members and borrow from the same group. Therefore, it is self-managed and self-capitalised. Beyene and Dinbabo (2019) noted that such schemes provide insurance, savings and credit mainly in areas that are not covered by formal institutions such as banks. Rasmussen (2016) stressed that VSLS are of paramount importance when it comes to local financial intermediation. Financial products of these associations are tailor-made to meet the needs of the poor. It is argued that the participation of women in formal microfinance institutions is low due to a few limiting factors. The frequently cited factors include, but are not limited to, a lack of awareness, collateral security and women's literacy on credit and repayment (Beyene and Dinbabo, 2019). Thus, VSLS plays a critical role as an alternative to formal financial institutions. Bamlaku (2006) contends that even though the amounts offered by VSLS are small, members have more access to capital and are willing to participate because they have trust in such schemes since they deal with people from their immediate community.

Several studies in Zimbabwe focused on the impact of VSLS on health, peace, education, food and nutrition indicators in Zimbabwe (Kabonga, 2015; Chivasa, 2018; Chineka *et al.*, 2021; Pasara *et al.*, 2021). We are yet to find comprehensive literature that estimates the effects of VSLSs on

women's livelihoods, that is a composite measure. In this regard, the study's objective is to estimate the effect of VSLS on the livelihoods of women in rural areas, particularly in Honde Valley, Manicaland Province of Zimbabwe. Results from the study will help to promulgate policies aimed at achieving Sustainable Development Goals (SGDs) number 1 and 5 — to end poverty and achieve gender equality, respectively. Further, the novelty of this study is premised on the use of regression analysis to estimate separate effects of savings and loans on the livelihoods of women, unlike prior studies that employed qualitative data analysis techniques such as thematic and content analysis (Musunguzi, 2015; Chivasa, 2018; Kabonga 2021).

LITERATURE REVIEW

Women still face several difficulties today, even though Zimbabwe gained independence in 1980. Poverty, unemployment, domestic abuse, exclusion from resource ownership and low educational achievements, are some of the major problems that women are facing in Zimbabwe. Particularly in rural areas, women have no access to necessities for a decent life. According to the UNDP (2021) report, households headed by women are the most affected by absolute poverty, with 68% of them living below the poverty datum line. This is the status of women, despite concerted efforts by the government and non-governmental organisations (NGOs) directed towards uplifting of women in society. The spiralling poverty experienced by women in Zimbabwe is an ongoing issue that demands women's emancipation (ZIMSTAT, 2016). The increasing trend of poverty may be a sign of structural issues embedded within Zimbabwean society, mixed with the patriarchal enslavement of women (Malaba, 2006). Many women in Zimbabwe (around 70%) are employed in the agricultural sector, a sector with the lowest remuneration in the country (*ibid.*).

Further, there are serious inequalities in the education system in Zimbabwe. The patriarchal nature of Zimbabwean culture, like that of other African nations, has resulted in women and girls being treated less favourably than men (Chabaya .*et al.*, 2009). As a result, girls' education has been limited to lower grade levels (Chabaya and Gudhlanga 2013). Despite efforts to establish equality in tertiary enrolment, women continue to enrol at low rates at this level of study. The limitation of access to leadership roles is a significant aspect of the Zimbabwean literature on women's education management. The ratio of women to men has remained extraordinarily low

despite national and institutional strategies that have been implemented to promote women's access to leadership (Chabaya *et al.*, 2009; Hlatywayo and Muranda, 2014). The continued under-representation of women is sufficient proof that policies have fallen short, probably due to a lack of precise and unambiguous guidelines, implementation frameworks and monitoring and evaluation.

Low educational attainment prevents more women from entering the corporate world and those who do, quickly learn that "it is a man's world" (Kambarami, 2006). Women also perform secretarial and clerical jobs in the business sector and those living in rural areas lack access to economic opportunities. The disparities in the education sector, notably in the labour market, catalyse women's disempowerment (ZIMSTAT, 2016). Laws enacted during the colonial era exacerbated the subordination of women that had long been a part of traditional culture (Moyo and Perumal 2019).

THE CONCEPT OF VILLAGE SAVINGS AND LOANS SCHEMES

As a novel approach to combating rural poverty (Kesanta and Andre, 2015; Mwansakilwa *et al.*, 2016; Solange and Mulyungi, 2016; Harelimana, 2020;), the VSLS concept has become more prominent in development literature. Financial services offered to those who are typically not included in conventional financial systems due to a lack of collateral, employment history and verifiable credit history, are known as VSLS (Mwansakilwa *et al.*, 2016). According to Parker *et al.* (2017) and Chikuvadze (2018), A VSLS is a self-managed lending and saving system centred on the community. Okello and Mwesigwa (2022) noted that the VSLS approach has been crucial for the empowerment of underprivileged communities, especially in communities where women have been under-represented. The experience from several countries shows that when given the opportunity, disadvantaged women make prudent investments and generate more income. In the same vein, the study emphasized the need to establish a grassroots organisational base so that women could unite, analyse their issues and challenges and meet their demands. This shows that participating in various activities created by members and privately funded by members will result in improvements in their welfare.

VSLS programmes originated from the concept of Accumulated Savings and Credit Associations (ASCAs) that are used by an estimated 11 million

individuals worldwide, primarily in Asia and Africa (Bouman 1995; Vanmeenen 2010; Masiyiwa, 2016). Different nations have different names for VSLSs. For instance, they are known as, *inter alia*, "table banks" in Uganda, in Tanzania, they are known as "self-help organisations" and "village saving and association" in Malawi, in countries like Afghanistan, Cambodia and Bangladesh, in Asia, Internal Savings and Lending Schemes (ISALS) are known as "primary groups". In Zimbabwe, VSLSs are specifically referred to as *Mukando* or *Maround*, meaning "a savings and lending effort" (Seed Project, 2013; Gambanga 2015; Jabangwe-Morris 2015). The Shona term *Mukando* implies that the created money accumulates, that supports the idea that the programme enables participants the chance to save while also giving them access to soft loans to meet their short-term needs. Such schemes typically involve group members pooling a predetermined sum of money and lending it among themselves at a predetermined interest rate, usually between 5 and 10% (Bouman 1995; Allen 2006; Vanmeenen 2010; Gambanga 2015; Masiyiwa 2016; Mphambela 2016; Zimbabwe Microfinance Fund, 2016).

Despite the growing importance of VSLSs and their significance in promoting financial inclusion in rural areas, there is scant literature that explains how they affect the well-being of rural residents, specifically women. To determine if participation in VSLSs improves savings mobilisation among the poor, this study used Mutasa South District in Zimbabwe's Honde Valley as a case study.

THE EFFECT OF VILLAGE SAVINGS AND LOAN SCHEMES ON WOMEN'S LIVELIHOODS

Prior and on-going development programs have attempted to investigate the link between microfinance and entrepreneurship. Supporters of village savings and loan Schemes consider them "nothing less than the most promising weapon available for decreasing the scope and severity of global poverty" (Snodgrass, 1999). This line of reasoning is informed by the Sustainable Livelihood Approach Framework (SLAF). The framework for sustainable livelihoods increases the poor's abilities and asset base to combat their vulnerability. According to Scoones (2009), SLAF addresses the vulnerability of individuals and how to manage shocks such as extended droughts and changes in climatic patterns, among others. In this study, improving and raising the livelihoods of women was the main goal, along

with evaluating the processes in place to enhance the asset base of VSLS members. The study sought to know if VSLSs had any effect on enhancing livelihoods and lowering poverty in Honde Valley.

Murray (2001) asserts that both tangible and intangible resources serve as the foundation for sustainable development. The SLAF offers solutions for eradicating poverty and the VSLS model for financial inclusion has the potential to do so as well. By using the practices related to the SLAF, VSLSs can assist individuals in dealing with stress and shocks. According to Murray (*ibid.*), the way out of poverty is through strategic and useful interventions. The practical intervention helps low-income families develop a solid livelihood plan that includes starting small companies, going to school, receiving training in marketable skills and finding some savings options. The goal of the strategic interventions is to overcome obstacles by forming networks and alliances.

The SLAF was first introduced in the mid-1980s and the Department for International Development (DFID) pushed it as a method to tackle vulnerability and poverty among developing countries. This study considers the VSLS as a financial inclusion approach for poverty eradication. The framework for sustainable livelihoods focuses on participatory poverty-eradication initiatives. It is critical to analyse the analytical framework's levels and aspects that focus on the context, resources, institutions, organisations, livelihood methods and outcomes (Kollmair and Gamper 2002). The framework demonstrates how to address the problems of poverty and vulnerability.

Because of the popularity of this framework, major development organisations began implementing it and pushed for its adoption by other development organisations. Murray (2001) established the five livelihood assets that provide the basis for a sustainable livelihood. Carney (2003), on the other hand, critiqued the framework and suggested that adding empowerment, multi-level collaborations and gender, socioeconomic class and racial disaggregation and ensuring long-term adaptation, would make it a better framework. Figure 1 depicts the SLAF and its linkages.

THEORETICAL FRAMEWORK

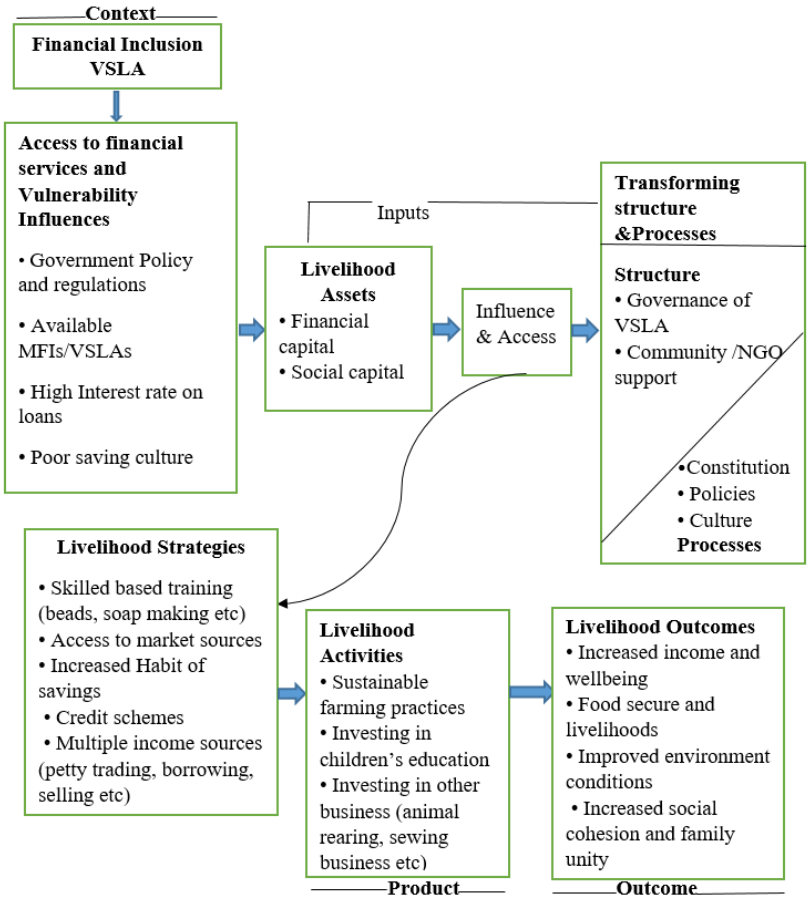

Figure 1: *DFID Sustainable Livelihood Framework and VSLS Implications* (Adopted from DFID, 1999)

Figure 1 shows the conceptual framework for studying financial inclusion with the VSLS in Honde Valley in the form of context, inputs, products and outcomes. Literature is replete with studies that focus on the nexus between VSLSs and the livelihoods of women residing in rural areas across the African continent. Several studies concur that poor people prefer informal sources of finance regardless of the reported growth of formal financial

institutions such as registered microfinance firms (Agrawa *et al.*, 2009; Munir and Rehman, 2011; Anang *et al.*, 2015). A study in Malawi by Anyango *et al.* (2007) found that women who participated in VSLS had better livelihoods. Another study by Waller (2019), also in Malawi, revealed that VSLSs help women develop problem-solving skills. Therefore, based on the results of these researchers, VSLSs have a positive impact on the incomes, consumption levels and social well-being of poor households.

EMPIRICAL LITERATURE REVIEW

Accumulation of savings through VSLSs leads to high incomes that enable women to buy household assets and pay for their children's education. When women do this, they feel empowered. This is in line with the results of Tarry (2006) who posits that in Tanzania, VSLSs have a positive impact on the lives of women. The study also found that the schemes improve social status and self-esteem and increase women's confidence. However, the study by Terry collected only qualitative data, so the current study results might depart from Terry's results. In contrast, Morduch (1998) found that VSLS did not affect the livelihoods of women in Bangladesh. The study used a cross-sectional survey of 180 respondents from VSLS participants and non-participants. VSLSs were not found to cause households to increase consumption.

The results by Morduch (*ibid.*) were further supported by Bateman and Chung (2012), whose study found that the scheme is likely to keep women in a poverty trap. They argued that these schemes will enable women to start small entrepreneurial businesses that will add to the existing informal sector that is already saturated. This will lead to increased competition for the limited available finance, thus reducing the profits and viability of such small informal enterprises. Prior researchers suggest that the poor are not able to start or expand their small informal enterprises through formal MFIs by investing in sophisticated technologies due to the small returns they realise over the long term. Similarly, small-scale farmers, mostly women in rural areas, cannot produce enough surplus to repay the high-interest rates charged by these formal MFIs. Consequently, Ditcher (2006) described it as the "paradox of microcredit", that simply means the poorest members of society realise minimal gains from microcredit and the rich, who can realise more gains, do not necessarily need the microcredit, but they are after larger amounts of credit that have longer credit terms. Results on the effect of VSLS on livelihoods are not uniform across nations and there are some disagreements in the literature. Other studies found a positive effect (Sudhakar and Agrawa, 2009; Munir and Rehman, 2011; Anang *et al.* 2015),

while others found a negative effect (Morduch, 1998; Chung, 2012). Results from this current study contribute to the contentious debate.

Further, a positive effect of VSLS on women's livelihoods was found by Beyene and Dinbabo (2019) in Ethiopia. The study reported that the participation of women in VSLSs is linked to a reduction in poverty. Household poverty indicators such as household diet, monthly income, children's education and women's decisions were used. Similar results were also reported in Uganda by Cameron and Anang (2015). According to Nabbona (2018), participation in VSLSs and women's empowerment in Uganda has a positive relationship. The results confirm the importance of VSLS in different African countries. Another study by Silungwe (2017) reveals that VSLSs prove to be catalysts for accelerating income-generating businesses. They provide finance to start-up informal small businesses, diversify sources of income and improve the education and health of women participating in these schemes. It was further established that such schemes strengthen the female agency, thus making them more socially and economically active as compared to non-VSLS members (Amaning and Paul, 2019).

Additional recent empirical evidence supports the notion that VSLSs improve the livelihoods of women in rural areas. Wosene (2014) found that VSLSs improve incomes and widen investment opportunities. The study further highlighted that VSLSs reduce poverty and income inequality between women and men. Using content analysis, Allen and Hobane (2004) found that VSLSs increase household productive and non-productive asset levels. The study also noted a substantial reduction in the use of formal-sector and traditional savings instruments. Similar results to Silungwe (2007) were also reported. Hobane (2004) revealed that there was an increase in the number of income-generating activities, particularly for VSLS members. According to the study, 81% of members reported that their status in the community had ameliorated because of their participation in VSLSs. Similar results were found by Anyango *et al.* (2007), who stated that VSLSs improve the livelihoods of team members and significantly reduce poverty among women, who constitute the most of the VSLS groups.

A considerable number of studies were also conducted in Zimbabwe to determine the effect of VSLS on livelihoods. Barnes *et al.* (2001) asserted that participation in Zambuko Trust, a VSLS in Zimbabwe, had a positive impact on food consumption in very poor households. The study specifically noted that participation in VSLSs has a positive impact on the consumption

of high-protein foods, for instance, meat, fish, chicken and milk. However, this current study is looking at the effect on livelihoods on a broader dimension. Studies on VSLSs in Zimbabwe have focused predominantly on poverty. Results from the studies concur that VSLS members can ride out of poverty and can quickly respond to crises in their day-to-day lives. A more recent study was carried out by Kabonga *et al.* (2021) which looked at the effect of VSLSs on women's empowerment in rural Shamva. The study found that the schemes play a significant role in women's empowerment. Many studies in Zimbabwe utilised qualitative data and the nexus between VSLSs and livelihoods was not the focus of these studies. The current study used quantitative data and regression analysis to determine the effect of VSLSs on the livelihoods of women in rural areas. However, despite the popularity and prominence of VSLSs in rural areas' financial intermediation, little is known about their effect on the livelihoods of women residing in rural areas.

METHODS

STUDY AREA

A sample of 65 women was taken from the targeted population of women in Honde Valley. The research region is in Manicaland Province in Zimbabwe. Tea and coffee cultivation are the most common agricultural activities, but some households also engage in horticulture. It is one of the country's largest banana-producing regions and other horticultural products such as vegetables, tomatoes, mangoes and avocados, among others. The rationale for selecting this area is that it contains several VSLSs that aim at improving the livelihoods of women and many NGOs that are supporting such schemes.

METHODOLOGY

The study used primary data gathered from women participating in VSLS in Honde Valley. Data was collected using a questionnaire, which contained both open-ended and closed-ended questions. The study adopted a quantitative approach, which minimised bias. Therefore, the quantitative aspect of the study employed descriptive statistics and regression analysis to determine the effect of VSLSs on the livelihoods of women in Honde Valley. Before the full-blown survey, a pilot survey was conducted. A questionnaire was administered to 10 VSLS members to make the questions clear.

Honde Valley is divided into 13 sub-districts and VSLSs are popular in the area. Gwiriri, Hauna and Sahumani were chosen for the study based on the following criteria: the intensity of VSLSs, the presence of projects to improve women's livelihoods and the involvement of women in income-generating activities. The multistage sampling technique was carried out in three steps. First, divisions in each sub-district where VSLS programmes were concentrated were identified with the assistance of the village headman. Random sampling in the second stage was used to obtain women who participated in VSLSs. Both descriptive and inferential methods were used in analysing the primary data collected from VSLS members.

For data analysis and interpretation, the study used the Statistical Package for Social Sciences (SPSS). The regression model in the following equation was used.

$$Y = \beta_0 + \beta_1 FS_1 + \beta_2 L_2 + \mu \quad \ldots\ldots (1)$$

Where;
Y= Dependent Variable (Livelihood Outcomes)
$\beta_0 =$ Constant
FS_1= Frequency of Savings
L_2= Loans given to VSLS members
β_1-β_2 = Regression Coefficients
μ= Error Term

RESULTS

GENERAL INFORMATION

The ages of the participants who constitute the majority (70%) was between 25 to 45 years, while 20% were 18 to 24 years old. Women over the age of 45 account for 10% of all respondents. In terms of age, the results show that there is a balanced distribution of women participating in VSLSs. Further, results confirm that most of women in the Honde Valley had basic education. According to the results, 19% completed primary education as their highest level; 60% completed secondary education as their highest level; and 11% had diplomas and degrees, while (10% did not attend school. This suggests that most of the members participating in VSLSs can read and write, thus, can manage group activities.

Table 1: *Model Summary*

Model	R	R Squared	Adjusted R Squared	Std. An error in the estimate
1	0.556[a]	0.6378	0.5915	0.32165

a. Predictors: (Constant), Savings, Loans

A regression model was used to estimate the effect of VSLSs on the livelihood outcomes of women in the Honde Valley. Through regression analysis, the coefficient of determination can be estimated. This explains the extent to which the variations in the dependent are explained by the variations in the independent variables. The results of the model summary are given in Table 1, with a coefficient of determination (R^2) value of 64%. This implies that 64% of the variation in livelihood outcomes is explained by the frequency of savings and loans from VSLS groups.

ANOVA TEST RESULTS

Table 2: Anova Test Results

Model	Sum of squares	Df	Mean Square	F	Sig
Regression	2.435	3	1.654	13.908	0.000[b]
1	6.123	61	0.121		
Residual	8.558	64			
Total					

a. Dependent Variable: Livelihood Outcomes
b. Predictors: (Constant), Savings, Loans

The dependent variable for this study was livelihood outcomes and the independent variables were savings and loans. The results of the study reveal that loans and savings together have a significant effect on livelihood outcomes. The p-value of the F statistic was found to be 0.000, which confirms that the two independent variables have a significant effect on the dependent variable. The results are presented in Table 2.

COEFFICIENT ESTIMATE RESULTS

Table 3: Coefficient Estimate Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.600	.240		2.504	.015
	Saving with VSL	.782	.179	.470	4.375	.000
	Loans from VSL	-.072	.034	-.226	-2.105	.039

a. Dependent Variable: Livelihood Outcomes

Equation 2 can now be presented as follows:

$LO = 0.6 + 0.47FS_1 + 0.22L_2 + \mu$ ..... (2)

In equation 2, LO, livelihood outcomes, are the frequency of savings, loans given to VSLS members and the model error term. Table 3 shows that participants in VSLSs who save frequently, increase their chances of better livelihoods by 47%. A t value of 4.375 and a p-value of 0.000 imply that the variable has a significant effect on livelihood outcomes. Conversely, participants who take loans from VSLSs lower their chance of improving their livelihoods by 22.6%. Although this variable is negative, it has a significant effect on livelihoods, evidenced by a t-value of 2.105 and a p-value of 0.039.

DISCUSSION

The study revealed that most of most women participating in VSLSs were between 25 and 45 years of age, constituting 70% of the sample used for this study. This implies that, as women grow older, they begin to undertake activities that improve their livelihoods. But beyond a certain age, the appetite to undertake these activities, such as VSLSs starts to decrease. These results are consistent with the results of Anang *et al.* (2015), who established that younger people below the age of 25 and older people above the age of 45 had a lower propensity to partake in VSLSs in Ghana. Solomon and Addekoya (2006) argue that because middle-aged women are involved in decision-making for their families' livelihoods, they participate heavily in VSLSs. In terms of education, the results show that the most of women attended school, except a few (10%) who did not attend school at all. This suggests that the likelihood of educated women participating in VSLSs is high in rural areas.

The results corroborate with Gidzanwa and Chimhowu (2012) who revealed that participation in VSLSs is determined by the level of education. The effect of VSLSs on women's livelihoods was found to be positive for women who frequently save their money with a VSLS group. The regression model estimates that these women increase their chances of improving their livelihoods by 47%. This is generally expected since savings enable members to raise enough money to enable them to access physical assets, social capital and human capital. In this regard, members will have the ability to build houses, procure land, possess livestock, have access to medical care and pay school fees. This can improve members' livelihoods in the long term. In congruence with the SLAF, VSLSs have a positive effect on livelihoods. The results are in line with the results of many other studies (Silungwe, 2017; Nabbona, 2018; Amaning and Paul, 2019; Beyene and Dinbabo, 2019). Ironically, the study reported a significant effect of loans from VSLSs on livelihoods though the effect was negative. This result is fascinating, given that it departs from what is generally expected in the extant literature. Thus, the result can be explained by Ditcher (2006), who propounded the "paradox of microcredit". This means that the poor cannot benefit much from microcredit; the returns are small and they frequently fail to repay the loans.

CONCLUSION AND RECOMMENDATION

Many studies focus on the effects of VSLS group participation on livelihoods without paying close attention to the effect of each variable such as frequency savings, on livelihoods. Therefore, this study aimed at establishing the separate effects of savings and loans on the livelihoods of women in Honde Valley, a rural area situated in the south of Manicaland Province in Zimbabwe. The study established that VSLSs have a positive effect on the livelihoods of women who frequently save. This finding is supported by many other past studies that are related to the current study. In contrast, VSLSs harm the livelihoods of women, as they are borrowers mostly. The result supports the paradox of microcredit. Therefore, savings and loans have implications for the rural economy.

The study recommends that governments and other development agencies fighting against poverty in rural areas, through VSLS groups, should follow the pro-poor model in their operations. The results show that the poor have low chances of improving their livelihoods when they take loans from VSLS groups. Therefore, group members should be motivated by the improvement of their members and not profits to promote inclusive growth. The interests charged in these groups could be higher than formal institutions such as

banks and microfinance institutions. Therefore, there is need for close monitoring since the VSLS groups are unregulated. Many of the VSLS groups seem to have found lucrative business opportunities in the rural areas, especially on loans. This would not improve the livelihoods of struggling people in the rural economy. Further, it must be noted that the poor need various forms of support, not just savings and loans, given that their incomes are meagre and irregular. Thus, it is recommended that VSLSs should work hand in glove with institutions such as the ministry of agriculture and other relevant institutions to support them immediately after their inception. For further research, future studies should compare the benefits of VSLS membership to members' use of formal channels such as banks and microfinance institutions.

REFERENCES

Agarwal, A. and Kharia, S. (2009). Microfinance in India: Key Regulations, Issues and Implications. Available online: https://repository.iimb.ac.in/handle/2074/18712. Accessed on August 19, 2022.

Allen, H. and Hobane, P. (2004). *Impact Evaluation of Kupfuma Ishungu.* Arusha, Tanzania. CARE International.

Allen, H. and Panetta, D. (2010). Savings Groups: What are they? Washington DC: SEEP Network. Available online: JwrNCzC-9kJ:scholar.google.com. Accessed on August 28, 2022.

Allen, H. (2006). Village Savings and Loans Associations - Sustainable and Cost-effective Rural Finance. *Small Enterprise Development*, *17*(1), 61 -72.

Bannor, R.K. *et al.*. (2020), "Village Savings and Loans Association Participation and Impact on Off-farm Income among Rural Women. *Journal of Enterprising Communities: People and Places in the Global Economy, 14)*4), 539-562.

Anyango, E. *et al.* (2007). Village Savings and Loan Associations: Experience from Zanzibar. *Food Chain*, *18*(1), 11-24.

Ashe, J. and Neilan, K. J. (2014). In their Own Hands: How Savings Groups are Revolutionizing Development. San Francisco: Berrett-Koehler Publishers.

Bamlaku, A. and Alemu, A. (2006). *Micro Financing and Poverty Reduction in Ethiopia*. Hesse (Germany): University of Giessen.

Barnes, C., Keogh, E. and Nemarundwe, N. (2001). Microfinance Program Clients and Impact: An assessment of Zambuko Trust, Zimbabwe. Washington, DC: Aims. Available online: https://files.givewell.org/files/Cause12/Independent%20research%20on%20microfinance/barnes%20zimbabwe%202001. Accessed on September 21, 2022.

Bateman, T. and Hazel, N. (2014). Resettlement of Girls and Young Women. Beyond Youth Custody. Available Online: https://uobrep.openrepository.com/handle/1054/622167. Accessed on September 21, 2022.

Beyene, N. L. and Dinbabo, M. F. (2019). An Empirical Evaluation of the Link between Women's Participation in the Village Savings and Loans Association (VSLA) and Poverty Reduction in Ethiopia. *Journal of Reviews on Global Economics, 8*, 566-580.

Bouman, F. J. (1995). Rotating and Accumulating Savings and Credit Associations: A Development Perspective. *World Development*, *23*(3), 371-384.

Carney, M. (2012). "Food Security" and "Food Sovereignty": What Frameworks are Best Suited for Social Equity in Food Systems? *Journal of Agriculture, Food Systems and Community Development, 2*(2), 71-87.

Chabaya, O. and Gudhlanga, E.S. (2013). Striving to Achieve Gender Equity in Education: A Zimbabwean Experience, *Zimbabwe Journal of Educational Research (ZJER), 25*(1), 123-148.

Chabaya, O., Rembe, S. and Wadesango, N. (2009). The Persistence of Gender Inequality in Zimbabwe: Factors that Impede the Advancement of Women into Leadership Positions in Primary Schools. *South African Journal of Education, 29*(2), 235-251.

Chikuvadze, L. (2018). Contribution of Internal Savings and Lending Scheme (ISALS) on Household Livelihoods in Bikita District. Available online: https://scholar.ufs.ac.za/handle/11660/11177. Accessed on August 24, 2022.

Chivasa, N. (2018). Village Savings and Loan Schemes: Contributions to Peace. *Southern African Journal of Social Work and Social Development, 30*(2), 1-20.

Ditcher, T. (2006). Hype and Hope: The Worrisome State of Microfinance Movement. *Legal City Legal Magazine*. Available online: https://www.marketlinks.org/sites/default/files/resource/files/SC10.pdf.

Gambanga, N. (2015). "Econet Launches EcoCash Savings Clubs an M-Wallet Product for 'Maround.'" *TechZim*. Available online: http://www.techzim.co.zw/2015/05/econet-launchesecocash-savings-club-an-m-wallet-product-for-maround/#.WCdg1NBwvuc. Accessed on September 21, 2022.

Harelimana, J.B. and Mukarukaka, B. (2020). Contribution of Cooperatives to Social-Economic Development in Rwanda. Available Online: https://biogenericpublishers.com/pdf/JBGSR.MS.ID.00017. Accessed on September 17, 2022.

Hlatywayo, L., Hlatywayo, S. and Muranda, Z. A. (2014). The Extent to which Females Occupy Leadership Positions in Zimbabwean Teachers' Colleges. *Journal of Humanities and Social Science, 19*(9), 28-36.

Jabangwe-Morris, N. (2015). "Econet Launches EcoCash Savings Club, Looks to Offer Smarter Way to Save." Available Online: http://www.newzimbabwe.com/business-22381Econet+moves+into+%E2%80%98maround%E2%80%99,+%E2%80%98mukando%E2%80%99/business.aspx#. Accessed on September 20, 2022.

Jan, I., Munir, S. and Rehman, M. U. (2011). Social Status through Informal Credit Markets: An Example from Rural Northwest Pakistan. *Sarhad J. Agric, 27*(2), 291-297.

Kabonga, I. (2015). Death of Volunteerism, Development in Doldrums in Norton Town of Zimbabwe. *International Journal of Advanced Research in Management and Social Sciences, 4*(12), 135-147

Kabonga, I., Zvokuomba, K. and Dube, E. (2021). Internal Savings and Lending Schemes (ISALS) and the Empowerment of Women in Rural Shamva, Zimbabwe. *Rural Society, 30*(2-3), 101-118.

Kambarami, M. (2006*). Femininity, Sexuality and Culture: Patriarchy and Female Subordination in Zimbabwe*. South Africa: ARSRC.

Kesanta, J. and Andre, B. (2015). Impact of Women Empowered through Community Savings Groups on the Well-being of their Families: A Study from Mgubwe, *Tanzania. Interdisciplinary Journal of Best Practices in Global Development*. Available online: Xt3ykGYpk9EJ:scholar.google.com/+Kesanta,+J+and+Andre. Accessed on August 19, 2022.

Kollmair, M. and Gamper, S. (2002). The Sustainable Livelihood Approach. Input paper for the integrated training course of NCCR North-South. Development Study Group. The University of Zurich.

Masiyiwa, S. (2016). How to Build a Multi-billion Dollar Business: Breaking through Africa Challenging Economies. Available online: https://www.loot.co.za/product/strive-masiyiwa-how-to-build-a-multi-billion-dollars-bu/mjbg-4337-g780.

Morduch, J. (1998). Does Microfinance Help the Poor? New Evidence from Flagship Programs in Bangladesh. Princeton: Research Program in Development Studies, Woodrow School of Public and International Affairs.

Mphambela, C. (2016). Women Savings Groups can Enhance Financial Inclusion. *Newsday*, 26 February, 2016

Murray, C. (2001). Livelihoods Research: Some Conceptual and Methodological Issues. Chronic Poverty Research Centre Working Paper. Available Online: Xt3ykGYpk9EJ:scholar.google.com. Accessed on September 10, 2022.

Mwansakilwa, C., Tembo, G., Zulu, M. M. and Wamulume, M. (2017). Village Savings and Loan Associations and Household Welfare: Evidence from Eastern and Western Zambia. *African Journal of Agricultural and Resource Economics, 12*(311-2017-731), 85-97.

Nabbona, I. (2018). The Contribution of Savings Groups towards Women Empowerment in Uganda: A Case Study of Masaka District. Doctoral dissertation, Makerere University.

Nyamongo, W. M. (2016). Effects of Village Savings and Loans on Rural Women Livelihood Outcomes among Women Groups in Kisii County. Doctoral Dissertation, Nairobi: University of Nairobi.

Okello, T. and Mwesigwa, D. (2022). Analysing the Significance of Village Savings and Loan Association (VSLA) to Community Development in Uganda. Available online: https://ir.lirauni.ac.ug/xmlui/handle/123456789/420. Accessed on September 10, 2022.

Parker, S. W and Todd, P. E. (2017). Conditional Cash Transfers: The Case of Progresa/Oportunidades. *Journal of Economic Literature, 55*(3), 866-915.

Perumal, J. and Moyo, Z. (2019). Disadvantaged School Contexts and Female School Leadership in Zimbabwe. *International Journal of African Renaissance Studies, 14*(1), 83-105.

Ksoll, C., Lilleør, H. B, Lønborg, J. H. and Rasmussen, O. D. (2016). Impact of Village Savings and Loan Associations: Evidence from a Cluster Randomized Trial. *Journal of Development Economics, 120*, 70-85.

Scoones, I. (2009). Livelihoods perspectives and Rural Development. *The Journal of Peasant Studies, 36*(1), 171-196.

Seed Project. (2013). Seed Mukando Micro-Savings Scheme Available online: http://www.seedproject.org/news/91/seed_mukando_microsavings_scheme. Accessed on August 25, 2022.

Silungwe, C. (2017). An Investigation of the Impact of Village Savings and Loan Associations in Social and Economic Development and its management: A Case of Mkuta Mwana Project in Salima District. Master's thesis, Pentecostal Life University.

Snodgrass, D. (1999). An assessment of the impact of SEWA bank in India: baseline results. *Ohne Ort*. Available online: https://pdf.usaid.gov/pdf_docs/Pnacg038. Accessed on August 19, 2022.

Solange, N. and Mulyungi, P. (2016). Contribution of Village Savings and Loan Association on Building Sustainable Rural Livelihood in Rwanda: A Case Study of Families in the Care of SOS Children's Village Kigali. *International Journal of Management and Commerce Innovations*, *7*(2), 507-515.

Sudhakar, G. and Agarwal, P.K. (2018) Demographic Variables Influence on Household Participation on Small Savings in Indigenous Voluntary Organisations at Wolaita Sodo Town, Ethiopia.

Terry, W. E. (2006). The Impact of Micro-Finance on Women Micro-Entrepreneurs in Temeke District, Dar-es-Salaam, Tanzania. Doctoral Dissertation, Ohio University.

Theophilus, K.A. and Paul, S.M. (2019). The Impact of Savings Groups on Female Agency: Insights from Village Savings and Loans Associations in Northern Ghana. *Asian Journal of Agriculture and Rural Development*, *9*(2), 133-146.

Vanmeenen, G. (2010). Savings and Internal Lending Communities-SILC. Available online: https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-savings-and-internal-lending-communities-silc-voices-from-africa-oct-2010.pdf.

Waller, S. (2019). The Impact of Savings Groups on Female Agency: Insights from Village Savings and Loans Associations in Northern Ghana. *Asian Journal of Agriculture and Rural Development*, *9*(2), 133-146.

Wosene, W. (2014). Poor women and their Social Capital: An exploratory Study of the Village Saving and Loan Groups' Contribution to Women's empowerment in Ethiopia, West Harergie. (Doctoral dissertation.

Implementing, Monitoring and Evaluating Agriculture and Rural Development: Some Policy Insights

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Abstract

The demographics of Zimbabwe show that 67% of the population resides in rural areas, where their livelihoods are agro-based. This makes agriculture and rural development a priority in the economy of Zimbabwe since it is the means of survival for most of the population. The current relationship between urban and rural areas in Zimbabwe still follows the world systems approach in which the rural area has been exploited and remained a source of cheap labour and resources, without affording the rural dwellers a chance of self-reliance through sustainable development. Currently, Zimbabwe has developed very good policies, but it seems to be falling short of political will, implementation strategies, monitoring and evaluation of the policies. The article aims at assessing existing policies and identify gaps and challenges that can be used to make breakthroughs for the rural populace in Zimbabwe who are the majority. Strong government institutions must provide research for new crops, training, affordable loans and inputs and value addition and beneficiation of their products. Improved irrigation services will curb the effects of climate change and prolonged droughts and promote all-year-round production of crops. Infrastructure development, like rural electrification, will enable diversification of livelihoods as new projects are introduced that can sustain mid-season cash needs so that farmers do not sell their produce to middlemen at give-away prices due to pressing cash needs like school fees and medical care.

Keywords: *rurality, farming, households, management, environment, policy*

INTRODUCTION

The article argues that the agrarian sector in Zimbabwe, with a strong rural base, can be revitalised and contribute enormously to the economy of the country that aspires to become a middle-income economy by 2030. Agricultural development and rural development are seen as synonymous

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and efforts to achieve one without the other will become futile. Despite numerous efforts by the Government since 1980 to redistribute the land and provide inputs to farmers, most of the population whose livelihoods are agro-based, have remained in absolute poverty while most of the rural areas themselves are underdeveloped with a lack of clean water, lack of electricity, lack of good roads and ineffective telecommunication systems. The article suggests a multi-stakeholder and inclusive approach in policy formulation in which the rural folk are consulted widely at the levels of planning, implementation, monitoring and evaluation.

THEORETICAL FRAMEWORK

The study borrows from the 'rural web', a contemporary rural development model by van der Ploeg and Marsden (2008). This model offers a new rural development paradigm with a more local, endogenous, integrated nature. As opposed to historical theories, the 'rural web' avails a reorientation, focusing more on the people than productivity, in which economic growth must acquire a qualitative dimension that pays particular attention to the nature, quality and sustainability of that growth (Guinjaan, Badia and Tula 2016). The new paradigm has three main characteristics: the use of available resources within the territory, local control of the development process and retention of profits in the local area, all of which are qualities of endogenous development. While each territory is considered to have its own economic, social, technological, institutional, infrastructural, environmental and cultural resources that comprise its development potential, external factors also have a critical role to play, thus endogenous and exogenous factors are considered to be opposed but can never be exclusive categories (Hernando, 2007; High and Nemes, 2007). The 'rural web' has six theoretical dimensions that can be summarised as endogeneity, novelty production, sustainability, social capital, new institutional capital and market governance.

LITERATURE REVIEW

Research shows that 70% of the world's poorest people are in rural areas, where agriculture is essential in reducing poverty in low-income countries across the world since over 80% of the rural poor depend directly or indirectly on agriculture for their livelihoods. The poorest households have limited options except for agriculture and extraction of other natural resources like wild fruits, mushrooms and minerals for their survival (Rural Poverty Report 2011). Kumar and Verugopa (2016) proffer that 70% of India's population lives in villages, where a lot of improvements are needed in information and communications technology (ICT) availability so that

high productivity, research and marketing can be achieved through the internet. South Asia has the greatest number of rural people. Similarly, agriculture is the source of livelihood for 44.7% of the total employed labour force in Pakistan.

Despite contributing 21.8% to the Gross Domestic Product (GDP) of the nation and 79% of foreign exchange earnings, 67% of rural residents remain the poorest. This shows the missing links in policy implementation strategies that give preferential treatment to the minority urbanites (Baig and Straquadine, 2011). Of the same opinion is Hafez (2015) who avers that in Morocco, poverty is high in the rural areas where most people depend on agriculture, directly or indirectly Women suffer more than men due to illiteracy, particularly elderly women when they need loans and lack access to land, credit and technology. Family, farming and poverty in that case undergo feminisation.

According to the World Bank (2007), rural areas remain disadvantaged across the world since rural-urban disparities are widening rapidly. In East Asia, for example, the ratio of urban to rural poverty increased from about 2 to 3.5 between 1993 and 2002. Adriguez and Stamoulis (2007) proffer that public policies at the national level and resource mobilisation at the national and international levels have favoured industrial, urban and service sectors at the expense of agriculture and other rural sector development. The past 20 years have witnessed a steep decline in the availability of public resources for agriculture and rural development. Research shows that demand for food is expected to double by 2030, thus agriculture is expected to increase its efficiency to meet this demand.

In Sub-Saharan Africa, poverty and hunger affect most people. Children constitute 62% of the total population and their number is most likely to be the highest amongst the rural poor. For instance, infant mortality rates in Sub-Saharan Africa are substantially higher in rural areas than in urban areas, while education facilities, health facilities, electrification, clean water availability and other social amenities remain low and in a deplorable state in rural areas. This situation has colonial connotations since the white-dominated regimes had a bias against rural areas where most black people, particularly women, resided. (Thebe, 2010; Dercon and Golin, 2014), Although recommendations have been made for diversification, the region remains the least diversified away from agriculture. According to the Rural Poverty Report (2011), the Middle East and North Africa (MENA) have had

their farmers intensify diversification and increased cropland under irrigation.

Although water shortages continue to affect the farmers, the region had one-third of its cropland under irrigation and farmers have managed to get all-year-round income from crops, reducing the incidence of poverty and vulnerability. However, 40% of women in countries like Algeria, work in agriculture, compared to 16% of men, a situation which has led to the feminisation of rural labour and rural poverty. In Nigeria, neglect of agriculture and rural development has resulted in mass exodus of rural dwellers, making the rural area quantitatively and qualitatively depopulated (Nchuchukwe and Adejuwon, 2012). In terms of the world, trade in agriculture represents the region's greatest share. Due to a decline in irrigated land and a lack of support policies for agricultural and rural development, the region's world export share dropped steadily from 8% in 1971 to 3.4% in 1991-2000. Instead of being exporters, African countries are topped the list of 20 agricultural and food commodity importers in 2004 (60%). Generally, Africa's trade with the rest of the world has moved from a handsome surplus in the 1960s and 1970s to a burgeoning deficit since the 1980s due to a fall in prices and a fall in output (Economic Commission for Africa, 2007).

In Zimbabwe, just like in other African countries, evidence and statistics from many rural communities show that rural development policy in the country needs a revisit. The policy should include what households value most, that which they view as part of their culture, signifying the relevance of indigenous knowledge systems in sustainable rural development. In the semi-arid Matabeleland region of Zimbabwe, for example, agriculture is unreliable, becoming supplementary to remittances despite the people being landholders. The challenges range from soil infertility, population pressures, degrading land resources, lack of irrigation facilities, unaffordable agricultural inputs and lack of institutions providing farming implements (Thebe, 2010; Davies 2008). Despite marked ideological and political changes, rural planning and policies, such as the land redistribution exercise, increased the number of people with access to land, while poverty and food insecurity continue to affect the majority rural poor and the whole nation at large, signifying the need for research to be conducted in the rural areas for practical theories that can promote sustainable development at the grassroots level (Eskine, 2008). According to the Government of Zimbabwe (2012), the new farm structure now comprises communal, old resettlement, A1, small-scale commercial, A2 and large-scale commercial, showing a boost in the

number of people with access to the basic means of production since the country has an agro-based economy.

Different agricultural and rural development policies have been formulated at different times in Zimbabwe, but very few have shown good results or at least been assessed, monitored and evaluated for effectiveness or achievement of set goals and objectives. The growth with equity policy of the 1980s, the Zimbabwe Agenda for Sustainable Socio-economic Transformation (ZIMASSET) and the Zimbabwe National Agricultural Policy Framework (ZNAPF) are all similar but fragmented policies whose results have not yet improved the status quo on food security, rural and agricultural development (Zhou and Zvoushe; 2012; Government of Zimbabwe 2013; Ministry of Lands, Agriculture and Rural Resettlement, 2018).

Rural development benefits the rural population, development that is understood as the sustained improvement of the population's standards of living or welfare. It is a dynamic procedure that is principally concerned with rural territories. It incorporates farming activities, setting up financial and social frameworks and security of land tenure for the landless. Ngomane (2012) defines rural areas as sparsely populated areas in which people farm or depend on natural resources. Rurality refers to a way of life, a state of mind and a culture that revolves around the land, livestock, cropping, use of natural resources and community. Of the world's 1.2 billion poorest people, 75% live in rural areas and for the most part, they depend on agriculture, forestry, fisheries and related activities (Adriguez and Stamoulis, 2007; Kumar and Venugopa, 2016). Agriculture and rural development are inseparable and they are two sides of the same coin.

Simon (2004) proffers that while agricultural development aims at improving the welfare of populations through sustained productivity in the agricultural sector, rural development aims at improving the welfare of rural populations through the sustained growth of the rural economy that includes agriculture, but may not be its only component and not necessarily the most dynamic. This means rural development can still be achieved through the viability of other economic activities if people are given the chance to innovate, diversify and broaden the rural economic structures. Kilkenny (2004) posits that historically agriculture was used to determine the size of cities, a determinant of human geography and community development. Improvements in productivity, transport and other amenities in rural areas have always attracted people, curbing rural-urban migration.

As postulated by von Thunen, human concentrations follow agriculture and agriculture follows people. If rural areas are neglected, then population pressure mounts in urban areas, raising costs for the urban areas - thus rural development is a common concern for different reasons. However, there is need for diversification for sustainable development so that rural people do not depend solely on agriculture. According to OECD (2009a), while agriculture continues to be a major part of some economies, in some regions, it is increasingly the case that "rural" is no longer synonymous with agriculture, thus contributions of agricultural policies to such economies are diminishing. The international objectives in Agenda 2030 of gender equality, elimination of poverty and hunger eradication will be achieved through the rural areas of developing nations, hence agriculture and rural development are important and should be a priority on national agendas and policies. According to Chirisa *et al.* (2022), current approaches for rural planning need to be revisited and revised, otherwise sustainable rural development remains an illusion or a pie in the sky.

The motto of rural development, as expressed by World Bank (2007), is to achieve raised economic growth, raise income for the rural folk, give independence politically and financially and easy access to education, medical care, job creation and many more for the rural majority. These objectives are not easy to achieve because there are challenges that need to be looked into. The constraints range from biased policies, inadequate use of hybrid seeds, the occurrence of insects and diseases, failure to cope with increasing demand for water, deteriorating soil quality, withdrawal of domestic support policies and effects of climate change, among other things (Baig and Straquadine, 2011). Researchers have suggested many possibilities for improvement, efficiency and effectiveness of agriculture and rural development policies. Bogdanov and Vasiljevic (undated) believe that strengthening the institutional mechanisms for the improvement of the socioeconomic status of rural areas and diversification of the rural economy through arts and artefacts production for the youths, may go a long way in making rural livelihoods sustainable. In addition, the establishment of efficient systems of land management and protection against erosion, pollution and underutilisation may increase productivity without destroying forests and forest land. In concurrence is Oladipo (2008), who avers that for rural development to occur and endure, there should be enhanced rural income, reduced poverty and unemployment, equality and increased rural value-added production.

The European Commission (2008) opines that agricultural policies should strike a balance between taxation and incentives and aim to avoid bottlenecks and long bureaucratic procedures that delay development initiatives. Through research, government should increase public investment in agriculture and foster small-scale family farming. It is a fact that agriculture and rural development are wide, thus it is not easy to capture all that is needed in a single policy. A multi-stakeholder approach is highly recommended with a clear division of duties so that the government and the private sector do not undermine each other

van ver Ploeg and Marden (2008) suggest the 'rural web', a model that came from a research project called Enlarging Theoretical Understanding of Rural Development (ETUDE) in which 63 rural development case studies were analysed. This enabled the development of a theoretical framework that integrates various emerging theories and allows researchers to overcome traditional interdisciplinary and sectorial limitations. Unlike in other theories where rural development was being tackled at a macro scale, special attention is given to the territory's resources, local communities being converted into protagonists of development efforts and development activities and processes encountering each other and interacting in a territory at a local or micro-scale (Woods, 2011; Guinjaan *et al.,* 2016).

In Brazil, for example, rural development initiatives sought to give rural actors an active role in the design, planning, implementation, monitoring and evaluation of policies, an important change that saw an improvement in production and productivity in the agricultural sector. This was due to the effectiveness of policies since the users of the policies had a sense of ownership. According to Schneider *et al.* (2010), Brazil got the poor more actively involved in the economy and increased their access to food by increasing the official food market, and raising the official minimum wage, including pensions and other social benefits. As a result, the country experienced a general improvement in the GDP growth per capita US$6 000-US$7 300 and an unprecedented reduction in rural poverty (from 62% to 42 % between 1995 and 2005) and inequality, especially in rural areas.

METHODOLOGY

The study used a qualitative research design during the data-gathering process. Interviews, self-administered questionnaires and focus group discussions were used. Stakeholders in the Ministry of Agriculture, male and female farmers in some selected rural areas in Zimbabwe and some students were the main respondents and informants for data collection in this inquiry.

RESULTS

Many good policies for rural development with potential for agricultural development have been aborted without being given a chance to yield results, to be monitored and evaluated for efficiency and effectiveness. Three rural and agricultural development policies were randomly chosen at this point. In the 1980s, the growth with equity policy was introduced to transform the colonially disadvantaged and marginalised rural areas and curb rural-urban migration, but the objectives were never realised and the initiative was lip service. Similarly, ZIMASSET, for example, had very good sector-oriented and result-based goals, but the policy died a natural death. Lastly, there is a new kid on the block. The 2018 Zimbabwe National Agricultural Framework Policy (NAFP) had its vision as =: "A prosperous, diverse and competitive agriculture sector, ensuring food and nutrition security significantly contributing to national development." Its policy objectives are to:

- =assure national and household food and nutrition security;
- ensure that the existing agricultural resource base is maintained and improved;
- generate income and employment to feasible optimum levels;
- increase agriculture's contribution to the GDP;
- contribute to sustainable industrial development through the provision of home-grown agricultural raw materials; and
- expand significantly the sector's contribution to the national balance of payments.

All three policies have more or less the same objectives for the country. The major difference between them is the temporal factor.

Zimbabwe lacks coordinated multi-stakeholder approaches in dealing with the current food shortages. Government ministries are not working together with the private sector, non-governmental organisations, civil society, rural actors, academia, agronomists, or graduates from agricultural colleges, to map a way forward to solve the current challenges. Various views indicate there is need for dialogue and a multi-stakeholder approach from local players.

Zimbabwe has 153 irrigation schemes for smallholder farmers and a third of them are functional. All of the county's farming regions require irrigation facilities for smallholder farmers since rain-fed agriculture has proved to be unreliable, paying particular attention to farming in ecological regions 3, 4

and 5. The provision of more irrigation schemes for smallholder farmers has great potential for food security at the household level. Examples of such irrigation schemes include Mushandike in Masvingo, Nyanyadzi, Chilonga and Mataga, some of which have been resuscitated and are now functional. Some of the farmers interviewed indicated that the situation is bad for them and their families. Food shortages were very high in their households. They could not feed their families and also produce excess for sell.

Most of Zimbabwean smallholders do not have the security of tenure in the land they occupy, thus they cannot use the farms as collateral security for loans at the banks. The farmers need financial assistance through low-interest microfinance schemes to support agricultural production and productivity, but they do not have collateral security for those loans. Such loans should be issued on a non-partisan basis and should be equally accessed by all who need them. The farmers, however, do not trust loan facilities since some of them had bad experiences with some providers of similar loans who would take the farmers' hard earnings and belongings to recover loans. Farmers in market gardening continue to lose revenue as their perishables rot at Mbare Musika (market), Harare, and have to bear high transport costs. The lack of regional plants for fruit and vegetable processing (a beneficiation concept) remains a major challenge.

The contour concept that was introduced during the colonial era is historical. Indiscriminate deforestation, veld burning and building in wetlands is on the increase with negative repercussions on the hydrological cycle, dam water holding capacity, food production and security. Negation of indigenous knowledge systems of soil conservation is also contributing to the problems. Due to aborted devolution, poor infrastructural facilities like road networks and electrification, rural industrialisation and diversification of livelihoods never managed to take off in rural Zimbabwe where most of the poor reside.

DISCUSSION

Zimbabwe is not lacking in policies but in monitoring and evaluation of the existing and previous policies. Many policies have been formulated from 1980 to date, particularly for rural and agricultural development, with very minimal results. Despite the existence of theories and policies targeting rural and agricultural development, food security and improved livelihoods for the rural poor remain a mirage in the country. While some milestones have been made for rural development in sectors like rural electrification and availability of tap water in some isolated rural locations, some growth points like Gokwe or Murewa, for example, that had managed to grow into full-

fledged towns, a lot needs to be done to improve the livelihoods of the rural majority who remain in poverty as they face serious food shortages. The policies examined in this inquiry exhibit depth and wide considerations of the state of our rural areas and the agricultural sector, but policies are still aborted before they can yield meaningful results for the population.

Growth with equity, for example, was a good effort by the newly independent state to redress the colonial injustices perpetuated by white minority rule. Some of the objectives included creating equal opportunities for men and women, for the urbanites and the rural folk, but disappointingly, women in the rural areas least benefitted from any policy. In addition, ZIMASSET appeared more promising in 2013 as there were more action plans, set targets and deliverables per sector. The agricultural sector, along with fisheries and hunting, were expected to grow by 12,5% during the period of the policy. However, the targets were never reached and neither comment nor report from any monitoring and evaluation system were given in 2018, the end of the implementation period.

There may be a silent shift into new policies that may be more or less the same as what was incorporated in the previous policies. For example, the newly established National Agricultural Policy Framework (ZNAPF) has lucrative objectives (Objectives 1-6 as shown in the results section) that indicate that policy-makers are well versed in the situation that Zimbabwe is in concerning rural and agricultural development. The new policy focuses on food security, growth in the GDP and employment creation. ZIMASSET also acknowledged that agriculture is the backbone of the nation and there should increase employment through rural industrialisation for purposes of beneficiation and value addition. If the two policies are merged and a multi-stakeholder approach is taken, there may be a chance that Zimbabwe might resuscitate the agricultural sector and reclaim its position as the bread basket of Southern Africa. As stated by Zhou and Zvoushe (2012), not everything in these policies holds water. It is a mixed bag of failures and successes but there is need to sit down and evaluate the strengths and weaknesses of each policy so that the weaknesses are thrown away in favour of strengths.

ZIMASSET, for example, even strongly outlined key success factors in which political commitment (will), strong collaborative Government partners, human capital development for skills development and scientific research and development were emphasised. Such factors are crucial and they should be enforced so that rural development and food security do not continue to be elusive goals. There is need to harness the best aspects of each

of these policies through effective analysis, periodic monitoring and evaluation, a practice that is lacking in Zimbabwean policy.

Zimbabwe is rich in human resources. Considering the level of education in the country, one wonders how the country continues to be in such a state of poverty and lacks successful policy implementation. A multi-stakeholder approach is a key factor so that each group of people will give knowledge in their areas of expertise. Agronomists, academia, members of parliament, government institutions, the private sector and many more, should be engaged in consultative fora, based on existing and old policies, so that the results of such meetings are implemented. Each sector should be allocated a responsibility that they must implement within given timeframes and give periodic feedback. Universities are not being used as critical stakeholders in the planning, implementation, monitoring and evaluation of rural development policies. Graduates from agricultural colleges, for example, are just lying idle when they are the right hands-on people who should be given land to put what they learnt theoretically into practice. If people with certification are denied access to land, while the land is idle or being used by people with no clue about crop science and crop production, then the country will continue to have challenges in food security and rural and agricultural development.

Zimbabwe has been affected by El-Nino-induced climate change; thus rain-fed agriculture is not a solution to the food shortages in the country. The country has more than 150 irrigation schemes for smallholder farmers. Dilapidated irrigation schemes must be resuscitated so that more farmers can produce all year-round crops. This will enhance the income for farmers and increase nutrition levels for child survival and development. It will also reduce rates of school dropouts since farmers will afford to pay school fees at any time of the year. The farmers may also be able to eliminate middlemen who have always purchased their produce at giveaway prices as the farmers will have pressing needs for cash for medication and stationery, thus they cannot wait to sell to the GMB for better value. The rural folk will always be taken advantage of by their urban counterparts and, therefore, the vicious cycle of poverty will be difficult to break, with limited chances of creating virtuous cycles of opportunity.

Land is the most important resource in agro-based economies like Zimbabwe. It is the most important resource and the basic means of production for most of Zimbabweans. From a Marxist view, it is the unequal ownership of the means of production like land that has created inequality

and classes in a society and delayed resolutions may lead to conflicts and bloody revolutionary wars. Zimbabwe has taken major strides in redistributing the land, and the number of people with access to land has significantly increased. However, the status quo on the issue of food production and food security does not tally with the number of people with access to land and the country continues to import food. Secure land tenure is required so that farmers can use their priced land for access to loans. It is crucial to complete the long-awaited land audit so that other people also get access to land. Additional criteria can be used to allocate land, for example using agricultural certifications that exhibit skills and commitment or using track records on performance like what was done during the colonial era when master farmer certificates were issued to farmers who underwent training and had a good record of performance, thus land would be issued on merit to ensure effective utilisation, increase in productivity and production.

Rural development, agricultural development and rural industrialisation should not be separated. Taking an integrated approach will increase the chances of engaging many stakeholders and development partners who should be complementing each other, rather than working separately. From a rural-web perspective, each region can be given a chance to utilise locally available resources, with ownership and control solely by the local leadership. Assistance in setting up industrial plants for processing and packaging raw materials will go a long way in value addition and beneficiation. For example, farmers in Mutoko produce volumes of tomatoes that they ferry to Mbare Musika at very high transport costs. Considering the perishability of the products, they must sell them quickly at very low prices, eliminating the chances of them getting any meaningful return on their produce. Setting up processing plants in the district will give the people in Mutoko an industrial advantage through employment creation for the youth and secured livelihoods.

The Morgenster area in Chief Mugabe's area has a lot of guavas that go to waste due to perishability. If the fruits can be canned in that region, it will create virtuous cycles of opportunity for the rural dwellers. All activities meant for rural development and agricultural development should be done in the concept of sustainable development in which the environment is the most crucial factor. Environmental management practices like contours (*makandiwa*)can be reintroduced for the benefit of farmers in land conservation. Indigenous knowledge systems also need to be given the recognition they deserve so that each region uses all traditional land conservation techniques. A combination of modern methods and traditional

methods will give a strong land conservation base for sustainable development.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the formulation, implementation, monitoring and evaluation of rural and agricultural development policies in Zimbabwe need a revisit. Integrated multi-stakeholder approaches are encouraged since different ideas can be obtained at the same time, thus increasing the number of people accounting for different successes and failures. The policy options include resuscitating the old policies like the growth with equity policy, ZIMASSET, or the current agricultural policy and giving them the missing formulation, implementation, monitoring and evaluation approach. The government can also choose to formulate new policies that embrace some or all of the recommendations made in the article.

To achieve Vision 2030 "Zimbabwe becoming a middle economy by 2030", the article recommends a step-by-step micro-scale approach in which existing and new grassroots policies are implemented, periodically monitored and evaluated for success. Rural development and agricultural development should not be separated. It is through rural development policies that industrialisation can be initiated; allowing diversification of livelihoods, beneficiation and value addition There is need to increase transparency in policies, making it a multi-stakeholder approach, giving priority to the rural poor people.

The article suggests that Zimbabwe promotes sustainability in small-scale farmers through farmer education programmes, coupled with environmental management practices, awareness and sensitisation on the dangers associated with climate change. Master-farmer training and development, if reintroduced, will enable farmers to perform effectively and efficiently for an increase in food production. Certification from the farmer's human capital development programmes can be used to allocate resources based on merit, reducing corruption in resource allocation and distribution.

Through research and wide consultation with specialists in agriculture like agronomists, extension officers and veterinarians, short-season varieties, drought-resistant crops, improved animal breeds and regional specialisation crop production should be encouraged. Irrigation facilities should be increased to promote all-year-round crop production and increase food security. Self-reliance and sustainability for the rural farmer should be promoted so that middlemen are done away with.

Low-cost loans for farmers should be provided so that farmers can buy farming implements. In cases where Government assists in farming with inputs like fertilizers, seeds and machinery, distribution can be more effective if it targets everyone with the right skills to produce food, giving particular attention to marginalised farmers based on capability (skills and potential). To manage scarce resources, farm machinery can be shared per region and the farmers given the responsibility to maintain and service the machinery in case of breakdowns.

Completion of the land audit and the redistribution exercise can increase the number of people accessing land. The laws should be applied to all. If Government recommends a 'one man/woman one farm' directive, then it should be indiscriminate – all should be equal before the law. Security of tenure can also empower the farmers. All productive land should be protected by the state against land-grabbing, irrespective of race, gender or political affiliation. Agricultural graduates can be given inputs and time-bound targets. Periodic results-based monitoring and evaluation can then be used to assess progress so that they fill national granaries by district/province.

The article recommends that Zimbabwe learns from other countries like Brazil, Israel and Egypt. Brazil managed to reduce inequality and poverty by prioritising the rural folk and involving everyone, for example, civil society that took a proactive role rather than a criticise-only approach. Political parties incorporated environmental management and sustainability issues within their manifestos and milestones were made. Israel turned a desert into a productive area and there is need to learn how they managed to do it.

REFERENCES

Anriquez, G. and Stamoulis, K. (2007). Rural Development and Poverty Reduction: Is Agriculture still the Key? Rome: FAO. Available online: www.fao.org/esa. Accessed on 23 March 2022.

Baig, M.B. and Straquadine G.S. (2011). Sustainable Agriculture Ensures Sustainable Rural Development: A Reality or a Myth? Semantic Scholar. Available online. https://www.semanticscholar.org/paper/Sustainable-Agriculture-Ensures-Sustainable-Rural-A-Baig-Straquadine/a4e4754b5d1aee62ef8d41144e4424f24f9e7fd1.Accessed on.15 January 2023

Bogdanov, N. and Vasiljevic, Z. (2011. *Role of Agriculture and Multifunctional Rural Development in Serbia*. Budapest: Agroinfom Publishing House. Available online. https://www.semanticscholar.org /paper/ ROLE-OF-AGRICULTURE-AND-MULTIFUNCTIONAL-RURAL-IN-Bogdanov-Vasiljevi%C4%87/c24aaf

Chapoto, A. Kabisa, M. and Chisanga, B. (2018). Zambia Agriculture Status Report 2017.IAPRI,Lusaka. Available online: https://www.researchgate.net/publication/330093594_Zambia_Agriculture_Status_Report_2018. Accessed on 19 May 2019.

Chirisa, I., Matai, J. and Mutambisi, T. (2022). No Sustainability without Planning for It: Scope and Dimensions for Sustainable Rural Planning in Zimbabwe. Available online. https://www.researchgate.net/ publication/357780271_No_Sustainability_Without_Planning_for_it: _Scope_and_Dimensions_for_Sustainable_Rural_Planning_in_Zimbabwe.Accessed on 15 January 2023.

Davies, D. H. (2008). Zimbabwe's experience in rural development Taylor and Francis online. Available online. https://www.tandfonline.com /doi/abs/10.1080/03768359008439557. Accessed on 15 January 2023.

Dercon, S. and Golin, D. (2014). Agriculture in African Development: A Review of Theories and Strategies. Available online: https://www.semanticscholar.org/paper/.

Economic Commission for Africa (2007). Africa Review on Agriculture and Rural Development. Available online: https://sustainable development.un.org/content/documents/eca_bg2.pdf.

Eskine, J. #M. (2008). Rural Development: Putting Theory into Practice. *Development Southern Africa* 2(3), 368-382.

European Commission (2008). Sector Approaches in Agriculture and Rural Development: Tools and Methods.

Government of Zimbabwe (2013). Zimbabwe Agenda for Sustainable Socio-economic Transformation. Government Printers. Harare

Government of Zimbabwe (2012). Comprehensive Agricultural Policy Framework.2012-2032: Executive Summary.

Guinjaan, E. Badia, A. and Tula, A. F. (2016). The New Paradigm of Rural Development: Theoretical Considerations and Reconceptualisation using the 'Rural Web'. Available online. https://www.semanticscholar.org/paper/THE-NEW-PARADIGM-OF-RURAL-DEVELOPMENT.-THEORETICAL-Guinjoan-Badia/046796a73e2de9b742b1ee63b2776ab2224b2691

Harfez, G. (2015). Agriculture and Rural Development for Inclusive Growth and Food Security in Morocco. Available online.https://www.brookings.edu/research/agriculture-and-rural-development-for-inclusive-growth-and-food-security-in-morocco/.Accessed on 16 July 2022.

Kilkenny, M. (2004) Geography, Agriculture and Rural Development. Available online. https://www.researchgate.net/publication/251967065_Geography_Agriculture_and_Rural_Development_1.Accessed 16/January 2023.

Kumar, M.V. and Venugopal, P. (2016). E-agriculture and Rural Development. *Journal of Chemical and Pharmaceutical Sciences. Research Gate*. Available online. https://www.researchgate.net/publication/311822033_E-Agriculture_and_rural_development. Accessed on 16 January 2023.

Ministry of Lands, Agriculture and Rural Resettlement (2018). National Agricultural Policy Framework. (2018-2030). Harare. Available online. https://documents.pub/document/national-agriculture-policy-framework-2018-2030-zimbabwe-national-agriculture.html?page=1.

Nchuchukwe, F. F. and Adejuwon, K, D. (2012). The Challenges of Agriculture and Rural Development in Africa: The Case of Nigeria. *International Journal of Academic Research in Progressive Education and Development* July 2012, 1(3), 34-27.

Oladipo, J. A. (2008). Agro-industry as a Strategy for Rural Development: An Impact Assessment of Nigeria's Oil Palm Industry. *European Journal of Social Sciences*. Available online. https://www.researchgate.net/publication/228343292_Agro-Industry_as_Strategy_for_Rural_Development_An_Impact_Assessment_of_Nigeria_Oil-Palm_Industry. Accessed on 20 February 2021.

Organisation for Economic Cooperation and Development, (2009a). Agricultural Policies and Rural Development: A Synthesis of Recent OECD Work. Available online ttps://agriculturafamiliar.dgadr.gov.pt/images/docs/Recursos/2009_ag_fam_diversificacao_oecd.pdf.

Rural Poverty Report. (2011). Facts and Figures. IFAD. Available online: www.ifad.org/rpr2011. Accessed on 20 June 2020.

Schneider, S. Shiki, S. and Belik, W. (2010). Rural Development in Brazil: Overcoming Inequalities and Building New Markets. Available online. https://www.researchgate.net/publication/284980872_Rural_development_in_Brazil_overcoming_inequalities_and_building_new_markets. Accesses on 27 September 2020.

Simon, D. (2004). Recent Trends in Development Theory and Policy: Implications for Democratisation and Government . Available online: https://open.cmi.no/cmi-xmlui/bitstream/handle/11250/2435867/R1993.6%20Arve%20og%20Arne-07182007_3.pdf?sequence=2&isAllowed=y.

Thebe, V. (2010). Rural Development Cross-Roads in a Post Zanu PF Era. *Journal of Sustainable Development in Africa*. 12. No 3Clarion University. Pennsylvania. Available online. https://www.cabdirect.org/cabdirect/abstract/20103354785. Accessed on 15 January 2023.

van der Ploeg, J. D. and Marsden, T. (2008): Unfolding Webs: The Dynamics of Regional Rural Development. Assen. Royal Van Gorcum. Semantic Scholar. Available online. https://www.semanticscholar.org/paper/Unfolding-Webs%3A-The-Dynamics-of-Regional-Rural-Ploeg-Marsden/c14fe1c284d884029b1c0b291cf351b95414fcad.Accessed on 13 January 2023.

World Bank (2007). Agriculture and Rural Development. Available online: www.worldbank. org/rural development

Zhou, G. and Zvoushe, H. (2012). Public Policy Making in Zimbabwe: A Three Decade Perspective. *International Journal of Humanities and Social Science*, *2*(8): 212-222 Available online. https://www.academia.edu/798713/Public_Policy_Making_in_Zimbabwe_A_Three_Decade_Perspective.Accessed on 26 April 2020.

At the Rural-Urban Intersections: Profiling Peri-urban Dwellers in Harare Peri-urban East, Zimbabwe

NYASHA NDEMO[1]

Abstract

The article explores and discusses the profile of peri-urban dwellers in the Harare. It is against the background that peri-urban areas in cities in developing countries predominantly in Sub-Saharan Africa result from extensions of urban activities beyond existing administrative boundaries in urban regions. Additionally, people migrating to those areas are of a certain age and earning the same income on average. It plugs the gap in the literature that there has been proportionally sparse work at country level and a missing link since profiles are not well understood and remain understudied in Harare peri-urban area, yet they have important ramifications for the future of most urban dwellers. Evidence points out that households accommodate between two to four people. Most of the children are below the age of 15, showing that they are mostly of school-going age. Community residents need to survive through land transactions while securing their land rights at the same time. This is creating a shift in household survival strategies from farm to off-farm activities.

Keywords: administrative boundary, migrants, community residents, land transactions, agriculture

INTRODUCTION

Several risks are presented at individual and economic levels - risks of lives, and income and at national and regional levels - infrastructure risks (Hellmuth *et al.*, 2007). All these have also affected the peri-urban areas in various countries at city level. Peri-urban areas result from extensions of urban activities beyond existing administrative boundaries in urban regions. There is high potential for small areas around Harare to develop into urban areas (Harare City, 1989). Among these are Domboshava, Seke, Mazowe, Ruwa, Darwendale and Arcturus. The accelerated rate of urbanisation resulting from rural-urban migration in Zimbabwe in search of opportunities

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and the employment has increased at a fast rate since 1980. “Urban” refers to a designated area with a compact settlement pattern with more than 2 500 inhabitants, of which 50% are employed in the non-agricultural sector (Zimbabwe National Statistical Agency, 2012). Peri-urban areas (those located between urban and rural) have emerged as borderline communities in recent times, typified by an expansion of disorganised informal settlements (Ravetz *et al.*, 2013).

Many of the migrants have preferred to stay in the cities even without employment whilst living in squatters around the city. This has led to the growth of informal settlements in major cities and has been more severe particularly in the metropolitan province of Harare. Peri-urban areas emerge when urban activities are extended beyond the currently existing urban boundaries. Agriculture and rural economy at the fringes of cities and metropolitan areas are undergoing major transformations. The countryside has been discovered by an affluent urban society as a place for living and spending time for leisure and recreation. At the same time, peri-urban farming has been subject to urban pressures, conflicts and also development opportunities.

Rural areas on the outskirts of major urban areas are more vulnerable to peri-urbanisation. At regional level, Windhoek and Oshakati in Namibia have been subjected to increased peri-urbanisation due to poverty (Dima *et al.*, 2002). 55% of the world’s population now resides in urban areas, while by 2050, the urban population is expected to reach 68% (UN-Habitat, 2020; WHO, 2020). Rapid urbanisation in Africa is attributed to natural increase, rural-urban migration and the reclassification of rural areas as urban areas (Bello-Schuneman, 2018). This has increased informal settlements within urban areas and urban sprawl through peri-urbanisation (*ibid*.). The physical extent of urbanisation in sub-Saharan Africa is increasing exponentially in terms of their population and administrative boundaries (UN-Habitat, 2020).

Given the exponential growth in urban population, local authorities, responsible for urban planning and management in the region, are failing to provide suitable housing, basic services (clean water provision and sanitation inter alia) and basic infrastructures like transport and health facilities (Source). The outbreak of global pandemic, COVID-19 exacerbated the situation as it impacted on more vulnerable citizens who live in peri-urban areas (Zerbo *et al.*, 2020). This shows that little has been done in literature to understand the profile of peri-urban dwellers' set criteria of age, gender, occupation and the reason for their location. Whilst this gap exists at the

country level, there is also a missing link since these profiles are not well understood and remain understudied in Harare's peri-urban area, yet they pose serious ramifications for the future of most urban dwellers. The study addresses this gap in the literature, arguing the underdevelopment of the peri-urban areas in Zimbabwe may be due to a lack of full information underlying socio-economic activities taking place in the peri-urban areas and the demographic characteristics of the area.

CONCEPTUAL FRAMEWORK

The movement of people from urban areas to rural areas, from larger to smaller settlements, observed in the 1960s, was described by Berry (1976; 1978) as counter-urbanisation. Depending on the factors influencing the migrants' decisions, counter-urbanisation can be recognised with displaced urbanisation, ex-urbanisation and anti-urbanisation. Counter-urbanisation involves the migration of wealthy city dwellers moving to rural areas looking for more favourable living conditions. Displaced urbanisation relates to the migrants' attempts to lower the costs of living, and anti-urbanisation is an important element in a conscious rejection of the city lifestyle (Lowry 1990; Mitchell, 2004). Modern urbanisation primarily takes the form of unrestrained urban sprawl, mostly in the form of residential buildings, spreading over rural areas formerly used for agriculture.

The process called peri-urbanisation started as early as mid-20th century, but there no universal definition has been established for the concept yet (Ravetz *et al.,* 2013). Peri-urbanisation can be described as a specific form of sub-urbanisation or an independent process involving a particular kind of expansion of sub-urbanisation beyond the borders of suburbia, that eventually is comparable to the concept of ex-urbanisation (Wehrhahn, 2000). Peri-urbanisation is also defined as "…those mixed areas under an urban influence but with a rural morphology" (Caruso, 2001: page). Boundaries of peri-urban areas have different environmental, social and institutional characteristics and these vary from one peri-urban area to another. From an environmental perspective, peri-urban boundaries are a heterogeneous mixture of ecosystems in their natural state, agricultural systems and urban ecosystems that are affected by energy flows required by urban and rural ecosystems.

From another view, the environmental perspective represents an interface of natural resources with agriculture and urban production systems. There is a circular system that is established when these interact. Each system benefits from another. Various pressures drive the use of peri-urban environmental

resources and biological services that affect the climate. This might be motivated by local competition amongst residents for land for agriculture and residential places. At national level, industrialisation policies negatively or positively impact on climate change. International pressures that come in the form of prices of exports like tobacco in Zimbabwe may cause the migration of poor farmers to peri-urban areas in search of work (Allan, 2006). Such pressures have an impact on the environment, climate change problems and sometimes, environmental opportunities. These come in the form of changes in the use of renewable and non-renewable resources, changes in the environment, land-use and the generation of waste and absorptive capacity.

LITERATURE REVIEW

There are 185 peri-urban forests in Greece that are located near towns with a population of more than 5,000 people (Christopoulou *et al*., 2007). The majority of peri-urban woods are composed primarily of Mediterranean coniferous species, with an average age of 60 to 70 years (*Pinus brutia, Pinus halepensis and Cypressus sempervirens*). Over the majority of the steep territory surrounding the Greek capital, Athens, reforestation programs have been implemented. Overpopulation, air and noise pollution, recurrent flooding, solid waste issues, and transportation issues are typical characteristics of urban areas and have a negative impact on people's quality of life. People move to peri-urban areas as a result. Likewise, there are extremely few options for people to engage in open-space recreational activities and form new social connections in dense metropolitan areas. Due to inadequate management techniques and improper management of recreational facilities, many peri-urban forests are being damaged. One such issue is excessive grazing (Dorren *et al*., 2004; Vergos *et al*., 2002).

Biegańska *et al.* (2018) carried a study in Latvia, a city with an average population density of 31 people per square kilometre. From the years 2000 to 2013, the population contracted from 2.2 million to just 2 million. A rapid influx of urban residents into certain rural territories in Latvia is an entirely new phenomenon. Respondents who travelled from Riga were compared to those who had never moved or had never lived in the peri-urban area for more than a decade. The latter respondents are younger and more likely to have higher education. More than 70% of them are employed and are in higher income brackets. Most migrants live in private houses and opportunities for owning a house in the peri-urban area are a major driver for migration.

In Indian cities, little attention has been paid to how poor people living in slums, peri-urban zones or marginal spaces might influence urban planning and associated environmental issues. Instead, much of the literature emphasises on the marginalisation of the poor and their inability to shape formal processes (Iaquinta and Drescher, 2000; Kennedy 2007; Zérah, 2007;).

In Kenya, Mandere *et al.* (2010) conducted a study to assess the impact of peri-urban development dynamics on household income in peri-urban Nyahururu. The study shows a decline in full-time farming households from 90% in the 1960s to 49% in 2010), an indication of the declining economic significance of agriculture. The decrease in agricultural land was due to the sale of land for residence/business premises and also land bequeathed to children. Households have adopted diverse non-farm activities whose earnings proved to be of varying importance to the annual household income. Most of the households engage in low-income non-farm activities whereas the number of households engaged in high-income non-farm activities was comparatively higher (10% more) than in most rural parts of the district.

In Zimbabwe a study by Sibanda *et al*. (2013) revealed that respondents from the study's peri-urban areas made up 52.5% women and 47.5% men. The distribution was close to the national sex in Zimbabwe as indicated by the results of the census (put census year). As argued by the report, the majority of the population was low-income, with average monthly earnings of less than US$200. 31% of the total respondents to the study fell into this income range, with the bulk of them residing in the Epworth peri-urban area. The study discovered that the absence of official work pushed most respondents to engage in self-employment, which resulted in the informal sector, as the cause of their low income levels. In general, the majority of respondents reside in homes that typically hold two to four people. This illustrates the four-person average household size in Harare as argued by the 2002 Population Census (ZIMSTATS, 2002). This indicates that parents and their kids make up the majority of families. As argued by the survey, the majority of kids in the peri-urban settlement are younger than 15, indicating that they are largely in school-age.

In another Zimbabwean study, Ingwani (2019) found that the layout of residential spaces in Domboshava peri-urban area has greatly changed from a typical rural settlement with scattered homesteads, to more closely settled homesteads. Domboshawa has about 40 000 households with an average of

five people per household. A report from the Mashonaland East Provincial Census (2012) observes that three-quarters of this population depend on agriculture. Migrants are often found selling land to other land seekers. Community residents are earning livelihoods through land transactions. Population pressure often undermines the ability of rural residents to generate income through agriculture (Delius and Schirmer, 2001). The study found that dwelling units for traditional members have a traditional outlook such as roofs under thatch, round kitchens separated from the main houses and fowl runs. Migrant households constitute the bulk of the households in Domboshava (79%).

Peri-urban and urban agriculture in Bulawayo the second capital city of Zimbabwe is practised on residential stands, peri-urban plots and any available space. Peri-urban agriculture is not new in Zimbabwe (Mbiba, 1995; Zero,2003). The concept was introduced by black migrant workers who desired that their urban settlements resembled their rural homes and also to supplement their food budgets. Peri-urban agriculture in Bulawayo provides the city with fresh vegetables and dairy produce. The United Nations Development Programme (UNDP), 1996) highlighted that peri-urban and urban agriculture helps to increase disposable incomes for the poor and at the same time reduces household food bills.

RESEARCH METHODOLOGY

The article used a mixed-method design. Content analysis of literature was used based predominantly on desk review. Qualitative methods were adopted primarily through visiting literature in books, publications and journal articles. For data analysis, the study engaged in textual analysis. The review of secondary literature on studies that were previously done on profiling peri-urban areas in Sub-Saharan and other developing countries was done. This was supplemented by direct interviews carried out to gather information from experts in urban planning. Policy and statutory documents were visited to assess the current standing and provisions by the government on the changing demographic characteristics and economic activities in African countries. Thus, the article classifies various policies that have a hold towards urban planning to recognise where policy alternatives and improvements are needed.

EVIDENCE ON THE GROUND

The Harare Metropolitan Province comprises the City of Harare, the capital city of Zimbabwe, and greater Harare: Ruwa, Epworth and Chitungwiza. Ruwa and Epworth are local boards whilst Chitungwiza is a municipality

(Magande *et al.*, 2020). The province lies within the Savanah Region south of the equator. There province experiences two seasons, summer and winter. The climate falls under the warm temperate classification. Summer is warm with rains and runs from November to March; whilst the winter is cold and dry, running from April to August. A hot dry period is usually experienced in October, the hottest month, with temperatures ranging from 13℃ up to 28℃, and July being is the coldest month characterised by temperatures ranging from 7℃ up to 20℃ (Kamusoko *et al.*, 2021). On average, the annual temperature is 18.6℃. The province receives more rainfall in summer than in winter. The annual average rainfall is 824 mm, with most of the rain coming in January.

The variation in precipitation between the warmest and the coldest months is 228mm and the average temperature varies annually by 7.8℃. January has the highest relative humidity of 75.72%, whilst the smallest is in September (38.32%). The province has the highest urban population in the country, representing more than 47% of the urban population in Zimbabwe. The area, covered by Natural Region 2, in which Harare is located, has decreased drastically over time by approximately 49% from 15% to 7.6% of Zimbabwe's total area (Mugandani *et al.*, 2012). Some parts of the area have shifted to Agro-ecological Region 3 (Brown *et al.*, 2012). Peri-urban areas around the Harare Metropolitan Province are areas located 25-40 km from the city centre (Chirisa, 2013). These are called the suburban type of peri-urban areas and in Harare East regions, they are exemplified by *inter alia*, Seke, Chihota, Juru, Ruwa, Domboshava, Epworth and Norton. Harare City (1989) observed that there was potential for urban development in these areas around Harare.

Domboshava is a peri-urban zone in Zimbabwe that is situated close to the country's capital city of Harare. The peri-urban area is located northeast of Harare, 20 km from the central business district of the capital. Owing to its proximity to the capital city, the area has emerged as a centre of development (Ingwani, 2019). The - area is situated in the Goromonzi District and is rapidly accommodating people from Harare and across the country. "Tribal members hold historically sanctioned communal land rights under the system of customary land tenure, whereas migrants do not have legitimate lineage land rights in the communal area because they migrated from elsewhere to live in this communal area" (Ingwani, 2019:1). People in communal areas are perceived to be able to change the structure around them to their advantage through social interaction. It is under both rural authority and local authority. Many land transactions are taking place in Domboshava,

a scenario that may be untenable in future as it is likely to generate social and environmental calamities.

A report from Mashonaland East Provincial Census (2012) observes that 75% of the population in the area depends on agriculture. The peri-urban area is situated in agroecological regions 2 and 3 in the Zimbabwean Highveld (Tanyanyiwa, 2019). Rainfall is seasonal in the area with 90% falling from October to March (Vincent and Thomas, 1962). The average annual rainfall received in the area ranges from 800mm to 1000mm (Unganai, 1996). The expected rainfall, however, decreases in times of drought. Tanyanyiwa and Madobi (2018) observes that the area received an average of 405mm of rainfall in the 1991/1992 drought season. Winters are very cold with temperatures dropping to freezing point (Zimbabwe Meteorological Organisation (ZMO), 2012). Temperatures range from 22°C to 30°C in the warm wet season (summer) (*ibid.*). Empirical analysis of rainfall trends shows that rainfall has drastically decreased between 1920 and 2017 (ZMO, 2017). Migrants are often found selling land to other land-seekers. Community residents need to survive through land transactions while they secure their land rights at the same time. This is creating a shift in household survival strategies from farm to off-farm activities.

DISCUSSION

Risks to lives and income are discussed at the human and economic levels, as well as infrastructural concerns at the national and regional levels. All of these have a city-level impact on peri-urban areas in different nations. Peri-urban areas are created when urban activities are extended outside of the current administrative borders in urban regions. Little areas near Harare have a great chance of becoming urban areas. The rate of urbanisation in Zimbabwe has escalated alarmingly as a result of rural to urban migration for job search. Peri-urban areas, or those in between urban and rural areas, have recently arisen as boundary communities, characterized by an increase in haphazard informal settlements. Many of the migrants have preferred to stay in the cities even without employment whilst living in squatters around the city. This has led to the growth of informal settlements in major cities and this has been more severe, particularly in the metropolitan province of Harare. When urban activities are extended beyond the currently existing boundaries in urban areas, a peri-urban area emerges.

Biegaska *et al*. (2018) conducted a study in Latvia. In 2013, there were 31 individuals living there per square kilometre. More than 70% of respondents are employed, and they are younger, more likely to have better education

levels, and to be from higher income categories. The majority of migrants live in private homes, and the possibility of buying a home in the peri-urban area is a major factor in their decision to relocate there. As argued by Sibanda *et al*. (2013)'s study, 52.5% of respondents from the study's peri-urban areas were men and 47.5% were women. The report posits that the majority of the population made less than $200 per month in income. The absence of formal employment leads the majority of the people engaging into self-employment, where they eventually became dealers in the informal sector, and that this was the source of their low-income levels.

Most of the people in peri urban areas reside in homes with two to four occupants, with the majority consisting of partners and their most of the children are of school going age. Then compared to a typical rural hamlet with dispersed homesteads, Domboshava has gone through significant development. The proximity of the peri-urban areas to Harare, the country's capital, explains this. The agricultural sector provides a living for 75% of this population in peri-urban areas (Mashonaland East Provincial Census, 2012).

It's now a common norm to find migrants selling land to other land seekers in peri-urban areas. As a result, household survival tactics are shifting from on-farm to off-farm pursuits. The ability of people living in rural areas to make a living through agriculture is frequently threatened by population pressure in urban areas. The housing units for tribe members have a traditional appearance, including thatched roofs, separate round kitchens from the main dwellings, and poultry pens. Peri-urban and urban agriculture is practiced on vacant lots, residential lots, and peri-urban plots. Black migrant laborers who want urban settlements that mirrored their rural origins and also desired to boost their food budgets developed the idea. Peri-urban agriculture gives the city fresh produce.

A study by Dube *et al.* (2021) established that all the sampled households in Kensington practised farming to different levels. Some of the sampled households (43%) practised mixed farming. They grew vegetables, including onions and tomatoes, alongside rearing of poultry, goats and cattle. Only one farmer in the sample of 30 households majored in cattle in livestock farming. Sixteen farmers (54%) of respondents concentrated on crops only. The agricultural enterprises used family labour. However, additional labour would be engaged seasonally especially during the rainy season. Most of the work in these plots was manual but sometimes by hired tractors and donkeys.

A smallholder or farmer selling his land to a housing developer in Europe or North America is in a very different position to a subsistence peri-urban household in Africa or Asia having its family plot in communal lands sold by the chief or village elders. Traditional farms, which have diversified their agricultural activities into horse-keeping or breeding, represent the most frequent type of holding (34%). This farm type is characterised by an agricultural status, large farm size and long tradition in farming. The prevalence of extensive pastures indicates traditional farm activities in grazing animal husbandry, such as cows and sheep. They are labour-intensive with full-time work orientation. Although the majority of households are involved in low-income productive non-farm activities, there were proportionally more households (10% more) involved in high-income productive non-farm activities than in the district's most rural areas.

CONCLUSION AND POLICY OPTIONS

Key peri-urban issues in poor and middle-income countries include not only the rate and scale of land-use and land-cover change, loss of agricultural land but also some new opportunities for commercial market-oriented cultivation of higher-value crops, unsustainable use and depletion of both renewable and non-renewable resources and the environmental and health impacts of urban landfills and waterborne wastes. The attractive landscape and the equine leisure services at the urban fringe diversify the opportunities for city dwellers for close-by nature sports and recreation. Changing technologies can also change water/peri-urban dynamics and how access to water is contested. Water treatment plants provide clean water to residents and some for irrigation. New industrial complexes arising due to intense capitalist accumulation through global-local linkages, usually deploy technological interventions which might pollute the peripheries. The other option is to facilitate the adoption of practicable, indigenous technologies and further come up with green infrastructure that may help to reduce the impacts of climate change from agriculture.

Government should take steps to improve social amenities like schools and hospitals due to the increased population. To reduce infant mortality rates owing at birth, there is a need to build clinics in these peri-urban areas to offer health care services locally. The city authorities should leverage the experiences of other countries both in the developed and developing world. This may help to give the city a valid framework for its resilience in building its efforts at minimum costs. Concrete steps can be developed in policy-making by looking at some African case studies to holistically address the peculiar challenges being faced by the city. For example, there is need for

strong city-level policies that widely address its unique challenges. Therefore, there is need for town planners to understand the socio-economic characteristics of peri-urban areas. The City of Harare needs to integrate current plans and future developments with demographic characteristics whilst at the same time improving the level of adaptation of the urban societies. This will help in the adaptation capacity of the vulnerable population in peri-urban areas. Since the economic impacts of over-population are felt more by the poor, there is need for local government in the Harare east peri-urban areas to adopt pro-poor urban planning policies. These will help to reduce the vulnerability of poor families and improve their resilience.

REFERENCES

Bello-Schuneman, J. (2018). Defining the Future of Africa's Brave New World. *Afr. Fact*, *45*, 12-18.

Berry, B. (1976). The Counter Urbanisation Process: Urban America since 1970. Urban Affairs Annual Review. *Urban Affairs Annual Review*, (11), 7-30.

Berry, B. (1978). The Counter Urbanisation Process: How General? In: Hansen, N. (ed.) *Human Settlement Systems: International Perspectives on Structure Change and Public Policy* . 25-49. Cambridge: Ballinger.

Bieganska, J., SroDa-Murawska, S., Krutzmetra, Z. & SwiaCzny, F. (2018). Peri-Urban Development as as Significant Rural Development Trend. *Quaestiones Geographicae*, *37*(2), 125-140.

Caruso, G. (2001). Peri-Urbansisation, The Situation in Europe: A Bibliographical Note and Survey of Studies in the Netherlands, Belgium, Great Britain, Germany, Italy and the Nordic countries. Final Report. Avaliable online: https://orbilu.uni.lu/bitstream/10993/10153/1/Caruso_PeriUrbanEuropeDATAR.pdf.

Chirisa, I. (2013). Housing and Stewardship in Peri-Urban Areas in Zimbabwe. A Case Study of Ruwa and Epworth. Harare: Thesis.

Christopoulou, P.S. & Minetos, D. (2007). Peri-Urban and Urban Forests in Greece: Obstacle or Advantage to Urban Development? *Management of Environmental Quality: An International Journal*, Vol/No, 382-395.

Delius, P., & Schirmer, S. (2001). Towards a Workable Rural Development Strategy. TIPS, Working Paper, 3.

Dima, S., Ogunmokun, A. & Nantanga, T. (2002). The Status of Urban and Peri-Urban Agriculture,. Windhoak and Oshakati, Namibia. Available online: https://www.fao.org/fileadmin/templates/esw/esw_new/documents/IP/5b_The_status_of_urban_and_peri.pdf

Dorren, L. F. B., & Imeson, A. C. (2004). *Integrity, Stability and Management of Protection Forests in the European Alps* (Vol. 195). Forest Ecology and Management .

Dube, T., Sibanda S. and Chiwara P. (2021). Adapting Peri-Urban Agriculture to Climate Change in Bulawayo, Zimbabwe: A Qualitative Assessment, *Cogent Social Sciences, 7*:1, 1944486

Harare City (1989). Harare Combination Master Plan: Written Statement, Department of Works . Harare.

Hellmuth, E., Moorhead, A., Thomson , M., & Williams, J. (2007). Climate Risk Management in Africa: Learning from Practice . International Research institute for Climate Society (IRI).

Iaquinta, D. L. and Drescher, A. W. (2000) Defining Peri-Urban: Understanding Rural-urban Linkages and their Connection to Institutional Contexts, Partnership Programme of the Food and Agriculture Organization of the United Nations (FAO).

Ingwani E. I. (2021). Are Peri-Urnan Land Transactions a Disaster in the Making? A Case of Domboshava, Zimbabwe: Challenges and Opportunities. *Jamba Journal of Disaster Risk Studies , 11*(3), 1-6.

Kamusoko, C., Kamusoko, O., Chikati, E., & Gamba, J. (2021). Mapping Urban and Peri-Urban Land Cover in Zimbabwe: Challenges and Opportunities . *Geomatics*, 1(1), 114-147.

Kennedy, L., 2007, Regional Industrial Policies Driving Peri-Urban Dynamics in Hyderabad, India, *Cities, 24*(2), 95-109

Magande, T., Chuma-Nyika, T. and Mutsindikwa, T.N. (2021). Models and Strategies in Budgeting in Zimbabwean Urban Local Authorities: Towards Meaningful Citizen Engagement for Resilience. *Journal of Urban Systems and Innovations for Resilience in Zimbabwe, 3*(1), 194-220.

Mitchell, C.J.A. (2004). Making Sense of Counter Urbanisation. *Journal of Rural Studies 20*, 15-34.

Mudombi, S. and Nhamo, G. (2014). *Access to Weather Forecasting and Early Warning Information by Communal Farmers in Seke and Murewa Districts, Zimbabwe*. *J Hum Ecol, 48*(3) 357-366.

Mugandani, R., Wuta, M., Makarau, A. and Chipindu, B. (2012). Re-classification of Agro-Ecological Regions of Zimbabwe in Conformity with Climate Variability and Change. *African Crop Science Journal, 20*(2), 361-369.

Ravet,z J., Fertne,r C., Sick Nielsen, T. (2013). The Dynamics of Peri-Urbanisation. In: Nilsson, K., Pauleit, S., Bell, S., Aalbers, C., Sick Nielsen, T. (eds.), *Peri-urban Futures: Scenarios and Models for Land Use Change in Europe*. 13-44. Berlin/Heidelberg: Springer.

Ravetz, R., Fertner, C., Nielsen, T. (2013). The Dynamics of Peri-Urbanisation. In: Nilsson, K. (ed.*). Peri-Urban Futures: Scenarios and Models for Land Use Change in Europe*. Berlin: Springer.

Sibanda, G., Musademba, D., Chihobo, H.C. & Zanamwe, L. (2013). A Feasibility Study of Biogas Technology to Solving Peri-Urban Sanitation Problems in Developing Countries. A Case for Harare, Zimbabwe. *Int. Journal of Renewable Energy Development, 2*(2), 97-104.

Tanyanyiwa, V.I. (2019). *The Impact of Climate Change and Variability on Small-Scale Peri-Urban Horticultural Farmers in Domboshawa, Zimbabwe*, Pennsylvania: IGI Global.

Unganai, L. S. (1996). Historic and Future Climate in Zimbabwe. *Climate Research, 6*, 137-145.

UNHabitat. The Strategic Plan 2020-2023, Nairobi: UNHABITAT.

Vergos, S., Eleftheriadis, N., Bougoulia, S. and Aretos, B. (2002), "Recordings of Damages to the Urban Green Spaces Due to the Last Cold Winter: Images from the Towns of Karditsa Trikala and Drama", Proceedings of the 10th Pan-Hellenic Forestry Conference, 125-35.

Wehrhahn R. (2000). Zur Peripherie Postmoderner Metropolen: Periurbanisierung, Fragmentierung und Polarisierung, Dargestellt am Beispiel Madrid (To the Periphery of Postmodern Metropolises: Peri-Urbanisation, Fragmentation and Polarisation, Illustrated by the Example of Madrid). *Erdkunde 54*(3): 221–237.

World Health Organization. (2020). Urban Population Growth. New York: World Health Organisation.

Zérah, M. H. (2007) Conflict between Green Space Preservation and Housing Needs: The Case of the Sanjay Gandhi National Park in Mumbai, Cities, *24*(2): 122-132.

Zerbo, A.; Delgado, R.C.; González, P.A. (2020). Vulnerability and Everyday Health Risks O\f Urban Informal Settlements in Sub-Saharan Africa. *Glob. Health J. 4*,46.50

Zimbabwe Meteorological Organisation (ZMO). (2012). Seasonal Weather Forecasts. Harare: ZMO.

Zimbabwe National Statistics Agency (ZimStats), (2012). Census 2012: Preliminary Report; Zimbabwe National Statistics Agency: Harare.

Micro-Climate Change and Development-induced Emergences in Regional Planning: The Case of Tokwe-Mukosi Dam, Masvingo, Zimbabwe

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Abstract

Forced displacements and resettlements caused by development projects, natural disasters and wars have become a persistent issue being addressed in the social sciences. Development projects like dam construction have become very popular. Although necessary, they have been marked by political grandstanding with emphasis placed on the need for trade-offs between meeting national socio-economic developmental targets and the welfare of the impacted communities. This has led to frequent failure to engage with convolution in comprehending socio-environmental connections in resettlement processes. The study employed a desktop research approach. It examined how state power has affected community vulnerabilities during the forced displacement procedures. It investigates not only how forcibly relocating people from a disputed location leads to infringement of rights, but also opens discussions on resettlement policies across the country. This echo concerns that development projects that result in resettlement can undermine subsistence livelihoods, while prioritising some values and interests over others. The study highlights the unwarranted dominating use of state authority in the post-flood induced displacement and resettlement procedures in Zimbabwe's Tokwe-Mukosi flood catastrophe. Results also indicate that human rights were violated by state institutions through inadequate compensations and failure to meet physical security, health, educational and livelihood needs of the victims. Policy lessons show how state power can be studied about flood survivors' perspectives on the destruction of their connections to place, people and livelihoods, emphasizing the critical need to theorise the relationships between power dynamics and diverse experiences of displacement. The study recommends the revision of

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disaster management legislation, setting compensation rules and examining camping practices.

Keywords: *displacement, resettlement management, disaster, forced migration, livelihoods, relocation, policy*

INTRODUCTION

Development is one of the activities undertaken by governments and communities that has a fundamental bearing on their economic and socio-cultural landscape. The development initiatives have led to the establishment of various infrastructure like dams, clinics, schools and hospitals. However, some development programmes have led to the displacement of people from one place to another, in most cases, against their will and consent. According to Cernea (1995), each year millions of people are forcibly displaced by development projects like dams, roads, reservoirs or oil, gas and mining projects. The inception of these development projects is often marked by political grandstanding with emphasis placed on the need for trade-offs between meeting national socio-economic developmental targets and the welfare of development impacted communities. Forced displacement is always crisis prone, even when necessary. Development-induced displacements may lead to loss of land, livelihoods, shelter, property and access to social facilities; natural resources and cultural heritage, if people are not cushioned by appropriate compensation and social support mechanisms as well as integrated rehabilitation programmes to mitigate negative impacts. Cernea (*ibid.*) also notes that these displacements break up living patterns and social continuity. They dismantle existing modes of production; disrupts social networks, cause the impoverishment of many of those uprooted, threaten their cultural identity and increase the risks of epidemics and health problems. As a result, communities often resist these relocations, interrupting critical development projects.

Development-induced displacements have been common in both the developed and developing world. Assessments done by the World Bank have estimated that every year since 1990, roughly 10 million people worldwide have been displaced involuntarily by infrastructural development projects. In India alone, during the last 50 years, an estimated 25 million have been displaced by development projects. In that same period in China, development projects displaced more than 40 million people, including 13.6 million in the 1990s (Cernea, 2000). In Zimbabwe, from the construction of the hydro-power generating Kariba Dam in the 1950s to the post-colonial emergency of the irrigation water supplying Osborne and Tokwe-Mukosi

dams, Zimbabwe's celebrated water bodies have been iconic representations of state-initiated development projects that inevitably put human welfare at risk. Under construction since 1998, the Tokwe-Mukosi Dam intended to provide irrigation and electricity to communities in the semi-arid southern Masvingo Province.

In February, 2014 the dam spilled over following heavy rains. The excessive rains were due to a deep low associated with the Inter-Tropical Convergence Zone (ITCZ) that had been situated in Botswana from 21 December 2013 (Chifuna, 2014). The floods could also have been caused by climate change which creates volatile weather patterns coupled with extreme changes in rainfall. Shortly after the flooding, the Zimbabwe army and the Civil Protection Unit (CPU) relocated over 20 000 people from the flooded Tokwe-Mukosi Dam basin to the Chingwizi Transit Camp on Nuanetsi Ranch where each family was allocated a one-hectare plot of land (Human Rights Watch, 2015), which was significantly less land than they previously owned. According to Hove (2016) the Chingwizi Transit Camp where the relocated lived for more than six months, was congested and disease prone.

Scholars argue that the Tukwe-Mukosi flood disaster could have been avoided had people been evacuated before the construction of the dam. Catastrophic repercussions could have been mitigated by lowering vulnerabilities and responding quickly. That was not the case in the Tokwe-Mukosi flood disaster. Hazards and vulnerabilities influence disaster damage. Hazards are regarded as an external force, whereas vulnerabilities are negative internal factors in the system. Some vulnerabilities are easily identified, while others are hidden inside the system's complexity. Such vulnerabilities might emerge as secondary dangers in the absence of adequate attention. Latent vulnerabilities are difficult to detect because they can remain hidden and have unanticipated implications when the system is in disorder.

Over the years, there has been recognition that the number of involuntary development displaced people has become a problem that warrants investigation (Gebre, 2003). The study focuses on the 2014 Tokwe-Mukosi flood tragedy, that led to the evacuation of over 50 000 residents (Chitimira, 2017). The Tokwe-Mukosi Dam is Zimbabwe's first big dam-induced displacement since independence, with climate pressures playing a significant role in both the immediate calamity and the ongoing challenges.

CONCEPTUAL FRAMEWORK

The Tokwe-Mukosi tragedy provided an example of how state power shaped the type of community vulnerability during forced relocation processes through the pre-and post-flood induced resettlement operations. With Zimbabwe's case study demonstrating how capitalist motives and values impoverished its powerless subjects rather than fostering their resilience, the study calls attention to how larger systems of injustices) increase vulnerability (Fabinyietal., 2014; Taylor, 2015; Boonstra, 2016; Ingalls and Stedman, 2016. According to Newman (2010), the state can serve as both a means of preserving capitalism and a source of authority to safeguard its interests. Here, the Zimbabwean state, via its institutions, the Ministry of Finance and Economic Development (MoFED), the Ministry of Local Government and Public Works (MoLGPW), the Zimbabwe Republic Police (ZRP) and the Zimbabwe National Army (ZNA), utilised the catastrophe to advance a novel conception of security in an unknowable future (Aradau, 2014), while advancing capitalist accumulation processes at the expense of populations that required its protection.

Few scholarly sources, however, have investigated how state authority affected vulnerabilities and weakened resilience development in the Tokwe-Mukosi flood catastrophe resettlement processes. The state placed internally displaced persons (IDPs) in a transit camp and eventually forced them to settle in a disputed Chingwizi site, exacerbating their vulnerability. The literature on resettlement has embraced a variety of, at times contradictory, trends. According to John *et al.* (2019) and Correa (2011), preventative relocation should be used as a last choice when flood threats are uncontrolled and pose a high danger. Such preventive efforts limit vulnerable people and their assets' exposure to flood risk by physically transferring them from a threatened site to a safer place (Klepp and Herbeck, 2016; Mortreux *et al.*, 2018).

LITERATURE REVIEW

Development projects, natural disasters and wars can trigger internal or international population displacement. Whereas in recent years, drought and civil wars in Africa have received widespread coverage as fundamental causes of population movement, development projects are increasingly taking over as a major cause of current challenges being faced by some local communities (Robinson, 2003). Development-induced projects pose threats to communities and these threats include socio-economic and environmental factors that aggravate people’s vulnerabilities to hunger, disease and structural marginalisation (Adger *et al*., 2014). Development-induced

projects include dam constructions, which are the focus of this study, aimed at electricity generation, irrigation, water supply and other purposes. Dam constructions are often associated with flooding. Research has revealed that dams sometimes typically flood rich fertile river valleys, forcing inhabitants into unsatisfactory resettlement programmes (World Wide Fund for Nature, 2001). In several recent flooding disasters around the world, it has been observed that dams were making floods worse. Climate change has also appeared to be affecting rainfall patterns and timing and making rainfall more erratic resulting in over-spilling of dams leading to flooding. The World Commission on Dams reported that dams displaced between 40 and 80 million people worldwide in the past century. In China alone, dams displaced 10.2 million people between 1950 and 1990, while close to 23 million people were cumulatively displaced by 2016.

Globally, the effects of flood-induced displacement, particularly on low-income and low-lying homes, are generating serious concerns about the resettlement of internally displaced groups (United Nations Office for Disaster Risk Reduction [UNDRR], 2019). Resettlement of people from disaster prone areas has recently become topical as a point of controversy, particularly where development projects resulted in a wide range of social and economic inequities (Hino *et al.,* 2017). Studies often show that various challenges are experienced in both the developed and developing world, in particular, Zimbabwe during resettlement processes that pave way for development. Extreme weather events such as floods often cause population displacements temporarily or permanently (Black *et al.*, 2011). When catastrophic floods occur, people tend to move both suddenly and rapidly for survival. This rapid movement usually does not give room for adequate resettlement measures to be adhered to.

In numerous cases of dam building in the country and outside, displaced people normally become victims of the government because of purposeful policy, repression, faulty planning and corruption. When such man-made projects are attempted, they are sometimes hampered by a lack of financial resources required to quickly relocate and pay the affected population before dam-building begins (Mathabire and Dzingirayi, 2020). When the Kariba Dam was erected in Rhodesia, for example, the colonial authorities relocated indigenous people without adequately compensating them. Inadequate funding for compensation, loss of family heritage and shrines often important in African traditional cultures and having to settle in new areas often lacking in basic infrastructures such as schools, health and communication facilities, are some of the challenges associated with

population relocation (Mkwashi, 2019). Construction of the Kariba Dam began in 1956. The resettlement plan sought to resettle people on new lands that had poor stony soils where the Tonga way of farming that relied on seasonal floods and leaving land fallow, was not possible anymore. Due to inadequate compensation for the loss of their homeland, people were reluctant to move. In 1958, eight Gwembe-Tonga people were killed and 32 were injured by colonial police in colonial Zambia when they refused to be resettled to make space for the Kariba Dam. People gave in to the displacements (Serpell, 2020). Sixty years after the construction of the Kariba Dam, scholars like Scudder (2005) noted that the dam left descendants of the forcibly resettled 57 000 Tonga impoverished.

Furthermore, Bartolome *et al.* discovered that the state's accountability for the relocation and rehabilitation of displaced people because of massive dam projects is lacking in many ways since governments frequently fail to fulfil their pledges in their totality. A probable example is the Kariba Dam, where many relocated communities are yet to get the power promised to them during the colonial administration's resettlement drive before the dam's construction. Binga town, one of the resettlement places built, received power only in 1985, 30 years after electricity generation began at Kariba (Mkwashi, 2019). As a result, the relocated locals face unemployment, landlessness, starvation and indebtedness. Manyanhaire *et al.* (year) state that "in the majority of situations, compensation is only granted for house structures and some support to transfer to new places and only on rare occasions do governments enable their people to construct new dwellings." In other cases, the marginalisation of resettled people and the resulting lack of development because of inadequate compensation by their governments, influenced donor intervention to assist governments and developers in implementing policies and measures that restore the affected people's livelihoods (Mamvura, 2020).

In addition, some of the challenges faced by the displaced persons is abuse of power by the state through violent force. Thousands of people were relocated due to illicit state compulsion during dam building in Sri Lanka, Colombia, Mexico, India, China, Panama, Brazil, Slovakia, Turkey and Indonesia. Misinformation, threats and intimidation, police violence and, at times, the deployment of the army and deliberately filling the reservoir to compel people to leave their homes, were among the tactics employed by the governments in question. Numerous academics and other activists who advocated for greater compensation and mitigation measures for Urra Dam victims in Colombia were either assassinated or banished (Hove, 2016).

Since 1988, people who have resisted dam development on the Narmada River have faced violence, arbitrary arrests, unlawful detentions and attacks. Furthermore, the Indian government employed disproportionate force in dealing with non-violent protests, ransacking activists' offices and looting property (Routledge, 2021). Further away, during the construction of the Chixoy Dam in Guatemala, around 400 people, largely women and children from Rio Negro, were slain by armed police and the army, a grave violation of human rights (Mavhura, 2020).

Lack of consultations with the resettlers may lead to conflict where they resist movement. Pressure to move people from hazards leads authorities to apply force which can be avoided by consultation. The Kedung Ombo experience is an example of the conflict that can result when authorities plan without the input of those to be resettled. Although the Indonesian government expected that those to be displaced from the Kedung Ombo dam project in Central Java would willingly move. most families refused to move for various reasons like inadequate land compensation for resettlers to purchase equivalent holdings in Java, with the government refusing to consider higher compensations (Piccioto *et al.*, 2001). As a result, authorities used coercive measures to move people out of the reservoir areas.

Reckless and unplanned relocation of communities leaves them in the same or worse predicament as before. According to John *et al.* (2019), the Mabwepande community in Tanzania, resettled by the government owing to floods, found themselves in a region with extensive soil erosion, increasing the danger of floods in some parts of the dwellings. Lo 'pez-Carr and Marter-Kenyon (2015) propose relocating a full village to optimise cultural preservation and social networks. The Vunidogoloa communities in Fiji preserved the same geographical arrangement when theywere resettled (McMichael *et al.*, 2019). However, agricultural livelihoods may be jeopardised at the new site (Al Atahar, 2014), prompting some experts to advocate for the development of other sectors outside of agriculture, supplemented by both new and old skill training with a long-term emphasis (Usamah and Haynes, 2012).

The Zimbabwean government is also not spared as it has a history of delaying compensation for displaced households and when monetary compensation is paid, it is often insufficient in comparison to the time and effort required to establish homesteads (Mazarire, 2008). Numerous households were displaced and moved before the construction of Mpudzi Dam in Zimunya Communal Lands in Zimbabwe's Manicaland Province.

Whilst there was compensation arranged for losses incurred in real terms, this did not cover the social costs and materials for construction (Manyanhaire *et al.*, 2007). According to Nhodo *et al.* (2022), for the construction of the dam, the resettled families had to do without basic amenities such as toilets and water which reflects how governments often invoke hegemonic state power and fail to fulfil obligations. In this example, huts were the most common kind of habitation, with just seven blair toilets as sanitary facilities.

RESEARCH METHODOLOGY

The analysis relied on published scholarly works, newspapers (both commercial and state-owned) and publications from civil society and non-profit groups. Official remarks, speeches and interviews (obtained from the sources utilised) pertinent to this topic, namely the Zimbabwean government's attitude toward flood victims, were used in this study. The acquired data was examined or reviewed with a focus on the study's developments, problems and opportunities. Between May 2020 and March 2021, data was collected using a document analysis method, focusing on literature concerning the Tokwe-Mukosi resettlement process and its representation, using multiple data sources including scholarly sources, non-governmental organisation (NGO) and government reports, conference proceedings and newspaper articles to fill gaps and identify biases and inconsistencies within the data (Silverman, 2018), allowing verification. The focus on the period from 2010 to 2021 allows for a better understanding of the historical foundations and inequities contained in the resettlement procedures.

THE CASE OF TOKWE-MUKOSI

The Tokwe-Mukosi Dam construction began in June 1998, although it fell short of many completion goals. It is a critical initiative aimed at increasing food production in the drought-prone Chivi District and nearby villages in Masvingo Province, which frequently gets insufficient rainfall (Nhodo, 2019). The Tokwe-Mukosi Dam, located in the Chivi District under the Runde Catchment region, was built to give irrigation water to the Hippo Valley, Triangle and Mukwasine sugar estates and the local people. The irrigation-related operations were intended to create employment for many people. The dam, when completed, was going to be the largest inland dam in the country, with a capacity of 1.8 billion cubic meters, capable of generating between 15 and 50 megawatts of power, with 15 megawatts sufficient to light up the whole Masvingo region (*ibid.*). However, before the construction of the Tokwe-Mukosi Dam and the realisation of its promised

advantages, the drought-prone area had significant rainfall in early 2014, causing the dam wall to partially collapse and flood.

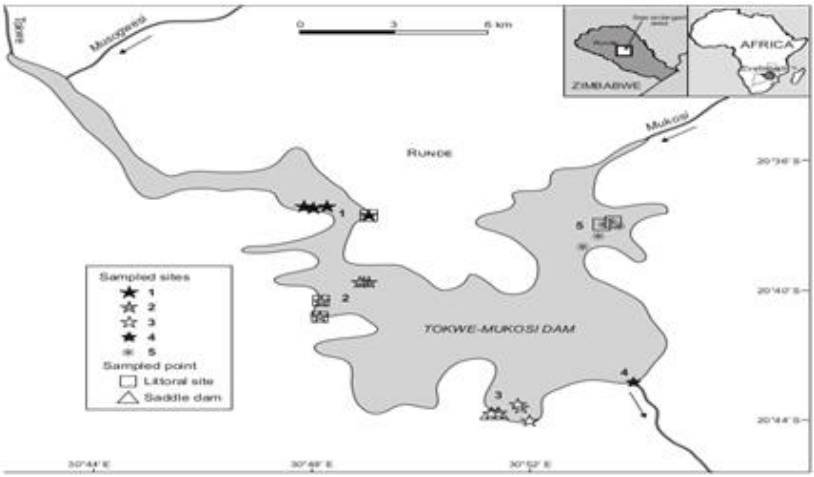

Figure 1: (Nhodo, 2019)

Since the MoLGPW relocated the populations in new village patterns, social networks have been disrupted, with losses in Chingwizi affecting extended family members, church members, acquaintances and village neighbours (Atahar, 2014; Mutangi and Mutari, 2014; Roca and Villares, 2012). These social networks brought with them intangible options such as microfinance investment, locally known as '*mukando'*, that is built on enduring mutual trust connections (Mutangi and Mutari, 2014). Previous state-managed post-millennium displacements show that the Zimbabwean government has no track record of sustaining social networks when relocating IDPs. According to Potts (2008), during the 2005 *Operation Murambatsvina* government evictions, the MoLGPW trucks offloaded some households in their communal areas while arbitrarily relocating others on former farmlands with little regard for spatial configuration.

Flood victims said the government subjected them to harassment, threats, physical violence and used "cruel methods" to force them out of Chingwizi Camp and onto one-hectare plots in Bongo and Nyoni sections of the Nuanetsi Ranch. According to a petition that flood victims submitted to the government on July 16, 2014, the provincial administrator's office had engaged in several underhand practices in order to achieve this end, including denying them food; limiting access to water; barring and diverting

donations intended for their assistance; blocking toilets; and closing the satellite school and clinic near the camp (Human Rights Watch, 2015). According to Mavhinga (2015), although the Minister of Local Government, Ignatious Chombo undertook to follow up on issues raised in the petition, Masvingo provincial administration authorities destroyed the only clinic at Chingwizi Camp on August 1, 2014. When camp residents protested, about 30 police officers stationed at the camp attempted to quell the protests and then fled when violence broke out. Two police vehicles were burned. On August 3, 2014, over 200 anti-riot police indiscriminately beat and arrested close to 300 people, mostly men, according to Human Rights Watch (2015). Most of those arrested were later released, except for 29 who were charged with public violence. On August 4, government officials relocated the camp clinic equipment and staff to Bongo and Nyoni sections. Lawyers representing those arrested alleged that police assaulted many of those whom they arrested including chairperson of the Chingwizi Camp committee, Mike Mudyanembwa. The government appears to have over-reacted to the protests and cracked down on some potentially innocent people (Mavhinga, 2015).

According to Human Rights Watch (2015), after the arrests and flight of the men, police forced all women, including the sick and disabled, to sit in the sun without access to toilets for two consecutive days from 8 a.m. until 6 p.m. as punishment for being “rebellious” against government plans and for allegedly allowing some camp residents to burn two police vehicles. The women were then ordered to put all their tents and belongings onto government trucks and move to the allocated one-hectare plots in Bongo and Nyoni sections. Camp leaders said many household property was lost during the forced removal. According to Minister Bhasikiti, government moved the last of the camp residents on August 14, 2014, when Chingwizi Camp ceased to exist. Leaders of the Chingwizi community who are in hiding said they were living in fear after family members told them that police intended to arrest them all on charges of leading a rebellion against government resettlement plans. In an interview with Human Rights Watch, Minister Bhasikiti blamed the Chingwizi Camp committee leaders for frustrating government resettlement plans, which he said, “the majority” of flood victims wanted.

Notably, the government compensated for only the immovable property while ignoring critical social infrastructure in the camp and new location. Displaced families continue living in locations with insufficient health, water and sanitation, education, community centres, transportation and other vital infrastructure (Mavhura, 2020). In Chingwizi, the MoLGPW completed only

five schools, two clinics and 63 boreholes after the IDPs arrived at the resettlement sites (HRW, 2015), leaving a significant gap in the intended development plan. Previous dam-related displacements in the nation reveal that once the state relocates IDPs, its assistance dwindles, as Makururu *et al.* (2018) observed concerning the state's departure from communities involved in Eastern Zimbabwe following the building of the Osborne Dam. Although the dam was completed over 30 years ago, the resettlement region still needs physical infrastructure such as irrigation pipelines, canals, schools and clinics (*ibid*.). In addition to increasing IDPs' income-generating activities, Kalin (2014) believes that improving infrastructure is critical to reducing tensions between IDPs and host communities.

The operation and administration of critical infrastructures are extremely difficult, yet their services are crucial for all phases of the disaster management cycle. During the new development, the existing risk mitigation and preparedness planning system thinking approach can help to find the optimum number and suitable sites for new construction, optimise the utilisation of available resources and develop suitable communication and coordination mechanisms among the organisations. Generally, the entire situation becomes more dynamic and chaotic during an emergency or disaster. The situation necessitates massive measures for reaction and recuperation. Prompt action can significantly decrease damage and loss. The need for systems thinking is more crucial in disaster response and recovery than in regular conditions. The ontogeny and natural succession routes of the Tokwe-Mukosi reservoir are still in the early stages. Its high trophic status index, high nutrient levels, high turbidity and low transparency are typical of a reservoir's early development phase (Arajo *et al.* 2011; Vidovi *et al.* 2015).

As a result, the Tokwe-Mukosi Dam building adds to examples of governments failing to prepare appropriately and failing to pay some of the people who lived in the dam's catchment area before its construction. The Zimbabwean government, fully aware of the necessity to move 6 393 households, picked the Mwenezi District as the resettlement location and assigned Chingwizi, Chisase and Masangula areas for this purpose. However, the floods occurred during the government's planned or organised relocation, which was to take place in three stages/levels. The first rainy season (level 1) in 2013/2014 resulted in the successful evacuation of around 400 families on time and well ahead of the rainy season. Before the floods, around 611 households were moved and incorporated into communities in on Nuanetsi Ranch at Masangula and Chisase. During the second phase, the region saw high rainfalls that exceeded the expected 660 millimetres

(approximately 2 $^{1}/_{2}$ inches), resulting in flooding. The government's plans were thrown off since 2 230 affected people were evacuated as an emergency before their stated relocation date of March 2014. The issue is said to have been exacerbated by the Ministry of Lands, which failed to prepare for the development of the relocation site and the government, which delayed processing compensation for impacted households.

The floods damaged the agricultural livelihoods of around 12 communities in the Tokwe-Mukosi basin. Chekai, Jahwa, Ifunzi, Mharadzano, Chikandigwa and Vhomo in Nemauzhe community lands and Tagwirei, Ndove, Matandizvo, Chikosi, Mashenjere and Nongera in Neruvanga communal lands, were among the inundated settlements. Crops, animals, homes and social networks of around 4 000 families were destroyed in the process. Before being assigned their final resettlement plots, the residents were evicted and forced to migrate to Mwenezi District at Chingwizi Holding Camp. The Tokwe-Mukosi flood tragedy claimed the lives of six persons.

A restricted evaluation of the events at Chingwizi risks persuading one to blame the villagers in the same manner the government did, condemning the affected people for refusing to migrate to designated settlements while ignoring the government's inadequacies. On the contrary, the government must take a major portion of the blame for the difficulties encountered by flood victims. The government completely failed to plan for the effects of the dam's construction and to address the flood victims' issues professionally and humanely both during and after the flood tragedy. The impacted persons were flood victims in need of government aid to be relocated. Rather than relocating and compensating flood victims, the government prosecuted them. This is due to the government's failure to resolve or fulfil its commitment to offer four-hectare plots and US$4 000 to each impacted family. Corruption, ineffectiveness and oppressive measures from the state's security apparatus exacerbated relocation issues. This had a detrimental psychological, societal and economic impact on flood victims throughout the state. As a result, it was the Zimbabwean government's actions and/or inactivity that compounded rather than improved the situation of Tokwe-Mukosi flood victims.

DISCUSSION

By utilising the police and military against flood victims, the flood-displaced people become state victims. Using the military against the victim was too severe. Harris (year) reiterated these comments when he stated that military

training is primarily meant to kill rather than arrest and hence using the military in humanitarian efforts violates human rights. This was true of the Tokwe-Mukosi victims, who had their property torched and ruined, their temporary shelter set ablaze and many detained for public aggression. While detained, the arrested flood victims were assaulted and tortured by police. As a result, the police and army crackdown on flood victims was widely criticised by human rights organisations, with some calling the government's actions "barbaric." In a similar vein, these human rights violations against flood victims showed leadership failure, as seen by "the government's proclivity for violence and a showdown with defenceless, unhoused, sickly, sick, desperate and unfed peasants". Without a doubt, the Zimbabwean government is notorious for criminalising and securitising its citizenry and resorting to violence whenever it feels threatened. It significantly infringes human rights in the process. Recent well-documented examples include the 2005 "*Operation Murambatsvina*" (literally "clean filth", officially called Operation Restore Order), the 2008 "*Operation Makavhotera Papi*" ("Where did you put your cross?") and the various violent state operations carried out against the Chiadzwa mining community between 2006 and early 2009. The administration employed violence against the victims in these and other situations, rather than engaging in open dialogue with the afflicted. As a result, the Zimbabwean government's handling of the Tokwe-Mukosi flood victims reveals that previous flood victims became victims of the state, in contravention of the country's constitution.

It is clear and persuasive from the above heavy-handed government replies that the human rights of the Tokwe-Mukosi flood victims were violated, just as the rights of Hitler's victims in Germany were, and so they became state victims. The government used forcd to relocate flood victims to far-smaller plots than they had previously possessed. The victims of the Tokwe-Mukosi flood, like the Jews in Germany, were denied their rights. The only significant difference was that the flood victims were not sent to death camps, but were treated like they were sub-humans. The limited plots prevent flood victims from adopting measures to build long-term sources of income. For example, the acreage is insufficient to support profitable food production. Overall, the government's contribution to Chingwizi was "disorganisation, depression and violence".

Governments have also employed a variety of ways to compensate relocated IDPs, most notably monetary payments and land transfers (Tadgell *et al.*, 2018). Some governments choose financial compensation because it is easier and faster to allocate logistically than land (Rowan, 2017). Furthermore,

Mariotti (2014) observes that IDPs often prefer cash compensation because it is immediate, reducing the risk of governments failing to provide promised follow-up support. The Gbagye tribe, that was displaced by the Nigerian government in the late 1970s to allow for the construction of Abuja, the federal capital, has yet to be compensated (Akume, 2015). Nonetheless, economic compensation cannot substitute intangible losses such as social networks, income and culture (Al Atahar, 2014; Roca and Villares, 2012).

This showed the intricacy of resettlement procedures by visualising the Tokwe-Mukosi pre- and post-flood periods, demonstrating how the flood tragedy catalysed and threw the planned processes into chaos when unanticipated heavy rainfall suddenly filled the dam. Throughout the resettlement processes, the MoLGPW, the MFED, the ZRP and the ZNA used their power to create losses in land sizes, compensation, social networks, livelihood opportunities, social infrastructure, cultural and religious sites, place-based knowledge and individual-level losses, reducing IDPs' ability to restore their livelihoods in what would be fair, equitable and inclusive ways.

The results indicated diverse state power linkages throughout the forced resettlement procedures, that contribute to the vulnerability of the Tokwe-Mukosi communities' forced relocation. First, the central government conceived of the dam project and unilaterally decided how the displaced communities would return to normal functioning by dictating where the IDPs would resettle, the livelihood opportunities they would pursue and the resettlement pattern, that affected the IDPs' connection to livelihoods, people and the new place. The state selected a resettlement trajectory of the IDPs during the flood crisis, which began with the MoLGPW arbitrarily resettling them in the Chingwizi Transit Camp, severing old ties. The state restricted access to food, water, sanitation, housing, health and education requirements for IDPs in the camp. Instead of satisfying the community's physical security requirements, the courts convicted camp committee leaders, while the MoLGPW, police and army ended up brutally evicting IDPs from the camp without compensation, harming the IDPs' capacity to return to regular life. State institution activities encouraged circumstances that perpetuated and exacerbated poverty by shaping the amount of vulnerability reduction by limiting IDPs' linkages to places, people and livelihoods.

CONCLUSION AND RECOMMENDATIONS

A substantial research effort is required to assist decision-making for catastrophe resilience and future sustainability by understanding and

managing complexity in the urban system. Critical infrastructures in an urban system must be carefully designed before construction, safeguarded from both natural and man-made calamities and kept operational under all conditions. As a complex adaptive system, the operation and administration of such facilities must use system thinking methodologies to maximise overall performance and optimise resource use. The majority of the studies attributed the suffering in crises to a lack of resources. In truth, optimal resource usage is a greater issue than shortage. A disaster in an urban system alters the input-output flows and supply-demand balances significantly. Apart from causing resource shortages, calamity rebalances the system's supply and demand. As a result, a modern system for operating and managing urban infrastructures and other components may not be able to satisfy the demands of crises in the future urban complex environment.

Due to the state's inaction and neglect, the flood victims largely lacked access to food, land, shelter, protection, safe drinking water, freedom of speech, education and health. Overall, the flood victims became state victims because of the government's acts or inaction from the start until it used blatant violence against them, along the victimhood and holocaust conceptions. The points made in this study encourage more discussion on how the state and community interact during crises.

Parliament, first, neglected to review the militarised Civil Protection Act, here interpreted as a means of maintaining control over a status quo that offers hegemonic opportunities for control and authority, by ignoring the key lessons that could have been applied following the Tokwe-Mukosi resettlement process. Second, since the standards for paying IDPs have not yet been developed by the central government, it is unclear whose knowledge and principles are being adopted in determining what should be compensated and to what standard. Third, the central government has not yet reviewed its procedures regarding encampments, which may be kept in place to uphold neoliberal standards and ideals of authoritarian control and power consolidation. The processes of resettlement ultimately highlight the urgent necessity for theorising various sorts of displacement and experiences, connecting prolonged conflicts with power dynamics that cut across numerous dimensions.

REFERENCES

Ahmad, N. (2017). Internally displaced Persons and International Refugee Law: Protection Gaps, Challenges and Implementation *Pracnygrenytice. The King's Student Law Review, 8*(2), 94-117.

Akume, A. T. (2015). The Question of Internally Displaced Persons (IDPS) in Nigeria: Reflection On Present Realities. *Journal of Third World Studies, 32*(1), 221–244.

Al Atahar, S. (2014). Development-driven Forced Displacement and Compensation-based Resettlement: Experiences from the Jamuna Multi-Purpose Bridge Project. *Development in Practice, 24*(2), 258–271. https://doi.org/10.1080/ 09614524.2014.887660

Albert, S.*et al.*. (2018). Heading for the Hills: Climate-Driven Community Relocations in the Solomon Islands and Alaska Provide Insight for A 1.5 C Future. *Regional Environmental Change, 18*(8), 2261–2272. https://doi.org/10.1007/s10113-017-1256-8

Alexander, D. (1993). *Natural Dsasters*, 632. New York: UCL Press and Chapman & Hall.

Aradau, C. (2014). The Promise of Security: Resilience, Surprise and Epistemic Politics. *Resilience, 2*(2), 73-87. https://doi. org/10.1080/21693293.2014.914765

Bakewell, O. (2014). Encampment and Self-settlement. In: E. Fiddian-Qasmiyeh, G. Loescher, K. Long, N. Sigona, & O. Bakewell (Eds.), The Oxford Handbook of Refugee and Forced Migration Studies 127-138. Oxford University Press. https://doi.org/10.1093/oxfordhb/ 9780199652433. 013.0037

Chazireni, E. & Chigonda, T. (2018). The Socio-Economic Impacts of Dam Construction: Case of Tokwe Mukosi in Masvingo Province, Zimbabwe. *European Journal of Social Sciences Studies, 3*(2), 209-218. https://doi.org/10. 5281/zenodo.1410616

Chipangura ,P.,van Niekerk, D. & van der Waldt, G.(2019).An Exploration of the Tractability of the Objectivist Frame of Disaster Risk in Policy Implementation in Zimbabwe. *Jamba: Journal of Disaster Risk Studies, 11*(1), 1–10. https://doi.org/10.4102/JAMBA.V11I1.604

Chitimira, H. (2017). An Analysis of Socio-Economic and Cultural Rights Protection Under the Zimbabwe Constitution of 2013. *Journal of African Law, 61*(2), 171–196. https://doi. org/10.1017/ S002185531700010

Correa, E. (2011). Resettlement as a Disaster Risk Reduction Measure: Case Studies. In: E. Correa (Ed.), *Preventive Resettlement of Populations at Risk of Disasters: Experiences from Latin America.* PLACE PUBLISHED: The International Bank for Reconstruction and Development.

Farbotko, C., Stratford, E., & Lazrus, H. (2016). Climate Migrants and New Identities? The Geopolitics of Embracing or Rejecting Mobility. *Social and Cultural Geography, 17*(4), 533-552. https://doi.org/10.1080/14649365.2015. 1089589

Ferris, E. (2014). Planned Relocation, Disasters and climate change: Consolidating good practices and preparing for the future. http://www.unhcr.org/53c4d6f99.pdf

Haddow, G., Bullock, J. & Coppola, D. P. (2017*). Introduction to Emergency Management*. PLACE PUBLISHED: Butterworth-Heinemann.

Hino, M., Field, C. B. & Mach, K. (2017). Managed Retreat as a Response to Natural Hazard Risk. *Nature Climate Change, 7*, 364–370. https://doi.org/10.1038/NCLIMATE3252

Hove, M. (2016). When Flood Victims Became State Victims: Tokwe-Mukosi. *Zimbabwe. Democracy and Security, 12*(3), 135–161.

Ingalls, M. L. & Stedman, R. C. (2016). The Power Problematic: Exploring The Uncertain Terrains Of Political Ecology And The Resilience Framework. *Ecology and Society, 21*(1), 1-11. https://doi.org/10.5751/ES-08124-210106

Jha, A.K., Miner, T.W. &Stanton-Geddes, Z.(Eds.).(2013). *Building Urban Resilience: Principles, Tools and Practice*. Washington DC: The World Bank.

Kalin, W. (2014). Internal Displacement. In: Fiddian-Qasmiyeh, E., Loescher, G., Long, K. & Sigona N. (Eds.), The Oxford Handbook Of Refugee And Forced Migration Studies, 1-15). Oxford: Oxford University Press.

Klepp, S. & Herbeck, J. (2016). The Politics of Environmental Migration and Climate Justice in the Pacific Region. *Journal of Human Rights and the Environment, 7*(1), 54-73.

Lo ´pez-Carr, D. & Marter-Kenyon, J. (2015). Manage Climate-induced Resettlement. *Nature, 517,* 265-267.

Makururu, S., Nyoni, T., Bonga, W.G., Nyoni, M., & Nyathi, K. A. (2018). The Influence of Osborne Dam on the Socio-Economic Development of Ward 23 Makoni District Zimbabwe. *Journal of Economics and Finance, 8*(1), 1–28.

Mamvura, Z. (2020). 'Let Us Make Zimbabwe inn My Own Name': Place Naming and Mugabeism in Zimbabwe. *South African Journal of African Languages*, *40*(1), 32-39.

Maponga, G. (2019a, January 30). $60k for Mwenezi storm victims. *The Herald* https://Www.Herald.Co.Zw/60k-forMwenezi-Storm-Victims/.

Mariotti, C. (2014). Why Compensation is not Enough to Make Resettlement aa Development Opportunity? In: J. Perera (Ed.), *Lose to Gain: Is Involuntary Resettlement a Development Opportunity?* 105-125). Mandaluyong, Philippines: Asian Development Bank.

Mathabire, B., & Dzingirayi, P. (2020). Forgotten Projects in Zimbabwe: Why Developmental Mega Projects Fail and Delay. Available online: https://www.easpublisher.com/get-articles/2810

Mavhura, E. (2016). Disaster Legislation: A Critical Review of the Civil Protection Act of Zimbabwe. *Natural Hazards, 80*(1), 605-621. https://doi.org/10.1007/s11069-015-19861

Mavhura, E. (2020). Dam-induced Displacement and Resettlement: Reflections from Tokwe-Mukorsi flood Disaster, Zimbabwe. *International Journal of Disaster Risk Reduction, 44,* 1-11. https://doi.org/10.1016/j.ijdrr.2019.101407

Mazarire, G. C. (2008). 'The Chishanga Waters have their Owners': Water Politics and Development in Southern Zimbabwe. *Journal of Southern African Studies*, *34*(4), 757-784.

McMichael, C., Katonivualiku, M. & Powell, T. (2019). Planned relocation and everyday agency in low-lying coastal villages in Fiji. Geographical Journal, 185(3), 325–337. https://doi.org/10.1111/geoj.12312

McNamara, K. E., Bronen, R., Fernando, N., & Klepp, S. (2018). The Complex Decision-Making a Climate-induced Relocation: Adaptation and Loss and Damage. *Climate Policy, 18,* 111-117. https://doi.org/10.1080/14693062.2016. 1248886

Mortreux, C. *et al.* (2018). The political economy of planned relocation: a model of action and inaction in government responses. *Global Environmental Change,* 50, 123-132. https://doi.org/10.1016/ j.gloenvcha.2018.03.008

Mukwashi, T. (2017). The Victimhood of Communities Induced by Infrastructure Projects in Zimbabwe: Case of Tokwe-Mukosi. *International Journal of Humanities and Social Studies, 5*(7), 50–60.

Mukwashi, T. (2019). Diagnosing the 2014 Flood Disaster of Tokwe-Mukosi in Search of Sustainable Solutions. In: I. Chirisa (Ed.), *The Sustainability Ethic in the Management of the Physical, Infrastructural and Natural Resources of Zimbabwe*, 107-132). Langaa RPCIG. https://doi.org/ 10.2307/j.ctvmd84s6.8

Newman, S. (2010). Postanarchism and Power. *Journal of Power, 3*(2), 259-274. https://doi.org/10.1080/17540291. 2010.493704

Nhodo, L. (2019). *Surviving Marginalization in Development-Induced Displacement in Zimbabwe: A Case Study of Tokwe Mukosi Dam Project*.

Rinaldi, S. M., Peerenboom, J. P. & Kelly, T. K. (2001). Identifying, Understanding and Analysing Critical Infrastructure Interdependencies. *IEEE Control Systems, 21*(6), 11–25.

Roca, E. & Villares, M. (2012). Public Perceptions of Managed Realignment Strategies: The Case Study of the Ebro Delta in the Mediterranean Basin. *Ocean and Coastal Management, 60*, 38-47. https://doi.org/10.1016/j.ocecoaman.2012.01. 002

Tadgell, A. (2015). *Last But Not Least: Resettlement as a Climate Change Adaptation Strategy in Metro Manila.* Waterloo, Ontario (Canada) : The University of Waterloo.

Tarisayi, K. S. (2014). Ramifications of Flooding on Livelihoods: A Case of Two Communal Areas in Chivi District in Zimbabwe. *The International Journal of Humanities & Social Studies, 2*(2), 165-167.

United Nations Office for Disaster Risk Reduction. (2019). Global Assessment Report on Disaster Risk Reduction. United Nations Office for Disaster Risk Reduction (UNDRR).

Usamah, M. & Haynes, K. (2012). An Examination of the Resettlement Program at Mayon Volcano: What Can We Learn For Sustainable Volcanic Risk Reduction*? Bulletin of Volcanology, 74*(4), 839–859. https://doi.org/10.1007/ s00445-011-0567-8

van Niekerk, D., Coetzee, C. & Nemakonde, L. (2020). Implementing the Sendai Framework in Africa: Progress against the Targets (2015-2018). *International Journal of Disaster Risk Science, 11*(2), 179–189. https://doi.org/10. 1007/s13753-020-00266-x

Weir, T. & Pittock, J. (2017). Human Dimensions of Environmental Change in Small Island Developing States: Some Common Themes. *Regional Environmental Change, 17*, 949=958. https://doi.org/10.1007/s10113-017-1135-3

Perceptions of Villagers on Traditional Food Crop Production in Response to Climate Change in Bocha Village, Manicaland Province, Zimbabwe

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Abstract

Based on the qualitative approach, this research highlights an assessment of **the perceptions of villagers on traditional food crop production in response to climate change. The study was inspired by the need to unearth views on traditional food crop production, how they are produced in the wake of climate change and the mitigation measures they employ to ensure food security and poverty reduction. The study was undertaken in Bocha Village in the Manicaland Province of Zimbabwe. The indigenous knowledge theoretical framework used hypothesised ways of knowing, seeing and thinking that are passed down orally from generation to generation and that reflect thousands of years of experimentation and innovation in all aspects of life. A sample of 10 was drawn using purposive sampling. Data were gathered using semi-structured interviews and focus group discussions with participants. Results were thematically presented. The study revealed that villagers view traditional food crops as food security commodities with drought tolerant and climate mitigation potential produced using indigenous knowledge systems. They also reduce poverty through commercial and nutritional benefits derived from their processing.**

Keywords: *adaptation; mitigation; drought, food security, indigenous knowledge systems, poverty*

INTRODUCTION

The consumption of traditional food crops among African societies has been highly revolutionised since pre-colonial days due to exotic cultural interactions, shifting from being considered poor man's food crops to nutritious strategic food crops (Sanchez, 2004). This has resulted in the low uptake of indigenous food crops that are highly nutritious and adaptive to the local climatic environment. Most farmers no longer grow these crops at all, including those located in semi-arid and arid regions of the country. Maize has become the preferred crop grown by smallholder farmers in the region, although it is characterised by very low yields. Semi-arid regions of Zimbabwe are adversely characterised by adverse climate changes including

erratic rainfall, excessive temperature, mid-season droughts during the growing season and low soil fertility that sustain agricultural production under continuous cultivation (Mapfumo and Giller, 2001).

Increasing food productivity is a priority concern of the Hunger Task Force of the United Nations through strategies to sustain the Millennium Development Goal 1 (FAO, 2011), through Sustainable Development Goal (SDGs), thus the ability of farmers to produce more nutritious food per unit area of land. Traditional food crop production systems are critically used as adaptation methods to address climate change problems that minimise crop failure by using drought-tolerant traditional crop varieties (Achamwie, 2015), hence reaching poverty reductions and food security objectives of a nation (SEAVEG, 2012).

Over the last decade, production of traditional food crops by smallholders has declined due to numerous reasons that include financial, social and environmental factors. Thus, farmers are now focusing mainly on cash crops, such as tomatoes, tobacco, flowers and soya-bean production, although these production systems fail in marginal areas due to adverse climate change. Traditional food crops play a crucial role in addressing food security and malnutrition and boosting the HIV&AIDS immunity of infected persons (ZIMSTAT, 2012).

Cultural interactions, urbanisation and negative perceptions have contributed to the neglect of traditional food crop production and consumption. Traditional agriculture is one of the high-priority sectors in the rural village set-up where the impacts of climate change exceed tolerance limits. Climate change projections for rural villagers are inherently severe. These bring difficulties to people living in marginal areas for whom achieving food security is already problematic and is the most pressing challenge as the nation seeks to nourish its people to sustain the MDGs through SDGs. These points necessitated an assessment of the perceptions of traditional food crops as a key source of information on adaptive capacity among villagers to build resilience to deal with climate change stresses.

THEORETICAL FRAMEWORK

Indigenous knowledge hypothesises the ways of knowing, seeing and thinking that are passed down from generation to generation and reflect thousands of years of experimentation and innovation in all aspects of life in a particular context (Kang and Banga, 2013). Indigenous knowledge theory

is grounded in an indigenous worldview that operates on seven principles (Simpson, 2000). The principles are:

- the knowledge is holistic, cyclic and dependent upon relationships and connections to both animate and inanimate beings;
- there are many truths and these are based on individuals' experience;
- everything has life;
- all things are equal;
- the land is sacred;
- the relationship between humans and the spiritual world is relevant; and
- humans are least significant in the world.

According to Demi (2014), these principles differentiate indigenous knowledge based on social constructionism from other forms of knowledge.

It is observed that "Indigenous knowledge specifically refers to the epistemic salience of cultural traditions, values, belief systems and worldviews that in any indigenous society are imparted to the younger generation by community elders (*ibid.*). Advocates for indigenous knowledge theory have highlighted the potential it holds in addressing contemporary glitches such as poverty, hunger and underdevelopment (Moock and Rhodes 1992; Esiobu, 2019).

LITERATURE REVIEW

Southern Africa is vulnerable to climate change causing social, economic, ecological and environmental stresses (Lichtfouse, 2012) and Zimbabwe is no exception. The stresses are a major threat to communities' susceptibility to vulnerability. High temperatures, unpredictable precipitation and increased frequency of droughts and floods are combining to cause biodiversity loss, depressing crop yields and increased production risks (Achamwie, 2015). Due to climate change, impacts on food dimensions that include food availability, food accessibility, food utilisation and stability have been eroded (Ganpat, 2015). Traditional food crops such as *cleome gynandra, Amaranthus, loquats,* sorghum, millet, cowpea and bambara nuts, originating from Eastern and Southern Africa, have a long history of cultivation domestication and use in African communities (Grubben and Denton, 2004; Shackleton *et al.*, 2009; Nyakupfika, 2013;). However, the production of traditional crops has been constrained by the negative impacts of climate change and inadequacy of scientific knowledge. The preference for western dishes instead of African diets has further eroded the cultivation and use of these traditional food crops. This has resulted in underutilisation of traditional food crops, leading to increased food insecurity and malnutrition (Shackleton *et al.*, 2009; Ng'tich *et al.*, 2012). Traditional food

crops have been used as livelihood strategies of mitigating hunger during times of femine (Legwaila *et al.*, 2011). The importance of traditional food crops as a supplement for medicines and a hunger survival strategy is being overlooked (*ibid*.). Understanding farmers' perceptions towards traditional food crops is crucial in incorporating indigenous food plants into existing food systems in the face of climate change (*ibid.*)

RESEARCH METHODOLOGY

The study used the interpretivism and a case-study approach was applied focusing on Bocha. A sample of 10 was drawn based on the quality of information provided to the research based on the views. Data were collected through key informant interviews, semi-structured interviews and focus group discussions. This systematic analysis involved devising a coding system to classify information or themes.

RESULTS

Perceptions accounted for in this article are purposively from villagers who are producing traditional food crops in Bocha Village, Manicaland Province as identified by the traditional leaders of the village.

TYPES OF TRADITIONAL CROPS AND REASONS FOR THEIR PRODUCTION

From the interviews, respondents indicate that they grow a wide variety of traditional food crops representing broad categories of cereals, legumes, root and tuber crops and leafy vegetables. Millet *(Panicum species)* and Sorghum *(Sorghum bicolour)*, known by villagers as *Zviyo* and *Mhunga*, are common traditional cereals crops grown in Bocha Village. One of the the farmers interviewed for this research revealed that:

> "Millet and sorghum are the cereal crops we grow since the time of our ancestors for sadza in Bocha Village that is prone to high temperatures and erratic rainfall."

These crops represent cereal crops and have been indigenised due to many years of cultivation and natural and farmer selection. Cultivation of millet and sorghum is practised mainly at a subsistence level by smallholder farmers in arid and semi-arid conditions where water and excessive heat are limiting factors for crop growth. These results are congruent with the finding by Bichard *et al.* (2004) who concluded that the production of millet and sorghum is intensified in villages where maize (cereal) normally fails due to droughts.

Millet and sorghum are crops grown in Bocha Village for their nutritional values that respondents believe are vitamins and carbohydrates. In the focus

group discussion, it was reiterated said, “We grow these cereal crops because they have high nutrient value”.

Because these cereals contain balanced nutrients, it makes them suitable crops for combating nutritional challenges to Bocha households. Millet and sorghum are often referred to as “high-energy” cereals as they contain higher oil content, protein and vitamin A (NRC, 1996). Compared with other cereal grains such as maize, oats and wheat, sorghum and millet are less susceptible to pests and diseases (*ibid.*). Hence the indigenous knowledge theory has shown its ability to transfer the worldview of traditional knowledge to later generations through years of trial and error in the context of cereal production for sustainability under drought conditions.

Bambara groundnut (*Vigna subterranea*) (*Nyimo*) and Cowpea (*Vigna unguiculata*) *(Nyemba)* are the oldest legume crops grown in Bocha Village with their level of domestication in the area being closely related to millet and sorghum through indigenous knowledge preservation. Traditionally, these legumes are cultivated in Bocha Village where rainfall is erratic, limited access to irrigation and fertilizers, with little guidance on improved agronomic practices. From the interviews, it was said:

> “We grow Bambara groundnuts and cowpea because they are crops that we have grown since childhood, rainfall in the area is erratic, our water sources cannot keep water for long and we cannot afford fertilizers.”

The legumes have been produced mainly for the sustenance of families as a complement to cereals. For the villagers, they serve as important sources of protein in their diets. Cowpea leaves are consumed as vegetables, while cowpea and Bambara groundnut seeds are eaten in the same manner as dry beans. From the focus groups, one participant highlighted that:

> “We eat the legumes together as a family; cowpea leaves are vegetables whilst the seeds are boiled for relish as we cannot afford meat.”

When utilised both as leafy vegetables and grain legumes, these crops have the potential to close the hunger gap that often plagues farmers during periods before the next harvest. When used in this way, they have significant potential to contribute towards food and nutrition security by providing vitamins, minerals and protein (Bressani, 1985).

The legumes’ drought tolerance and low levels of water use potential make them ideal crops for cultivation in semi-arid areas of Bocha, that continues to face an increased frequency and intensity of droughts and impoverished soils

due to climate change. Through integration with other communities, these legume crops have become to be known to replenish nitrogen in the soil through nitrogen fixation. Mutsubvu (pseudonym) said:

> "Most of the time this area experiences high temperature and low rainfall and the soil is evident of nutrient deficiency but we always have a harvest to store each year."

From these sentiments, these legumes are drought-tolerant, can thrive in arid and semi-arid conditions and have soil replenishing potential that is important to villagers who are unable to afford inorganic nitrogen fertilizers. Thus, they are important crops to incorporate in rotation with cereal crops. . They can be produced in areas with an average optimum rainfall of 400 mm/year (DAFF, 2011). These legumes are widely reported to be drought tolerant.

These legumes are perceived as a traditional food crop based on social and economic restrictions imposed on indigenous knowledge. One of the villagers said:

> "We never enrolled for formal lessons to produce bambara groundnuts and cowpea, we usually observed our grandparents growing them and we and our parents also adopted them. Most of the time we grow them and we have a harvest under all circumstances"

As such, cowpea and bambara groundnut germplasm improvement and agronomic management practices have relied mainly on local experience and resources, that is, indigenous knowledge (Mukurumbira, 1985).

Cat's whiskers *(Cleome gynandra)*, Amaranth (*Amaranthus* spp) and Wild Cucumbers (*Enchinocytis Lobata)* leaves, also known as *nyevhe*, *mowa* and *musesera*, respectively, by Bocha villagers, are major traditional leaf vegetables being grown due to their nutritional benefits and drought-tolerance. The vegetables are perceived as highly nutritious and adaptive to the local environment as they can grow naturally. Their production attention has also shifted from being problematic weeds of arable lands to crops capable of alleviating food insecurity by addressing malnutrition concerns. As unveiled by one respondent;

> "In other areas, Cat's whiskers and Amaranth and Wild cucumber leaves are weeds, but as for us, we grow them for relish, nutrition and as medicine since time memorial. However, even in drought conditions, we are assured of a harvest."

The study unearthed that this traditional leafy vegetable that forms part of the traditional diets and heritage of Bocha villagers was adopted into the indigenous knowledge system through many years of cultivation. The

multiple under-exploited benefits in terms of nutritional value, food security, income-generation and medicinal value that is suitable for low input systems and harsh climatic conditions are explored by Bocha villagers. Some of the most unearthed important believed health and household benefits of these vegetables highlighted from focus discussions are:

> "their ability to spur growth and development, protect the heart, boost the immune system, strengthen bones, increase blood circulation, optimise digestion and induce appetite. The grains of Cat's whiskers and amaranth crops can be made into flour as a substitute for modern flour sources whilst the fresh fruit of Wild cucumber is used as a bio-pesticide against aphids and ticks on domestic animals".

In Zimbabwe, information on cultivation, drought tolerance and water use of local Amaranth, Cat's whiskers and wild cucumber is limited in extent and scale is a reality, but vast information is enclosed within the indigenous knowledge system. The principles of indigenous worldviews that knowledge is holistic and there are many truths based on individuals' experience (Simpson, 2000), indicate that traditional vegetable crops serve as healthy food and medicines, in the face of climate harshness for Bocha villagers.

Therefore, exhaustion of soils over many years and limited access to fertilizers, have not hindered the successful production of these vegetables under marginal climatic conditions (Shackleton *et al.,* 2009). A review by Alemayehu *et al*. (2014) reported that owing to their drought tolerance and promotion of amaranth, cats' whiskers and Wild cucumber production are alternative crops that are vital for combating food and nutrition security under climate change. Strategies have been employed to ensure traditional food crops' success in the wake of climate change

Bocha Village farmers prefer the use of traditional grains such as millet and sorghum that are more drought-resistant than maize and therefore give a good yield even with very little rain. They also prefer specific crop varieties for drought seasons, such as an indigenous finger millet variety (*rukweza*), as it ripens fast and an early maturing cowpea (*Vigna unguiculata*) (*nyemba*) variety. A villager highlighted that;

> "Millet, sorghum and cowpea survive under drought stress conditions but maize cannot survive, traditional crops require even spatially distributed rains to secure a harvest. In the case of finger millet, it yields after two months from germination time."

Growing drought-tolerant crops strategy is of great significance as it points the way for resource-poor farmers living in Bocha Village that is in a

marginal environment, providing the basis for adaptive natural resource management strategies that privilege the diversification of cropping systems, leading to greater stability and ecological resilience under climatic extremes (Achamwie, 2015). This is coherent with the indigenous knowledge theory principle (Dei, 2004) that land is sacred in that it suits certain crops to survive even if external forces do not permit it.

Bocha villagers tend to combine polyculture systems as part of a typical household resource management scheme aimed at reaching acceptable productivity levels amid environmentally stressful conditions. It was highlighted by one farmer, who said that:

> "We plant different crop types and varieties in the same field, examples are sorghum, millet and groundnuts. This ensures maximum land-use and multiple yields of different crop types or at least one of the crops in the case of adverse climatic conditions"

The practice of multiple cropping systems enables smallholder farmers to achieve several production and conservation objectives simultaneously. Polyculture exhibits greater yield stability and less productivity declines during a drought than in the case of monoculture. By practising this production strategy, it then holds that the indigenous knowledge theory has the potential of addressing contemporary glitches such as poverty, hunger, climate change and underdevelopment (Moock and Rhodes, 1992).

Natarajan and Willey (1986) noted that intercrops over-yield consistently at five levels of different moisture availability, over the cropping season. They further note that the rate of over-yielding increased with water stress, such that the relative differences in productivity between monocultures and polycultures became more accentuated as stress increased. These types of ecological studies suggest that more diverse plant communities are more resistant to disturbance and more resilient to environmental perturbations (Vandermeer, 2002).

Many Bocha villagers exploit intraspecific diversity by growing, at the same time and in the same field, different cultivars of the same crop. The type of diversity that prevails in different areas depends on both climatic and socioeconomic conditions and farmers' responses. For example, one farmer revealed that:

> "Locally adapted landrace varieties of *cowpea (Vigna unguiculata)* that have been grown for centuries and are genetically heterogeneous, uniquely combine optimal nutritional profiles, high tolerance to environmental stresses, high biomass productivity and nutrient and moisture contributions to the soil if cross mixed with hybrid."

The existence of genetic diversity has special significance for the maintenance and enhancement of productivity of small farming systems, as diversity also provides security to farmers against diseases, especially pathogens that may be enhanced by climate change. By mixing crop varieties, farmers can delay the onset of diseases by reducing the spread of disease-carrying spores and by modifying environmental conditions so that they are less favourable for the spread of certain pathogens. The outcomes of this study are congruent with results by Jarvis *et al.*, (2007) that considerable crop genetic diversity continues to be maintained on a farm in the form of traditional crop varieties, especially of major staple crops. Villagers maintain diversity as insurance against future environmental change or to meet social and economic needs. These crossbreeds that exhibit high genetic variability have a huge success potential to be grown in marginal environments of Bocha as it is threatened by climate change.

Adaptation of traditional food crops to marginal lands, by villagers of Bocha makes them constitute an important part of the local diet by providing valuable nutritional components, often lacking in staple crops. Based on the villagers' views, for example of Cat whiskers' medicinal benefits:

> "Sap from leaves cures scurvy, improves eyesight when mixed with milk, reduces dizziness and labour pains in pregnant women and helps quicken recovery after baby delivery. The vegetables' leaves have acaricidal properties and are used in controlling ticks on cattle, sheep and goats. In crop production, Cat's whiskers extracts have pest deterrent uses against crop pests such as aphids."

Traditional vegetables are characterised by a high nutritional value compared with global vegetables like tomatoes and cabbage (Keatinge *et al.*, 2011). As a source of essential vitamins, micronutrients, protein and other phytonutrients, traditional vegetables and legumes such as cowpea, have the potential to play a major role in strategies to attain nutritional security.

Villagers avoid some of the high cost challenges caused by high inputs of agrochemicals, fertilizers; mechanisation and water supply by growing traditional food crops. By incorporating indigenous crops and increasing crop diversity, farmers are ensured of cost-effective diets and increased agricultural resilience to pests, diseases and weather changes.

> "We grow traditional crops that have a definite yield capability, meaning that we don't waste money to supplement food in times of famine and droughts."

The benefits of growing more diverse crops include seed saving and the processing of traditional foods. With dried and other preserved traditional foods, villagers have a more secure and reliable food source during the off-

season, and seed-saving and exchange enable villagers to remain independent of commercial agricultural companies, helping to ensure future food security at affordable prices. A villagers explained that:

> "We venture into food processing of traditional vegetables through sun-drying and ensure food availability in off-season periods."

With the advent of healthy diet requirements for locals, traditional food crops are of considerable commercial value and thus can make a significant contribution to household income. Value addition by applying appropriate production and post-harvest techniques ensure that high-quality product reaches the market and satisfies consumer expectations. In Zimbabwe, selected traditional cereals, legumes and vegetables are becoming an increasingly attractive food group for the wealthier segments of the population and are slowly moving out of the under-utilised category into the commercial mainstream (Weinberger, 2007).

Apart from their commercial, medicinal and cultural value, traditional food crops are also considered important for sustainable food production as they reduce the impact of production systems on the environment. From the focus group discussions held, it emerged that:

> "traditional food crops are important for sustainable food production as they reduce the impact of production systems on the environment. Traditional food crops have the potential to make a substantial contribution to food security, protection against internal and external market disruptions and climate uncertainties and lead to better ecosystem functions and services, thus enhancing sustainability"

It was further indicated by Muzambani (pseudonym) that:

> "a wider use of traditional food crops and species, in intercropping systems, provide multiple options to build temporal and spatial heterogeneity into uniform cropping systems, thus enhancing resilience to biotic and abiotic stress factors and ultimately leading to a more sustainable supply of diverse and nutritious food"

Many of these crops are hardy, adapted to specific marginal soil and climatic conditions and can be grown with minimal external inputs (Hughes and Ebert, 2013). Due to the harsh climatic conditions, only robust, drought-tolerant traditional vegetables with short growth cycles, such as Cowpea and Amaranth, can survive and produce food (Maurya *et al.*, 2007)

CONCLUSION AND RECOMMENDATIONS

Views, perceptions and methods towards traditional food crops by traditional farmers in Bocha have adapted to ever-changing environments by

developing diverse and resilient farming systems in response to different opportunities and constraints faced over time. Many of these agricultural systems serve as models of sustainability that offer adaptation measures that can help millions of rural people to reduce their vulnerability to the impact of climate change and to maintain ecosystem goods and services.

Bocha villagers are key actors and players with the responsibility of improving the land and, as land managers, their needs, priorities, resources and preferences are highly diverse. They have a wealth of knowledge about their crops, soil, farming environment and economic conditions embedded in traditional knowledge systems. The local knowledge systems and agricultural practices and techniques adopted by local people remain the dominant form of coping mechanisms for climate change and food security.

Some of these adaptation strategies include the use of locally adapted varieties/species exhibiting more appropriate thermal time and vernalisation requirements with increased resistance to heat shock and drought, enhancing the water-holding capacity of soils through cover crops, thus increasing water holding capacity and use of crop diversification strategies.

- There is the need to re-evaluate and consider indigenous knowledge and technology as a key source of information on adaptive capacity centred on the selective, experimental and resilient capabilities of farmers in dealing with climate change.
- The implications of climate change for food security are explored and understood not only at global and national levels, but also at local levels. It is also imperative to have a better understanding of how to sustain and combine indigenous agricultural knowledge systems and scientific knowledge and how to translate this into decision-making processes that provide the necessary support to the local peoples.
- Emphasis must be made on involving farmers directly in the extension of innovations through well-organised farmer-to-farmer networks. The focus should be on strengthening local research and problem-solving capacities. Organising local people around projects to enhance agricultural resilience to climate change must make effective use of traditional skills and knowledge as this provides a launching pad for additional learning and organising, thus improving prospects for community empowerment and self-reliant development in the face of climatic variability.

REFERENCES

Achamwie, O. (2015). The Effects of Climate Change on Rural Female Farmers in the Wenchi Municipality. *International Journal of Research 2*. https://www.preprints.org/manuscript/202106.0088/v1

Alemayehu, F., Bendevis, M. and Jacobsen, S.E. (2014). The Potential for Utilising the Seed Crop Amaranth (*Amaranthus* spp.) in East Africa as an Alternative Crop to Support Food Security and Climate Change Mitigation. *J. Agron. Crop Sci*. 2014 doi

Bichard A.*et al*. (2004). Indigenous cereals: Urban market access for small-scale producers? A qualitative study of consumption practices and potential demand of urban consumers in Polokwane (Limpopo Province, South. Africa) Cah. Agric. 2004;13:129–134.

Best, J,. W. and Kahn, J.V. (2009). *Research in Education*, New Delhi: PHI Learning Private Limited.

Bressani, R. (1985). Nutritive Value of Cowpea. In: Singh S.R., Rachie, K.O., (ed.). *Cowpea Research, Production and Utilisation;* 353-359. Chicester, UK: John Wiley and Sons.

Chweya, J.A. and Mnzava, N.A. (1997). *Cat's whiskers, cleome gynandra L. Bioversity International (11*). Available online: https://www.bioversityinternational.org/fileadmin/_migrated/uploads/tx_news/Cat_s_whiskers_Cleome_gynandra_L._350.pdf.

Cohen, W. (1989). Symbols of Power: Status tn 19th Century France*: Comparative Studies in Society and History, 30*(3):491-513

Cone, J. D. & Foster, S. F. (2006). Dissertations and theses from Start to Finish: Psychology and Related Fields: American Psychological Association Washington, DC.

Crockett, B. (2007): *Issues in Social Science Research*. Addis Ababa: Admission publishers

Dei, G. J. S. (2004). *Schooling & Education in Africa: The Case of Ghana*. New Jersey: Trenton.

Demi, S. M. (2012). Analysis of Food Security Status across Farming Households in the Central Region of Ghana. Department of Agricultural Economic and Agribusiness, University of Ghana. Ghana.

Department of Agriculture, Forestry and Fisheries (2011). Trends in the Agricultural Sector. DAFF; Pretoria, South Africa.

FAO (2011). The State Of Food And Agriculture: Women In Agriculture Closing The Gender Gap For Development. Rome: FAO.

Ganpat, W.G (2015). *Impacts of Climate Change on Food Security in Small Island Developing States.* Information Science Reference. Hershey.

Grubben, G.J.H. and Denton, O.A. (2004). *Plant Resources of Tropical Africa 2: Vegetables.* Wageningen: Backhuys publishers/CTA..

Guba, E. G. and Lincolin, Y.S. (1985). *Naturalistic Inquiry*: Beverly Hills: Sage Publishers.

Hughes, J.d'A and Ebert, A.W. Research and Development of Underutilised Plant Species: The Role of Vegetables in Assuring Food and Nutritional Security. In: Massawe, F., Mayes, S., Alderson, P, (eds.) *Proceedings of the 2nd International Symposium on Underutilised Plant Species: Crops for the Future — Beyond Food Security*;.; International Society for Horticultural Sciences (ISHS): Korbeek-Lo, Belgium, 2013; ume 2, 79-91.

Huysamen, G. (2001). *Methodology for the Sociological and Behavioral Sciences*: Oxford: Oxford University Press. .

Kang M.S. and Banga, S.S (2013). *Combating climate change: an agricultural perspective*. London: CRC Press.

Keatinge, J.D.H.*et al.* .(2011). The Importance of Vegetables in Ensuring Both Food and Nutritional Security in Attainment of the Millennium Development Goals. *Food Sci. 3*, 491–501.

Kumar, R. (2005). *Research Methodology: A Step-by-step Guide for Beginners, 2nd Edition*: Perth: Pearson Education.

Legwaila G M. *et al.* (2011). Potential of Traditional Food Plants in Rural Household food Security in Botswana. *Journal of Horticulture and Forestry 3*(6),171-177.

Litchfouse, E. (2012). *Farming for food and water security.* Springer. Dordrecht.

Maurya, I.B.; Arvindakshan, K.; Sharma, S.K and Jalwania, R.(2007). Status of Indigenous Vegetables in Southern Part of Rajasthan. In: Chadha, M.I., Kuo, G., Gowda, C.L.L. (eds). *Proceedings of the 1st International Conference on Indigenous Vegetables and Legumes—Prospectus for Fighting Poverty, Hunger and Malnutrition*;.; International Society for Horticultural Sciences.: Korbeek-Lo.

Moock, J & Rhodes, R. (Eds) (1992). *Diversity: Farmers Knowledge and Sustainability*. Ithaca: Cornell University Press..

Mukurumbira, L. (1985). Effects of Rate of Fertilizer Nitrogen and Previous Grain Legumes Cropon Maize Yields. *Zimbabwe Agric. J. (Zimbabwe*) 82, 177-179.

Nachmias, C. and Nachmias, D (1982). *Research Methods in Social Sciences*. London: Edward Arnold.

National Research Council (NRC) (1996). *Lost Crops of Africa. ume 1: Grains*. Washington, DC: National Academy Press.

Ng'tich, O., Ayoh, J. & Ogwen, J. (2012). *Growth, Yield And Physiological Responses Of Spiderplant (Cleome Gynandra L) To Calcium Ammonium Nitrate Rates.* International *Journal of Agronomy and Plant Production 3* (9); 346-355.

Nyakupfika, A. (2013). *Global Delicacies. Diversity, Exotic, Strange, Weird, Relativism.* Bloomington: Balbao Press.

Ohmagari, K. & Berkes, F. (1997). Transmission of Indigenous Knowledge and Bush Skills among the Western James Bay Cree Women of Subartic Canada. *Human Ecology 25*, 197-222s.

Polite, D. and Hungler, B. (1991). *Nursing Research: Principles and Methods*: New York: JB Lippincott.

Rubin, H. J. & Rubin, I. (1995). *Qualitative Interviewing: The Art of Hearing Data*. London: Sage.

Sanchez, P. (2004). Millennium Project Hunger Task Force. *SCN News Nutrition and the Millenium Development Goals.* Lavenham. UK. Available online: https://vtechworks.lib.vt.edu/bitstream/handle/10919/66358/1768_Having_Hunger.pdf.

Schensul, J. *et al.* (1999). *Ethics, Ethnography, Drug Use and AIDS: Dilemmas and Standards in Federally Funded Research*, 198-222. Bethesda: National Institute on Drug Abuse:

Schultz, A., (1982). *Life Forms and Meaning Structure:* London: Routledge & Kegan Paul.

SEAVEG (2012). *High Value Vegetables in South-East Asia: Production Supply and Demand*. AVRDC Publication.

Sekaran, U. (1984). *Research Methods for Managers: A Skill-Building Approach*. New York: John Wiley & Sons, Inc.

Shackleton, C.M., Pasquini, M.W. and Dresche,r A.W. (2009). *African Indigenous Vegetables in Urban Agriculture.* London: Earthscan..

Shumba, O., Kaziboni, T. and Chakuchichi, D. (2005). *Interventionist Participatory Methodology and Experiences of Involving Stakeholders in Providing and vetting Information on Growing Up and Sexual Maturation*. *Zimbabwe Journal of Educational Research 17 (1),*91-112.

Simpson, L. (2000). *Anishinaabe Ways of Knowing. Aboriginal Health, Identity and Resource*, 165-185. Winnipeg: Aboriginal Issues Press, University of Manitoba.

Soy, S. K. (1997). *The case study as a research method*: Available from http://www.ischool.utexas.edu/~ssoy/usesusers/l391d1b.htm 28/10/2014

Strauss, A. and Corbin, J. (1998). *Basics of qualitative Research: Techniques and Procedures for Developing Grounded theory (Second Edition):* London: Sage Publishers.

Tuckman, B. W (1972*). Conducting Educational Research*. New York Holt, Rinehart & Winston.

Walliman, N. (2006). *Social Research Methods.* London: Sage
Weinberger, K. (2007) Are Indigenous Vegetables Underutilised Crops? Some Evidence from Eastern Africa and Southeast Asia. *Acta Hortic*. *752*, 29-34.
Yin, R. (2003). *Case Study Research Design and Methods (3rd Ed*): London: Sage Publications.
ZIMSTAT (2012). *Zimbabwe Demographic and Health Survey 2010-11*. Calverton. Maryland.

Revenue Mobilisation for Sustainable Rural Water Supply in Zimbabwe: The Case of Chaminuka Rural District Council

FAITH NDHLOVU AND GIFT CHIPO MANHIMANZI[1]

Abstract

This article is based on a study that assessed revenue mobilisation strategies and sustainable water supply in local authorities in Zimbabwe. The study investigated the ratio of the amount of revenue mobilised on water rates per month by the Chaminuka Rural District Council, situated in Shamva, Mashonaland Central Province in Zimbabwe, as a percentage of total water demanded and to make recommendations to local governments on how to improve or replace present revenue mobilisation strategies to attain sustainable water supply. Due to the fact that individuals frequently move to the region to engage in mining activities, the population is diverse and the area is well known for its mining activities. The study discovered that there were no previous studies, leading to a research gap of revenue mobilised on and water supply. Theories from public administration have been borrowed as water is a public good and local authorities are public entities. The research established that water consumption per household is insufficient as compared to the standard consumption set by Zimbabwe Water Authority (ZINWA). Chaminuka Rural District Council (RDC) has lost much revenue due to the underperformance of the economy as most local authorities have not been able to pay for water in the past decades. Residents of Chaminuka believed that an increase in monthly rates might have a positive impact on the supply of clean and safe water. However, it was noted that apart from revenue collected being the main determinant of water supply, other challenges contributed poor revenue mobilisation techniques.

Keywords: *domestic revenue mobilisation, sustainable provision of water, local government*

INTRODUCTION

On February 14, 2018, the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the

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World Bank and the United Nations held a three-day conference to urge all governments around the world to strengthen and improve the effectiveness of their tax systems to generate the domestic resources required to meet the UN Sustainable Development Goals (SDGs) and promote economic growth (IMF, 2018). The international community is uniting in aiming for better living standards for all. Provision of adequate clean water improves lives for all, thus a move towards attainment of Sustainable Development Goals. For governments to provide adequate water through local authorities, it needs to have adequate financial resources. The Zimbabwe Revenue Authority (ZIMRA) has a mandate to maximise revenue collection by mobilising and collecting sustainable revenues to adequately fund government operations. Local authorities, in their own capacity, need to collect revenues so that they can provide public goods to their local communities. Provision of adequate clean water improves life of all. Thus, the need for an assessment of revenue mobilisation strategies and water supply was carried out using a case study of Chaminuka RDC in Shamva. The demand for water from agriculture and industry, as well as domestic use, is rapidly rising and water pollution and ecosystem degradation are worsened by increasing amounts of untreated wastewater. Fresh water, in sufficient quantity and quality, is essential for all aspects of life and sustainable development.

Domestic resource mobilisation is difficult for poor countries struggling to generate enough revenue to provide fundamental services like road infrastructure, health care and public safety. The OECD (2018) posed that at least 15% of the Gross Domestic Product (GDP) in revenue is required to fund these essential services, yet tax collections in nearly 30 of the 75 poorest nations fall below this threshold. Section 276 (2) (b) of Zimbabwe Constitution (Amendment Number 20) of 2013 permits local governments to raise funds to meet their aims and obligations. In the collection of revenue from excise and sales taxes, local business taxes, vehicle and transportation taxes, property taxes, utilities, levies and user fees, local governments have a "semi-autonomous" position. However, a broad review of Zimbabwe's sub-national governments reveals that local governments continue to struggle to satisfy their financial obligations. Furthermore, claims of tax fraud and enormous debts owed to sub-national governments invite criticism of current revenue collection techniques.

There has been a public outcry due to the inability of local authorities to provide notable public services such as sufficient water supply. The ability to tax the local population to fund the provision of local services is a critical component of any local government system. The percentage of local taxes and

levies collected in a regional government's overall revenue is sometimes viewed as the most important indicator of the level of local autonomy. The more the taxing capacity, the higher the proportion of own-source money in the entire budget and the more self-sufficient they are.

Chirenda *et al.* (2015) have emphasised that water is regarded as a social and economic resource that should be of good quality, broadly accessible and affordable. The collapse in water revenues that began in the late 1990s and lasted into the previous decade has resulted in a sharp drop in all water supply and sanitation infrastructure and services, that must now be reversed swiftly to avoid irreversible degradation. Okolie *et al.* (2014) submit that the collapse has had an impact on every section of the country and all aspects of water supply, sanitation and water resource management and development. With such a scenario, it is evident that reversing the water sector's collapse will necessitate a significant amount of effort, significant funding, enabling policies and effective institutions.

THE CONCEPTUAL FRAMEWORK

Sustainable Development Goal (SDG) 6's target is to achieve universal and equitable access to safe and affordable drinking water for all and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity. The Germany Development Institute (2019) emphasise that, to achieve the SDGs by 2030, developing countries need additional funding. Funding can come from four sources: domestic public revenues, international public resources, domestic private resources or international private resources. Of these four sources, domestic revenues from taxes and non-tax sources are, by far, the most important. Local authorities derive most of their resources from property taxes, licenced dealers and rate and rates.

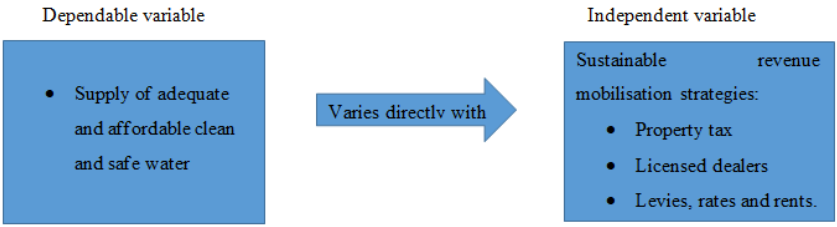

Figure 1: *Conceptual framework – relationship between revenue mobilisation strategies and clean water supply*

THEORETICAL FRAMEWORK

The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists. Revenue mobilisation is affected by principal agent theory, microeconomic theory and the benefit pay theory.

The principal-agent theory describes the interaction between agent and the principal. The principal is the party that is unable to achieve specific aims on its own due to a variety of obstacles, and as a result, an agent is hired with the sole intention of achieving the principal's objectives for a set price. The government serves as an agent for the people, as they are hired to accomplish particular goals on their behalf through elections. The argument goes on to say that the aims of the agent and the principal frequently collide, putting public funds at risk since the agent may misuse funds, forcing customers to default on paying for services. The notion that the agent has autonomy, necessitates economic autonomy, political decentralisation and administrative decentralisation. Decentralisation improves service delivery by increasing accountability, transparency, responsibility and value for money. Communities expect supply of adequate clean water from local authorities as they have a moral obligation. On the other hand, the local authorities need adequate financial resources to do so. There is always conflict between the principal and the agent.

The cornerstone of the microeconomic theory is considering citizens as consumers of government goods and services (Zinyama, 2014). This hypothesises that public officials are preoccupied with enriching themselves, resulting in organisational goal conflict. The government is required to offer goods and services that are consistent with local public preferences; so, the government must persuade residents to contribute their resources where goods and services are produced. Local authorities need to ensure they provide necessary public goods for public consumption.

Smith (1776) averted that welfare economics is concerned with human behaviour in that individuals, while pursuing personal interests, are working to promote the greater or common good in the long run. He emphasised the importance of consumption over production, stating that consumption is the only way production can be justified. As a result, when there are no customers, there is no production. The theory can be used to figure out how and why public goods and services are created. Taking this theory into account, local governments should generate public goods for and on behalf of

the end-user, who is the inhabitant. Local authorities should be able to provide adequate safe water for the communities.

LITERATURE REVIEW

Remenyi (2001) argues that a literature review is to "establish or identify the area of inquiry, create a theoretical framework for the field of investigation and recognise studies, models and instances that promote the research issue." Consequently, the goal of this chapter is to analyse the literature on revenue-collecting tactics used by local governments around the world to establish best practices. It also examines the literature on state revenue-collecting targets and sources at a worldwide level and the lessons learned.

Local governments in Zimbabwe are officially responsible for all public services and facilities in both rural and urban areas. With delegated rights and jurisdiction, Zimbabwe has 58 rural district councils and 28 urban councils (enshrined in the Urban Councils Act, Urban Councils Amendment Act, Communal Land Act and Rural District Councils Act).

Rural District Councils are required by the Rural District Councils Act [Chapter 29:13], (1988) to offer a variety of social and infrastructure services, including the development and maintenance of sewage treatment plants, roads and dams. Landowners, mining sites, licensed businesses and permit holders are just a few of their revenue streams. In exchange for services like waste collection, water and sewerage, the council collects levies, taxes and rentals. The central government also provides cash to Rural District Councils in the form of grants for education, health and roads and funds to cover general administrative costs like salaries and wages. There are different sources that provide money for local governments to run their operations which include government grants from the federal or state level, legislative allocations, borrowing from banks, rates, specialised taxes, revenue from business endeavours, earnings from investments, individual income tax, criminal fines, rates for homes or apartments.

Fiscal decentralisation includes "transferring taxing and spending powers from the authority of central government authorities to government authorities at sub-national levels" (Boschmann, 2009: 2). This necessitates determining their sources of revenue, tax rates and spending levels. Most local government collection systems, as argued by Larson (2004), are designed to achieve three goals: speed up the receipt of available revenues, protect the government's cash and keep banking costs to a minimum. Furthermore, financial sufficiency for local governments would demand autonomy in choosing local charges, levies and rights to collect local taxes (Dollery, 2009). Public finance

principles such as the ability of tax or ratepayers to pay and equity, may hinder efforts to raise sufficient revenue.

Cities, towns, municipalities, countries and boards are examples of local authorities that are in charge of public services in specific geographic areas. Local governments are in charge of ensuring that citizens have access to public services by combining funds generated by local communities with loans and grants from the central government and other sources. The Ugandan Local Government Finance Commission (2003), posed that local governments require a large, stable and expanding revenue base to effectively carry out their tasks.

PRINCIPLES GOVERNING LOCAL GOVERNMENT FINANCING

Taxation has long been seen as an important source of revenue for municipal governments throughout the world (Hyman, 1960). Tanzi and Zee. (2001) emphasise that the essence of taxation is that a governing body requires financial contributions from a person or an organisation to cover the costs of its activities. The ratepayer has no option and there is no correlation between the amount paid and the type of benefit received. The broad idea of tax design, namely the tax design and revenue collection, should be based on the concepts and should guide revenue collection, whether at national or local government level. The benefit-pay principle asserts that taxes should be apportioned based on the value of goods and services given by the government.

Tanzi and Zee. (*ibid.*) argue that the economic efficiency principle put emphasis on both taxpayers and tax collectors and a successful tax system should be feasible and straightforward to manage. It asserts that sound tax revenue should not be a barrier to local investment and development and administrative convenience necessitates special attention to both tax enforcement and taxpayer convenience.

Chittenden and Foster. (2008) state that fair tax systems in local governments are also sensitive to issues of equity. Unfair tax regimes are likely to be disliked, resulting in high compliance costs. People in similar conditions should be taxed in the same way, the equity principle. Tax burdens should be distributed fairly and equitably. When it comes to tax burden distribution, locals should be separated into income classes, property classes, production classes and consumer classes. The value of equity is the foundation of excellence in local government budget administration.

The UN Habitant (2015) emphasises that local individuals and communities should be included in the budgeting process and the evaluation of tax rates, fees and fines. The need to foster democracy and representatives at the local level necessitates that income collection is conducted in a transparent and accountable manner. Transparency and accountability, as related principles, obligate locally elected authorities to be accountable for their policies, actions and use of public monies. Financial accountability for public finances and aid monies must be maintained without exception. Transparency refers to the transparency that local money is managed and, this way, it serves as a reliable deterrent to corrupt acts (ICHR, 2005). Appointment of auditors in the budget-making procedures of local governments and frequent public reviews, go a long way in reinforcing transparency and accountability in local authorities.

Sub-national authorities are usually exposed to the following sources of income: Agricultural equipment, property, motor vehicles and other levies are common sources of tax revenue. African governments' ability to raise money from taxes is limited due to a variety of reasons, including the inability to regularly update valuation rolls. Taxes are a profitable source of revenue that are still under the hands of central governments in some countries. Local governments are underfunded due to ineffective local tax schemes (UN-HABITAT, 2015).

Individuals and corporations pay property taxes based on the value of their properties. Schou (2018) posits that the property is appraised to determine its value, that is then used to determine how much tax is due. Property tax is always included in the price of land, residential structures and industrial structures for sale. Every local government agency has a responsibility to charge various sorts of properties within its authority with rates and fees. For example, a council is required, under the Zimbabwean Constitution, to impose a rate on all owners of rateable property within its jurisdiction with the Minister's permission. In most nations, property taxes are a significant source of revenue for local governments. These fees are calculated based on the size of the land and the modifications made to it.

The development levy is a tax levied on local citizens by the central government to fund local development projects such as roadways, bridges, schools and hospital facilities (Makumbe, 1996). However, in the past, this type of funding has been questioned because the national government determines the tax rate, and not local governments which are more informed about what needs to be done to enhance their communities. People in some

parts of Zimbabwe are averse to paying the development levy since it is frequently disproportional to actual development (Wekwete, 1987)

In developing countries, user fees are a significant source of municipal revenue. Slack (2019) asserts that a user fee is a charge per unit output that typically takes one of three forms: service fees (that include license fees and other small charges levied by local governments for performing specific services such as registering a vehicle or providing a copy of a marriage license), public prices (that include revenues received by local governments from the sale of private goods and services other than the cost of reimbursement) and public prices (that is, service fees).

Another important source of revenue for local governments is the license fee that is levied on vehicles, shops and other companies (Goldfrank, 2019). Before a license to run a general dealer can be granted in Zimbabwe, a fee must be paid. Liquor license fees fund councils, although they have no say in who gets the licenses. This is handled by the Liquor Licensing Board. However, as Helmsing *et al.* (1991) point out, the cost of issuing a license is frequently far lower than the actual amount charged. When car fees are used to support road repair, for example, the tariffs are set in a way that has little to do with the actual utilisation of the road infrastructure and hence cannot be relied upon.

Borrowing is another source of funding for local governments. Taxes, levies, fines and fees are unlikely to be enough to meet the infrastructure needs of local governments. As a result, local governments may choose to look for private funding, that they can accomplish through borrowing. With the consent of the Minister of Finance, local administrations may borrow money from the state or other sources. Borrowing, unlike subsidies from the federal government, necessitates repayment and local government loans are appropriate for those needs and may be repaid with future earnings.

Local governments should be able to carry out projects that generate cash. For example, section 80 of the Zimbabwe Urban Councils Act [Chapter 29: 13] stipulates that a council's revenues must be made up of earnings gained from any activity carried out by the council. A council may engage in any commercial, industrial, agricultural, or other activity to earn revenue. The Bikita Rural District Council in Zimbabwe's Masvingo Province, financed several projects, including irrigation-based gardening and cattle husbandry and community development (Makumbe, 1996). Through the Ingwizi irrigation plan, the Bulilima-Mangwe District Council also engaged in gardening to generate income for the community. One of the most prevalent

revenue-generating ventures used by municipal governments is the sale of alcohol.

Local governments in Zimbabwe rely on ministerial grants to deliver basic services. When it comes to development planning, infrastructure development and capital project funding, these allocations are critical. For example, the central government provided US$7 million for the construction of the Mtshabezi pipeline, US$6,4 million to the Bulawayo City Council for the rehabilitation of sewage infrastructure, US$2,9 million to Marondera Municipality and US$180 000 to Mutoko Rural District Council (Government of Zimbabwe, 2010).

User charges and various forms of self-help activities contribute to the running of public services such as primary schools and health facilities. Local governments also note that these services need to be maintained. Their revenue is a discretionary source of funding and hence a vital success factor in delivering sustainable service delivery, particularly in terms of operating and maintenance costs. This encompasses all sources, but particular examples are parking fees and market dues that are earned specifically to fund the upkeep of parking lots and market facilities. Oke (2014) has observed that revenue collected is used to cover expenses incurred by local authorities such as payment of salaries and allowances of employees. Local authorities are also given an impresa for their day-to-day operations such as administration and general expenses.

Even though local governments in Zimbabwe have diverse taxing and spending powers under the fiscal decentralisation system, these problems make it difficult to build a strong self-financing base. William (2017) argues that continued central government control, a narrow income base, a failure to establish long-term revenue-optimising methods, political intervention and a rent-seeking mentality are some of them. Property tax, on the other hand, is a promising income source for local governments in Zimbabwe. However, due to a lack of fiscal cadastre information, a shortage of valuators, erroneous valuations and inadequate collection enforcement, it remains one of the least tapped sources of tax revenue.

In both rural and urban areas, land ownership is weak, making it difficult to tax. Rural local governments have yet to develop mechanisms for effectively mobilising royalties from local mining and agricultural businesses, whereas metropolitan local governments rely on exploitative user fees. Over time, research has highlighted the need for a shift in local government self-financing approaches, such as a stronger focus on property tax revenue collection, better revenue planning and optimisation procedures and more.

The Ugandan government considers service delivery a method for policy execution. Delivery is also dependent on accountability, value for money, budgetary restraint, enhanced communication and decision-making processes. If these traits are correctly implemented, they will improve service delivery, that is defined as providing services that best meet the needs of customers. Most local government systems around the world allow for service delivery methods such as the direct provision of services by local government agencies. The basic goal of service delivery is for a government or government agency to provide expected products or services to a community.

RESEARCH METHODOLOGY

Qualitative and quantitative methods were used in this investigation. It was developed as a case study with the Chaminuka Rural District Council serving as the test case for income mobilisation tactics utilised by sub-national governments to ensure their long-term viability so that they can provide ample clean and safe water to their inhabitants. The study used a cross-sectional time horizon as the research was undertaken in a short period to expose the co-relationship between the revenue mobilisation strategies used by local authorities and the provision of adequate water supply to the citizens of the Chaminuka rural area.

Use of convenience sampling and purposive or judgmental sampling to select key participants in this study was employed. Questionnaires and in-depth interviews were used as primary research and for secondary data, published journals were used. The research instruments employed in this study were in-depth interviews and questionnaires and secondary data.

RESULTS

The research conclusions were based on document searches and in-depth interviews. Tables and bar graphs were used to illustrate data from document searches and questionnaires. The participants chosen were residents who have resided in Chaminuka RDC for more than four years because the sample size was taken from the same location. For each household, there was a maximum of six people. Questionnaires were also used to get first-hand information from the residents on the water supply in their area. From 20 questionnaires sent out, 18 responded with helpful information.

In addition, interviews were also used to validate information acquired from the residents. Interviews were held with the Chief Accountant and the Engineer who works in the Department of Roads and Infrastructure in the section of Works.

Table 1: Water consumption per household

Household	Consumption (m^3)	Demand (m^3)
1	10	25.5
2	9.6	25.5
3	12	25.5
4	12.2	25.5
5	10.01	25.5
6	8	25.5
7	8.09	25.5

$1m^3$ = 1 000 litres

Standard consumption of water per household per day = 850 litres that is $0.85m^3$

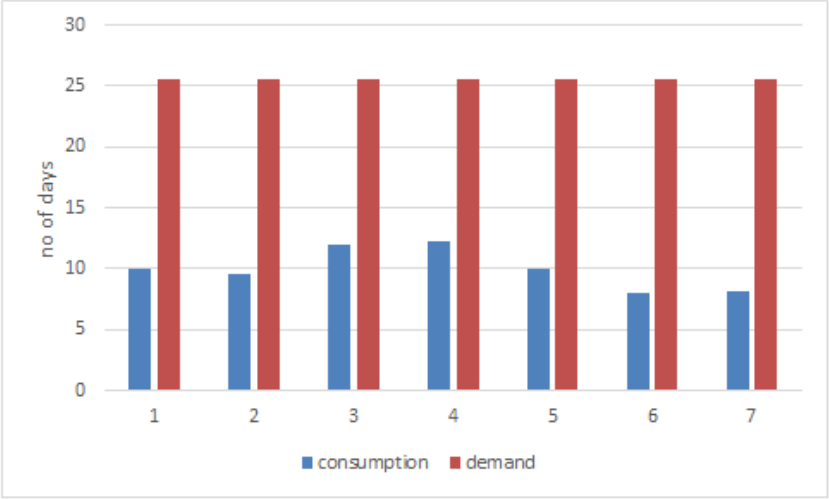

Figure 2: *Consumption of water vs potential demand.*

Most residents claimed that water is only available on an average of three to four days per week, a clear sign of insufficiency. The information presented on the graph is proof that water supplied per month is insufficient as the standard requirement for water supply per household is $25.5m^3$. Moreover, residents also observed that on the days they have water, it is available for only a few hours to a maximum of 10 hours. For the standard demand to be met, water should be available every single day for residents.

Table 2: Total revenue collected per month on water consumption

Households	Total revenue collected per month (ZW$)
1	2,680.20
2	2,572.99
3	3,216.24
4	3,269.84
5	2,682.88
6	2,144.16
7	2,168.28

From the sample used, the minimum revenue collected per month ranges between ZW2 168.28 and ZW$3 269.84 and this is insufficient to meet the standard requirement of water supply. The standard revenue expected from each household would be ZW268.02 × 25.5m^3 and this should give a revenue of ZW6 834.51 per household. Therefore, collected revenue is not enough to meet standard water requirements.

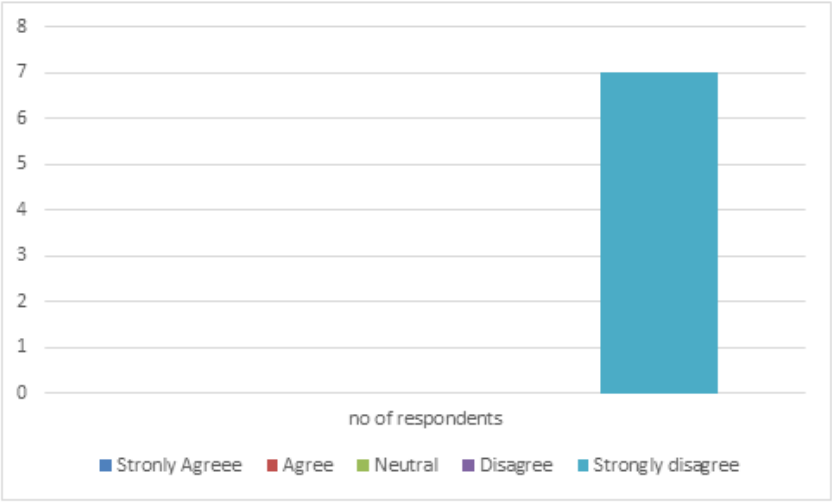

Figure 3: *Sufficiency of water supplied by the Chaminuka RDC*

All participants strongly disagree that the water supplied by the Chaminuka RDC is sufficient., This shows that the water supplied is not sufficient for these households to use.

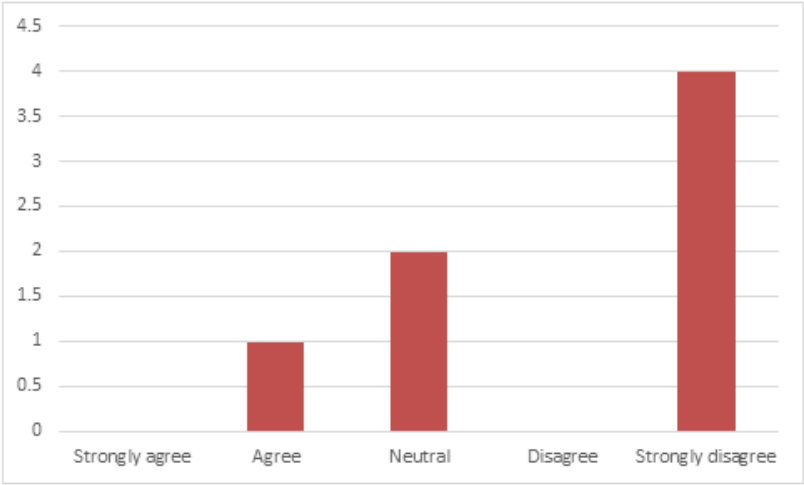

Figure 4: *Sufficiency of the amount paid monthly for water.*

From the above information, the highest number strongly disagree, hence there is need for the Chaminuka RDC to review its monthly charges and increase them to ensure viability in the long run. Only two participants were neutral as they observed that apart from receiving water from the RDC, they could always rely on other sources such as boreholes and the Mazowe Dam. However, only one disagreed that the monthly revenue collected is sufficient as that is what most of the residents could afford.

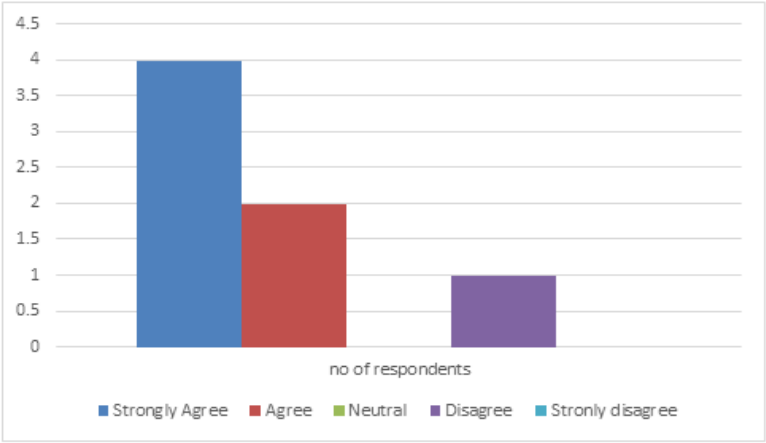

Figure 5: *RDC adjustment of monthly water charges.*

More than half (57%) of the sample strongly agreed that the monthly charge should be increased and this is a good and reliable rate of response as it is well above 50%. Therefore, this means that if the Chaminuka RDC is to increase the monthly rate, residents will comply. More than fifty percent of respondents strongly agree that an increase in water charges will result in an improvement in water supply and none where neutral in that area.

Table 3: Meter readings per month of April and May, Year 2021

Households	Reading for the month of April	Reading for the month of May	Rate/m^3 (ZW)	Consumption (m^3)	Demand (m^3)	Total Revenue/Month
1	2700	2710	268.02	10	25.5	2,680.20
2	2950	2959.6	268.02	9.6	25.5	2,572.99
3	1568	1580	268.02	12	25.5	3,216.24
4	1900	1912.2	268.02	12.2	25.5	3,269.84
5	770	780.01	268.02	10.01	25.5	2,682.88
6	184	192	268.02	8	25.5	2,144.16
7	860	868.09	268.02	8.09	25.5	2,168.28

Meter readings were collected for two months, the months of April and May and this data was collected on the first of May and June. Water is charged at a rate of ZW268 per cubic metre. The total revenue collected per month is water consumption multiplied by the rate per cubic metre. However, each household consumes approximately 25.5m^3per month and only a maximum of 12m^3 are available for these residents as water is available only for a few days and is insufficient in week.

Table 4: Total revenue collected vs demand per month

Households	Total Revenue/Month (ZW$)	Demand (m^3)
1	2 680.20	25.5
2	2 572.99	25.5
3	3 216.24	25.5
4	3 269.84	25.5
5	2 682.88	25.5
6	2 144.16	25.5
7	2 168.28	25.5

From the above information, revenue collected is insufficient to meet the standard consumption of water, it is only equivalent to a few days that water is available. Hence the need to increase water charges to be able to cover costs incurred when supplying water. From the above revenues, the minimum revenue collected is ZW$2 100 when the expected revenue for a full month is at least ZW$6 800 per household. Though the literature review looked at service delivery as a bigger bracket, and not water services, revenue collected by local authorities, particularly rural district councils, is insufficient to supply adequate water.

The public choice theory states that local governments are strategically positioned to provide services to local people. The Chaminuka RDC is failing in that area of providing water services to its residents. Hence the need for local authorities to be decentralised as this will result in improved service provision.

Table 5: Revenue collected as a percentage of demand per household

Household	Revenue ZW$	Demand/ Household	Revenue %
1	2 680.2	25.5	14.3
2	2 572.99	25.5	13.8
3	3 216.24	25.5	17.2
4	3 269.84	25.5	17.5
5	2 682.88	25.5	14.3
6	2 144.16	25.5	11.4
7	2 168.28	25.5	11.6
	18 734.59		

CHALLENGES FACED BY THE CHAMINUKA RURAL DISTRICT COUNCIL IN MOBILISING REVENUE

For government services such as water, sewerage and trash collection, rates, rents and levies are paid to the council. The amount of money collected from residents for water delivery is insufficient to cover the costs of supplying enough water. The Chaminuka RDC faces the challenge of autonomy, like any other RDCs in Zimbabwe. Mashuku *et al.* (2012) have observed that this is because of the intervention from the Ministry about revenue raising and spending. The Chaminuka RDC should be given freedom to increase the rate charged per cubic metre to be able to raise sufficient revenue.

Residents' failure to pay charges, levies and taxes has also contributed to the Chaminkua RDC's water supply delivery limits. This is because several residents could not afford to pay every month. However, some of these non-payers were caused by renters who were occupying the homes but not paying the taxes and levies. To avoid paying tariffs and taxes, some of these residents prefer to use boreholes or other natural sources for their water needs. This is another factor that has contributed to constraints in the delivery of water services. From the sample used, none of the households paid more than ZW$3 000 and with the current inflation rate, the revenue collected is not enough to cater for the costs incurred in supplying water.

CONCLUSION AND RECOMMENDATIONS

The results of this study show that water is considered a social and economic resource that should be of good quality, broadly accessible and affordable. This is in support of SDG 6 that says that water should be accessible to every human being both in rural and urban areas by 2030. However, some constraints limit attainment of SDG 6, revenue collected being one of the determinants. As much as water has to be broadly accessible at affordable rates, factors such as the underperformance of the economy these past years, have led to many consumers not paying their dues on time and some have been debtors for years and this makes up for revenue not collected that could be of great assistance in the water supply.

Despite the underperformance of the economy, most of the respondents agreed that the amount of revenue collected is too little for water services and were willing to have the water charges increased to a reasonable and affordable rate as clean water is a necessity to human lives. This study also revealed that on average, the standard water requirement per month per household is not being met and this has an influence on the amount of revenue collected. Some households are consuming as little as $8m^3$, when the standard is $25.5m^3$ and the discrepancy is too wide, hence the reason revenue collected is not sufficient to supply water in the long run.

Moreover, in an interview with some of the respondents, it was discovered that RDCs are also affected by debtors who have not paid their dues for years and this has been solved by disconnecting the water supply to those households but no revenue has been received either from the government with regards to these irrecoverable debts. This has resulted in local authorities losing revenue over the years. There is a connection between revenue collected and water supplied by the RDC for consumption. However, holding other factors constant, an increase in revenue collected will result in an improved water supplies.

There is need for local authorities to be decentralised and empowered to enact bylaws so as raise local revenue and also eradicate the culture of over-dependence on ministerial intervention. Local authorities should increase tax rates as this will directly lead to increased revenue collection. In the craft of long-range revenue optimising strategies, current revenue mobilisation strategies should be altered and take into consideration the current economic state of Zimbabwe.

Teaching citizens the importance of paying their bills will help local authorities to sustain themselves and continue providing services to residents. This can be done through enlightenment campaigns. Control measures should be established to check for possible fraud and embezzlement of collected revenue. Revenue committees should be formed to ensure revenue is collected on time and correctly used. Further studies can be done on whether to privatise local authorities to improve water services as the nation has had water supply problems for a long time now.

REFERENCES

Babbie, E. (1992). *The Practice of Social* Research, 8th Edition. California: Wadsworth Publishing Company.

Boschmann, N. (2009). Fiscal Decentralisation and Options for Donor Harmonization. Available online: https://www.delog.org/fileadmin/user_upload/Publications/Fiscal-Decentralisation.pdf Access on 2 July 2022.

Chittenden, F. & Foster, H. (2008). *Perspectives on Fair Tax*. (ACCA Research Monograph), Harare: Association of Chartered Certified Accountants.

Creswell, J. (2003). *Research Design: Qualitative, Quantitative and Mixed Methods Approach (2nd ed.).* Thousand Oaks, CA: SAGE Publications.

Dollery, B. 2009. Review Note: Local Government Reform and Local Government Finance. *Commonwealth Journal of Local Governance*, *4*, 153-163.

Centre for Local Government, The Germany Development Institute. (2019). Financing for Development and Domestic Revenue Mobilisation: More International Reforms are Needed. Available online: https://www.idos-research.de/en/briefing-paper/article/financing-for-development-and-domestic-revenue-mobilisation-more-international-reforms-are-needed/ . Accessed: 27 January 2023.

Government of Zimbabwe (1996). Rural District Councils Act Chapter 29:13. Harare: Government Printers, Available online: https://www.fao.org/faolex/results/details/en/c/LEX-FAOC083837/ . Accessed on 27 January 2023.

Hyman, D.N. (1990) *Public Finance: A Contemporary Application of Theory to Policy*. Fort Worth: Dryden Press.

International Monetary Fund (2018) "Revenue Mobilisation in Developing Countries". International Monetary Fund: Washington. Available online: file:///C:/Users/nn/Downloads/pp021518-macroeconomic-developments-and-prospects-in-low-income-developing-countries.pdf. Accessed on 23 January 2023.

International Council on Human Rights (ICHR) (2005). Local Government and Human Rights. Washington DC: UN.

Kothari, C.R. (2011). *Research Methodology: Methods and Techniques*. New Delhi: New Age International.

Kumar, K. (2011). *Research Methodology: A Step-By-Step Guide for Beginners, 3rd Edition*. New Delhi: Sage.

Larson, C.M. (2004*) Management Policies in Local Government Finance, 5th Edition.* Washington D.C: International City/ County Management Association (ICMA.

Leedy, P. & Ormrod, J. (2001). *Practical Research: Planning and Design (7th Edition.).* Upper Saddle River, NJ: Merrill Prentice Hall, Thousand Oaks: Sage Publications.

Lewis, B.D. (2016). Local Government Spending and Service Delivery in Indonesia: The Perverse Effects of Substantial Fiscal Resources. *Regional Studies*, 51(11), 1695-1707.

Mahi, R. (2002). Can Decentralisation Help Rebuild Indonesia? Andrew Young School of Policy Studies, Atlanta.

Mahi, R. (2002). Managing Local Revenue in Indonesia. Can Decentralisation Help Rebuild Indonesia? Georgia State University, Atlanta.

Mbetu, M.R. (1997). *Rural Development in Practice: The Process Approach, Capacity Building and Empowerment: Experiences from Zimbabwe*. Coventry: Coventry University Press.

Remenyi and Bannister, F (2001). Business Models for e-Business. *Electronic Journal of Business Research Methods*, 2002, 18-26.

Schou, A. (2000) Democratic Local Government and Responsiveness: Lessons from Zimbabwe and Tanzania. *International Journal of Comparative Sociology. XLI*, I, 121-143.

Smith, A. (1776). *The Wealth of Nations*, Oxford: Oxford University Press.

Tanzi, V. and Zee, H. (2001). *Tax Policy for Developing countries*, International Monetary Fund. 21. Available online: https://www.imf.org/en/Publications/Economic-Issues/Issues/2016/12/30/Tax-Policy-for-Developing-Countries-4010. Accessed on 27 January 2023.

UN Habitat (2015). The Challenge of Local Government Financing in Developing Countries, Nairobi: United Nations Human Settlements Programme

Zhou, G. and Madhikeni, A. (2013). Systems, Processes and Challenges of Public Revenue Collection in Zimbabwe. *American International Journal of Contemporary Research*. *3*, 49-60

Designing the Sustainability of Farming Method: Case of the Practice of *Pfumvudza/Intwasa* by Smallholder Farmers in the Mwenezi District of Zimbabwe

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Abstract

The survival of smallholder farmers who rely on rain-fed agriculture in semi-arid regions is threatened by climate change, characterised by frequent droughts and rising temperatures. The Mwenezi District in Zimbabwe was chosen as the case study for this qualitative study, that was informed by the Sustainable Livelihoods Approach (SLA). It examined the degree to which *pfumvudza/intwasa* farming is sustaining smallholder farmers' livelihoods. *Pfumvuda/Intwasa* is respectively the Shona and Ndebele name for the current most popular climate smart agriculture [CSA] system in Zimbabwe. Tesch's (1990) Interpretational Qualitative Analysis was used to thematically analyse the data. The *pfumvudza* farming innovation has turned smallholder farming households into self-sufficient units in terms of food and finances. Farmers realise surplus grain which they sell to the Grain Marketing Board (GMB) and utilise the proceeds to pay for healthcare, education and home expenses. An interesting finding of the study indicates that *pfumvudza/intwasa* farming has improved the access to education female children. The biggest obstacles to the viability of this farming innovation, however, include the absence of suitable tools for digging planting stations, labour-intensive weed control and the government's tardy distribution of agricultural inputs. The study recommends using herbicides, insecticides, machine- or ox-drawn cultivators, planting-hole drilling equipment and dam- or borehole-based irrigation systems to scale-up *pfumvudza/intwasa* farming. Further research on the

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ramifications of *pfumvudza/intwasa* farming on education is also recommended.

Keywords: *farming, Climate Smart Agriculture, climate change, sustainable livelihoods, smallholder farmer*

INTRODUCTION

Smallholder farmers' livelihoods are being threatened by climate change that is quickly becoming a major environmental disaster. It causes extreme weather conditions like recurrent droughts, high temperatures and floods that lower agricultural production and increase the vulnerability of smallholder farmers whose livelihoods depend on rain-fed agriculture (United Nations Framework Convention on Climate Change [UNFCC], 2019). Around the world, it is estimated that 2.5 billion people rely solely on rain-fed agriculture, either as full- or part-time farmers or in smallholder farming households (Food and Agriculture Organisation [FAO], 2008). In Sub-Saharan Africa (SSA), where Zimbabwe is located, smallholder farmers who rely on rain-fed agriculture are not exempt from the harmful effects of climate change. Less than 5% of the 183 million hectares of cultivated land in SSA receive any benefit from agricultural water management practices, with 95% of that land being rain-fed (World Bank, 2013). As a result, climate unpredictability and change harm agricultural production in SSA. About 70% of Zimbabweans rely on rain-fed farming and livestock- raising as a source of income (USAID, 2019). Smallholder farmers who depend on rain-fed agriculture are becoming food insecure and reliant on government and non-governmental organisations (NGOs) for food assistance because of the frequent droughts and floods brought on by climate change.

The United Nations Sustainable Development Goals (SDGs) are extremely difficult to achieve in the SSA region due to its strong reliance on rain-fed agriculture. SDG Number One, Target 1.5, specifies that by 2030, nation-states should have increased the resilience of the poor and vulnerable to lessen their exposure and vulnerability to climate-related occurrences and other calamities (United Nations, 2018). SDG Number 2, Target 2.4, that calls for all nation-states to adopt resilient and sustainable agricultural methods that boost food production and improve capacity for adaptation to climate change by 2030 (*ibid.*), is similarly unachievable. Many nations and organisations throughout the world are looking for sustainable agricultural techniques that increase smallholder farmers' resilience and ability to adapt to climate change because of the reality of climate change and its crippling impacts.

Climate Smart Agriculture (CSA) is one of the sustainable farming methods that have been developed in response to climate change. The phrase "climate-smart agriculture" refers to a strategy for achieving food security and sustainably increasing food output (FAO, 2014). The FAO introduced CSA in 2009 at the global level (Lipper and Zilberman, 2018). A coordinated effort by the government and its partners to lessen the consequences of climate change began in Zimbabwe in 2015, with the introduction of the national climate-smart agriculture response strategy (Government of Zimbabwe [GoZ], 2015). Before the implementation of the response strategy, smallholder farmers in the nation engaged in a variety of CSA practices like mulching, crop rotation, zero tillage, conservation agriculture among more (World Bank, 2019). Most of smallholder farmers in Zimbabwe use *pfumvunza/intwasa as a* type of conservation agriculture. According to the Ministry of Lands, Agriculture, Fisheries, Water, Climate and Rural Development (MoLAFWCRD), during the agricultural season 2020-2021, the government provided inputs to 1.8 million vulnerable rural households to help them grow maize and other traditional grains (Thematic Committee on Sustainable Development Goals and Gender and Development, 2021). Over a million smallholder farmers throughout the nation received *pfumvudza/intwasa* agricultural training in preparation for the 2020-2021 growing season (Mugwara, 2020). Each farmer receives 5kg of maize seed, 50kg of basal fertilizer and 50kg of top-dressing fertilizer, that is adequate for one *pfumvudza/intwasa* plot (Thematic Committee on Sustainable Development Goals and Gender and Development, 2021).

VAGARIES OF CLIMATE CHANGE IN ZIMBABWE

Extreme droughts and floods are common in Zimbabwe and other Southern African nations because of climate change, that threatens agricultural production and food security for smallholder farmers. Nangombe (2015) claims that Zimbabwe had severe droughts brought on by climate change in 1992, 1993, 1994, 2002, 2004 and 2012. Approximately 75% less maize was produced because of the 1992 drought that left many Zimbabweans in need of food aid. The same author claims that in 1992, over a million cattle perished because of hunger. According to estimates, the 2012 drought in led to starvation of 1.4 million people (FDI Global Food and Water Security Research Programme, 2012). Most districts in Zimbabwe saw lower harvests, famine, high rates of livestock death and an increase in labour migration to South Africa and other nations because of the poor and sparse rains that characterised the 2019 agricultural season (Welt Hunger Hilfe, 2021). Numerous smallholder farmers, whose livelihoods depend mostly on rain-fed agriculture, were more impoverished and dependent on food

handouts because of repeated droughts. The nation had to implement CSA to guarantee food security in rural communities that rely on rain-fed agriculture for their subsistence.

CLIMATE SMART AGRICULTURE

The GoZ was forced to implement CSA techniques in 2015 due to the harmful effects of climate change on agricultural production, that provides a living for 70% of the population (Climate Technology Centre and Network, 2017). To boost farmers' acceptance of CSA, the government mainstreamed CSA content into the country's post-secondary agriculture education system in 2017 (*ibid.*). As a result, the institutions produce agricultural extension officers and other agriculture specialists who are knowledgeable about CSA. Smallholder farmers are expected to receive CSA techniques training from agricultural extension workers. In the face of climate change, CSA is an agricultural strategy that sustainably increases food security and agricultural output (FAO, 2013). To qualify as CSA, the agricultural practice must sustainably increase agricultural productivity, promote climate change resilience and lower greenhouse gas emissions. Zimbabwe uses a variety of CSA methods, including conservation agriculture, agroforestry, ecological agriculture, regenerative agriculture and organic farming (Wagstaff and Harty, 2010). Conservative agriculture is the most prevalent kind of CSA used by smallholder farmers in Zimbabwe.

PFUMVUDZA/INTWASA FARMING

In response to repeated droughts brought on by climate change, that had resulted in poor harvests and food insecurity among smallholder farmers in previous seasons, the GoZ introduced *pfumvudza/intwasa* farming in the 2020 agricultural season (Tsiko, 2021). *Pfumvudza/Intwasa* farming was initially created and promoted by the Foundations for Farming, a local non-governmental organisation, in the 1980s (Scoones, 2021). It was then adopted and introduced by the government in 2020, turning it into a nationwide programme. It is a type of conservation agriculture that uses small plots of land sustainably to produce enough food for an average household of six people over the course of a year (Livelihoods and Food Security Programme [LFSP], 2021). *Pfumvudza/Intwasa* farming's major goal is to help smallholder farmers sustainably guarantee their households' food security.

Pfumvudza/Intwasa farming is based on four fundamental conservation agriculture principles: minimal soil disturbance, permanent soil cover, crop rotation and intercropping. By not tilling or ploughing the

pfumvudza/intwasa plot, the principle of minimal soil disturbance is met. To plant seeds, farmers are expected to dig holes rather than till the ground. According to estimates, if this method is used, only 15% of the soil may be disturbed and keep soil erosion at a minimum (Wagstaff and Harty, 2010). To prevent soil erosion and lessen evaporation, the plot is covered with organic mulch. Mulching preserves moisture, protecting crops from moisture stress during mid-season dry spells. In most cases, grass acts as organic mulch that also controls weed growth. Crop rotation and intercropping, that aim to increase soil fertility and prevent an infestation of insect pests, are two additional conservation principles. With the help of these conversational farming principles, a farmer can increase the yield from a small plot.

The *pfumvudza/intwasa* farming plot for maize, according to Mujere (2022), is a rectangular area of land of 39 by 16 metres or 0.06 hectares. The plot comprises a total of 52 planting rows, each with 28 planting stations housing two maize plants. It is anticipated that there would be 56 maize plants in each of the 52 rows. Planting stations should be 50-60cm apart, 15cm by 15cm by 15cm deep and 75-90cm broad. An agricultural plot is illustrated in Figure 1.

Figure 1: A *pfumvudza/intwasa* maize plot (Scoones, 2021).

According to Mujere (2022) and the LFSP (2021), if *pfumvudza/intwasa* is implemented on time and by best agricultural practices, the farmer should be able to harvest 56 maize cobs from each row to produce one 20-litre bucket

of shelled grain, that can provide enough mealie-meal to feed a family of six for one week. One year's worth of food can be provided by the 52 buckets of grain from the 52 rows, that is equivalent to 52 weeks. One *pfumvudza/intwasa* farming plot can yield up to a tonne of maize grain (MoLAFWCRD cited in Chikwati, 2020). Therefore, *pfumvudza/intwasa* farming can increase agricultural output and provide food security and excess among smallholder farmers.

THEORETICAL FRAMEWORK

The Sustainable Livelihoods Approach (SLA), created in 1999, by the Department for International Development (DFID) was used. The notions of livelihood and sustainable livelihood lie at the heart of the strategy shown in Figure 2. The skills, resources and pursuits that allow a person to support themselves are referred to as their livelihood (Chambers and Conway, 1992). The same authors contend that a way of life is sustainable if it can withstand shocks and pressures, recover from them and retain or improve its capacities and resources both now and in the future without compromising the foundation of natural resources. To put it another way, a livelihood is sustainable if it can withstand external shocks and strains and does not restrict the possibilities for other people to support themselves.

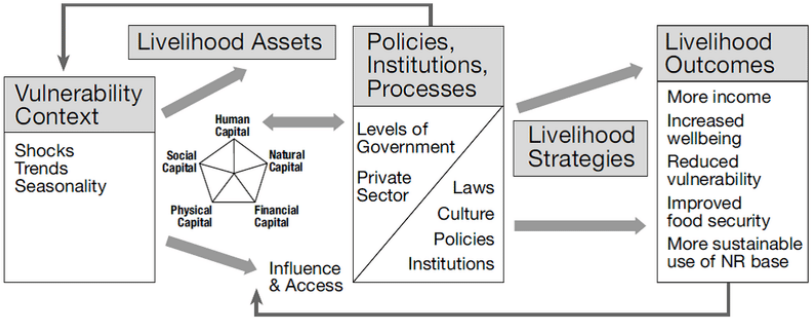

Figure 2: *The Sustainable Livelihood Approach* **(**DFID, 1999).

The SLA shown in Figure 2 is seen by the DIFD (1999) as a framework or instrument for identifying the elements that limit or improve people's prospects for a living. The framework is also used to evaluate the effectiveness of current initiatives or programmes in preserving livelihoods (Serrat, 2008). This study evaluates the extent to which smallholder farmers' livelihoods are improved by *pfumvudza/intwasa* farming.

According to the SLA, people, households and communities operate in a vulnerable environment where they employ resources and tactics for generating a living in the context of established policies, institutions and procedures to pursue livelihood goals. The DFID (*ibid.*) defined the vulnerability context as a collection of trends, shocks and seasonality that have an impact on people's livelihoods. There are trends in government, resources and demographics. Shocks can be social, natural or political. Living conditions are also impacted by seasonal variations in goods, prices and employment prospects. It should be highlighted that trends, shocks and seasonality do not always negatively affect people's ability to make a living. Such occurrences may also benefit people's livelihoods. Smallholder farmers' livelihoods in the research area are impacted mostly by droughts brought about by climate change that are classified as natural shocks.

People need five fundamental assets for their livelihoods in a setting of vulnerability: financial capital, social capital, human capital, natural capital and physical capital (*ibid.*). Droughts that often occur in the study area deplete the natural and financial capital of smallholder farmers, creating food insecurity within households.

Policies, institutions and procedures are another component of the SLA depicted in Figure 2. These include altering systems and procedures that can favourably or negatively affect how people make a living (*ibid.*). The GoZ and the MoLAFWCRD served as transformative entities by bringing *pfumvudza/intwasa* cultivation to smallholder farmers to sustainably provide household food security. Strategies for sustaining a livelihood are used by individuals, groups and communities. Various choices and actions people take to build sustainable livelihoods are referred to as livelihood strategies (*ibid.*). *Pfumvudza/Intwasa* farming was adopted as a livelihood coping strategy by smallholder farmers. The SLA's final component is livelihood outcomes. These are the results of livelihood strategies, including greater income, enhanced well-being, decreased vulnerability, increased food security and using natural resources more sustainably (*ibid.*). The livelihood results described in the SLA align with those anticipated from *pfumvudza/intwasa* farming. For measuring how well *pfumvudza/intwasa* farming is supporting the farmers' livelihoods, those livelihood outcomes were used as benchmarks.

METHODOLOGY

The study was driven by the qualitative research approach, that aims to make sense of the phenomenon being studied from the viewpoints of the research

participants (Denzin and Lincoln, 2018). An insider's perspective on the sustainability of *pfumvudza/intwasa* farming from the viewpoints of the smallholder farmers using semi-structured interviews and focused group discussions (FGDs) was used. These are open-ended, qualitative data generation techniques. Several smallholder farmers all over the country living in drought-prone areas have embraced *pfumvudza/intwasa* farming. The Mwenezi District in Masvingo Province, is the study's case.

RESULTS AND DISCUSSION

Tesch's (1990) IQA model was used to analyse the data generated from in-depth interviews and FGDs. Table 1 provides an overview of the major themes and sub-themes that emanated from the study.

Table 1: Themes and sub-themes

Themes	Sub-themes
Theme 1: Ways in which *pfumvudza/intwasa* farming is sustaining the livelihoods of smallholder farmers	Increase in food production Higher household income Improved access to education
Theme 2: Challenges affecting the sustainability of *pfumvudza/intwasa* farming	Labour-intensive land preparation Weed management The late disbursement of farming inputs
Theme 3: Strategies for enhancing the sustainability of *pfumvudza/intwasa* farming.	Comprehensive *pfumvudza/intwasa* farming package Planting-hole drilling technology Early disbursement of farming inputs

WAYS IN WHICH *PFUMVUDZA/INTWASA* FARMING IS SUSTAINING THE LIVELIHOODS OF SMALLHOLDER FARMERS

The study found that *pfumvudza/intwasa* farming is sustaining the smallholder farmers' livelihoods in three key ways, each of which is described below.

INCREASE IN FOOD PRODUCTION

Pfumvudza/Intwasa farming was designed primarily to sustainably boost agricultural food output and household food security among smallholder farmers who rely on rain-fed agriculture. Therefore, the s study was interested establish how the programme was doing in achieving that objective. Many smallholder farmers maintained two *pfumvudza/intwasa* farming plots for maize. Maize for personal consumption is grown on one plot, while the other is used to produce grain for sale to the Grain Marketing Board (GMB). The farmers described how increasing food production via *pfumvudza/intwasa* farming is converting food-insecure households in the district into food-secure ones. One farmer said:

> Many farmers in this village only harvested 8 to 10 bags of maize per hectare before the introduction of *pfumvudza/intwasa*. The family couldn't have been fed for a year with the amount of maize available. To survive, we were dependent on food assistance. With *pfumvudza/intwasa*, things have changed. From a relatively little plot, you can harvest over 20 bags, enough to sustain the family for a year and sell 20 bags from the other plot to the GMB.

Several farmers who took part in the study concurred that *pfumvudza/intwasa* farming was more fruitful than traditional farming in the semi-arid district. Another farmer explained the viability of *pfumvudza/intwasa* farming by saying:

> Though laborious, *pfumvudza/intwasa* farming is best for this community that frequently experiences drought. To help with home food needs and other expenses, we used to sell off animals and household belongings. With *pfumvudza/intwasa*, we generate enough grain for personal consumption and sell it to the GMB.

Conservative agriculture, as opposed to conventional farming, boosts food production and household food security in semi-arid settings (Nyasimi *et al.*, 2014; Mujere, 2022). Conservative agriculture is a subset of *pfumvudza/intwasa* farming, as already mentioned. According to a Malawian study, conservation agriculture led to maize harvests that were between 11% and 70% higher than those from conventional farming (Nyasimi *et al.*, 2014). It follows that in semi-arid areas, where farmers rely on rain-fed agriculture, *pfumvudza/intwasa* farming is more environmentally friendly than traditional agriculture. In a study done in Zimbabwe, smallholder farmers who followed the advised *pfumvudza/intwasa* farming practices of full mulch cover, fertilizer application levels, timely crop planting, crop spacing, optimal plant populations and weed and disease management, achieved almost 800% more yields than conventional farmers who used ox-drawn ploughs (Mujere, 2022). The significant rise in food output gives farmers a larger surplus to sell and boosts their financial capital. The money made from selling extra grain enables the farmer to have more financial resources and is better able to weather shocks brought on by climate change. This is supported by the SLA that identifies increased income and greater food security as some requirements for a sustainable way of life. These results suggest that *pfumvudza/intwasa* farming has a significant potential to improve the food security situation for smallholder farmers in Zimbabwe and other developing nations relying on rain-fed agriculture.

HIGH HOUSEHOLD INCOME

If a livelihood strategy raises the incomes of participants, it is also seen as sustainable. The results demonstrate that *pfumvudza/intwasa* farming significantly raises the household income of smallholder farmers in this

regard. As mentioned before, each farmer maintains a distinct *pfumvudza/intwasa* maize plot and sells the crop to the GMB. The farmers claimed that they utilise a portion of the revenue from selling their excess grain to pay for their children's education, and healthcare and the acquisition of household goods. When asked how much *pfumvudza/intwasa* farming is increasing household income, one farmer responded:

> Due to limited rainfall and droughts, it was uncommon for a farmer in this locality to produce surplus grain for sale. Harvests were consistently quite meagre and there was hardly enough maize to sustain our families. *Pfumvudza/Intwasa* was the first to start harvesting extra grain for sale. I received US$210 for a tonne of maize I sold to the GMB.

The other farmers who took part in the survey attested that they were earning a sizable amount of money for their families by selling extra grain to the GMB. The existence of CSA among smallholder farmers in Zimbabwe has been confirmed by a study by Mujeyi, Mudhara and Mutenje (2021). The same pattern was observed by Ogada *et al.* (2020), who states that CSA increased household income in Kenya's low-rainfall regions by 83%. This is clear evidence that *pfumvudza/intwasa* farming, a type of CSA, is a great innovation for sustainably boosting food and household income security among smallholder farmers who rely on rain-fed agriculture throughout the SSA area.

The interviews revealed that farmers use the money they make from *pfumvudza/intwasa* farming to support other means of subsistence. As one farmer said:

> We are currently benefiting financially from farming, unlike in the past. Our means of subsistence are provided by the income from our farms. In-patient care at public and private hospitals is now affordable to many smallholder farmers. They've bought furniture, radios, TVs and cell phones...

Another farmer went on to explain the advantages of owning radios, televisions and cell phones, saying:

> In this village, a large number of smallholder farmers now have access to televisions, radios and mobile phones, thanks to *pfumvudza/intwasa*. With the help of these devices, we can learn about *pfumvudza/intwasa* farming and weather predictions. The mobile phone is very important since it makes it very easy for a farmer to frequently seek guidance from the agricultural extension officer on various *pfumvudza/intwasa* farming issues.

The results demonstrate that digital technologies are essential for the efficient implementation of *pfumvudza/intwasa* farming in particular, and farming in general. Weather focus reports and details on *pfumvudza/intwasa* farming are accessible to smallholder farmers who purchased radios,

televisions and mobile phones with money earned from *pfumvudza/intwasa* farming. Instead of waiting for the agricultural extension officials' scheduled visits, at times arrival when it is too late to solve an identified problem, mobile phones give them the option to ask questions about the difficulties they are facing with *pfumvudza/intwasa* farming anytime and anywhere. Thus, the necessity for digital technology permeates all areas of the economy and *pfumvudza/intwasa* farming is no exception. The farmers' ability to obtain household goods, cell phones and health care services is proof that *pfumvudza/intwasa* farming is supporting their way of life. In the context of the SLA, *pfumvudza/intwasa* farming is sustainable because it increases the farmers' household income, which they utilise to access health care facilities, buy household goods and mobile phones, improve their well-being and lessen their vulnerability to climate change shocks.

IMPROVED ACCESS TO EDUCATION

The farmers explained that before turning to *pfumvudza/intwasa* farming as a means of subsistence, many children in the district were unable to attend school due to the harmful effects of recurrent droughts brought on by climate change. They bemoaned the fact that severe droughts and extreme temperatures resulted in low harvests, food instability lack of finances and hunger. These adverse effects of climate change led to irregular student attendance at school, children dropping out of school and early marriages. One farmer succinctly articulated the detrimental effect of droughts brought on by climate change on access to education:

> Many parents struggled to pay for their children's education and to purchase necessary supplies because of poor harvests. Several learners, mostly girls, were pulled out of school. Parents may now afford to appropriately support their children's education thanks to the excellent yields and profits from *pfumvudza/intwasa*.

The other farmers who took part in the study confirmed that many farmers withdrew their daughters from school when they experienced financial difficulties due to climate change. The opinions of the farmers demonstrate that droughts have a direct influence on the ability of children from households that rely on rain-fed agriculture to access education. Boys and girls are both impacted, but girls appear to be affected more than boys. A lot of girls are pulled out of school to perform more productive work or to be subjected to early marriages because of poor harvests and food scarcity (Chigwanda, 2016; UNDP, 2017). As a result, the consequences of climate change on educational access take on a gender dimension and increase barriers for girls to participate in school.

The improvements in girls' access to education that Zimbabwe and other African nations have made over the past 20 years are in danger of being undone by climate change. Despite droughts, *pfumvudza/intwasa* farming has served as a food security and income-generating innovation guaranteeing both boys' and girls' access to education. The farmers explained how *pfumvudza/intwasa* farming has increased smallholder farmers' children's access to education. Questions were asked whether boys and girls had equal access to education. One of the farmers replied:

> Several farmers have been given financial support by *pfumvudza/intwasa*. A change has occurred... All children have equal opportunity to pursue an education and it is now unusual for parents to pull their daughters out of school because they can't afford to meet schooling costs.

The research indicates a strong link between access to education, financial stability and food security in the home. Extreme weather events like droughts and high temperatures cause poor harvests and food shortages, harming the ability of smallholder farmers' children to access education. Some parents are compelled to pull out their children from school because of food and financial instability, with girls being particularly at risk due to patriarchal beliefs. The vulnerability of children to expulsion from school has decreased, thanks to the increased food and financial stability brought about by *pfumvudza/intwasa* farming among smallholder farmers. Children from rural households that depend on rain-fed agriculture for a living may have easier access to education if *pfumvudza/intwasa* farming is properly managed.

CHALLENGES AFFECTING THE SUSTAINABILITY OF *PFUMVUDZA/INTWASA* FARMING

The results indicate that there are four key issues influencing *pfumvudza/intwasa* farming's sustainability. They are presented and discussed in turn below.

LABOUR-INTENSIVE LAND PREPARATION

Land preparation was cited by some farmers as one of the difficulties preventing *pfumvudza/intwasa* farming from being sustainable. They lamented the labour-intensive process of drilling planting holes that is required for site preparation. One farmer described the labour-intensive nature of preparing planting holes as follows:

> This neighbourhood has exceptionally hard soils. Using a hoe to dig planting holes in the tough soils is a challenging task. Few farmers have access to or can afford to purchase planting hole preparation tools like picks, mattocks and shovels.

Another farmer agreed that preparing planting stations on the rough soils was quite challenging. The farmer clarified:

> To dig planting stations for one *pfumvudza/intwasa* plot takes most of the community's old farmers a long time. To loosen the soil, they pour water into the planting holes they have dug for a few planting stations, that are around five centimetres deep. One drills the holes to the desired depth once the earth has been loosened. They carry on until they have dug nearly 1 000 holes for one plot and then they repeat the process.

It was learned that preparing planting stations on hard soils can take a household at least two weeks, as opposed to one week on other soil types. The farmers emphasized that creating planting stations was the main obstacle keeping farmers from adopting *pfumvudza/intwasa* farming, especially on ordinary soils andthat it was the key factor in why many farmers switched back to conventional farming after only one season of *pfumvudza/intwasa* farming. Farmers who drop out of the programme are at risk of food and financial insecurity.

According to the comments above, a significant obstacle to the adoption, scaling-up and sustainability of *pfumvudza/intwasa* farming is a lack of financial means to buy necessary tools for the practice, such as picks, mattocks and shovels. The same problem is mentioned as one of the obstacles to the adoption and sustainability of CSA systems in Africa by Kaptymer, Ute and Hule (2019). Similarly, Milder, Majanen and Scherr (2011) report that the issue is affecting CSA systems in the SSA region. In the context of the SLA, tools and equipment fall under physical capital. The farmers lack the resources to buy the right tools and equipment for setting up planting stations.

The smallholder farmers were engaged about the solutions for the issue of tools and equipment because it would be ideal if they were involved in addressing the problems related to *pfumvudza/intwasa* farming. To help them buy the right tools, they suggested that the government launch a *pfumvudza/intwasa* farm equipment loan programme. Other farmers recommended inventing a low-cost machine for drilling planting stations to reduce the high labour demand for making planting holes. To maintain the long-term viability of *pfumvudza/intwasa* farming, the government and other key stakeholders were requested to consider these suggestions from the farmers themselves.

WEED MANAGEMENT

Weed management was identified as another issue by the study. According to the farmers, they are prohibited from tilling or ploughing their plots under

the *pfumvudza/intwasa* farming practice of minimal soil disturbance. In keeping with the same idea, they are not allowed to control weeds with engine- or animal-drawn cultivators. They are required to manually control weeds with hoes. As a result, managing weeds presents them with significant difficulties. One farmer voiced discontent:

> The use of ox-drawn cultivators is prohibited by agricultural extension agents, therefore weed control in *pfumvudza/intwasa* farming requires a lot of labour. We manually weed with hoes. Weeds constantly overwhelm us and lower our yields. When using an ox-drawn cultivator in conventional farming, it is sufficient to weed twice. However, when using a hoe in *pfumvudza/intwasa* farming, you must weed at least five times.

Several farmers who took part in the survey had thoughts along the same lines. Weed control under CSA in Zimbabwe is a significant difficulty, especially in the first year when a farmer can weed six to seven times, according to research by Wagstaff and Harty (2010). The same authors claim that compared to traditional farming, weeding can be reduced to twice per year by the third year. The significant labour required for manual weed control prevents some farmers from joining the *pfumvudza/intwasa* agricultural programme and forces others to discontinue. To improve the appeal and sustainability of the *pfumvudza/intwasa* programme, it follows that the issue of weed management needs to be resolved.

In response to questions on ways of dealing with weeds, one of the smallholder farmers said:

> Farmers should be allowed to plough their plots and use ox-drawn cultivators to eradicate weeds...Some farmers in this village were disqualified from the *pfumvudza/intwasa* programme because they ploughed their plots and weeded with ox-drawn cultivators, although most of them produce higher yields than we do...

The above-described strategy, according to the smallholder farmers, guarantees that the soil retains more moisture and that weeds are effectively controlled. Although the method has consequences for soil erosion, agricultural specialists need to investigate its sustainability.

The study also showed that lack of permission for farmers to use herbicides worsens the issue of weed control in *pfumvudza/intwasa* farming. They said that if they were permitted to use herbicides, the weed issue would be resolved. The sentiments of the farmers are supported by a study carried out in Malawi by Ngwira, Thierfelder and Lambert (2013). The authors discovered that the primary tactic that resulted in the widespread adoption of the programme by smallholder farmers during the initial years of CSA promotion in the country was the use of herbicides to manage weeds. *Pfumvudza/Intwasa*, as was already mentioned, is a variation of CSA. It

follows that managing weeds in *pfumvudza/intwasa* farming can also be done with the help of herbicides. Although using pesticides to control weeds under CSA raises worries about the environment and cost (Lee and Thierfelder, 2017), their benefits and drawbacks need to be re-evaluated in light of the new information to make *pfumvudza/intwasa* farming more productive and sustainable.

The sustainability of *pfumvudza/intwasa* farming is constrained by institutions, regulations and procedures, according to the SLA. The results stated above demonstrate that the MoLAFWCRD and the government forbid farmers in the *pfumvudza/intwasa* programme from tilling or ploughing their plots and from controlling weeds with cultivators or pesticides. Farmers who are not enrolled in the programme and those from other nations effectively use the same tactics that are outlawed by the two institutions on a local level. As a result, it is important to interrogate the policies to determine the best course of action for boosting the productivity and sustainability of *pfumvudza/intwasa* farming.

THE LATE DISBURSEMENT OF INPUTS

The results support reports in the literature that farmers who take part in the *pfumvudza/intwasa* farming programme receive a package of farming inputs from the government that consists 5kg of maize seed,50kg of basal and 50kg of top dressing. For one *pfumvudza/intwasa* maize plot, this amount of input is sufficient. The interviews revealed that the government's sometimes-late distribution of farming inputs harmed the viability of *pfumvudza/intwasa* farming. A farmer succinctly described this issue when he said:

> Agricultural extension officers always ensure that we prepare our fields on time and to the required standards and provide us with adequate instruction on *pfumvudza/intwasa* farming. Our biggest issue is that the government occasionally delays the delivery of agricultural inputs like seeds and fertilizer, that causes us to plant late, apply fertilizer late and harvest low yields.

The difficulty noted above was corroborated by other farmers who took part in the interviews. According to another farmer:

> Maize seeds and basal fertilizer were delivered on schedule during the 2020 growing season, however top-dressing fertilizer was sent much later. Since the fertilizer was released just before the crops were ready for harvest, we were unable to apply it. The only alternative available was to purchase maize because the crops were so poor.

The results above demonstrate that occasionally the government is not prompt in delivering *pfumvudza/intwasa* farming inputs to farmers. Farming inputs are tangible resources that farmers need to produce food and support

their livelihoods in the framework of the SLA. When tasks are completed on schedule, at the expected standard, without waste and with the anticipated precision, household food security under *pfumvudza/intwasa* farming is anticipated to be realised (Mhlanga *ibid.*, 2015). As a result, the slow distribution of inputs shocks the *pfumvudza/intwasa* farming system and reduces its productivity and sustainability. Farmers were asked to suggest ways to alleviate the delay in input distribution and they suggested that the government make sure that inputs are provided at least two months before the start of the planting season in mid-October.

CONCLUSION AND RECOMMENDATIONS

A livelihood strategy's sustainability is evaluated in light of five livelihood outcomes within the context of the SLA, that served as the study's theoretical foundation. These include better food security, a decrease in vulnerability, higher income, enhanced well-being and more sustainable use of the natural resource base. By applying conservative agriculture principles like minimum soil disturbance, permanent soil cover and crop rotation and intercropping the farmers sustainably use the land for agricultural production. In the study area, *pfumvudza/intwasa* farming has helped many food-insecure households become food-secure entities. Farmers that adopt this farming method produce surplus grain which they sell to the GMB and store for use in their homes, their children's education and their health care. The children of smallholder farmers' access to education are being positively impacted by the food and financial security brought about by *pfumvudza/intwasa* farming. The susceptibility of females being expelled from school due to the confluence of low financial capital and patriarchal hegemony has decreased because of the farmers' improved financial situation. However, the key issues that are posing a threat to the viability of *pfumvudza/intwasa* farming are lack of suitable instruments to dig planting stations, labour-intensive weed management and the late disbursement of farming supplies. *Pfumvudza/Intwasa* farming has a considerable potential to significantly improve the food security of smallholder farmers in Zimbabwe and other SSA nations if the aforementioned issues are resolved.

The study offers the following suggestions to improve the sustainability of *pfumvudza/intwasa* farming:

- To reduce the labour needed to physically prepare planting holes with hoes, universities and technical institutions are urged to invent a drilling technology for planting holes.
- It may take some time for planting-hole drilling technology to advance. To give farmers the ability to buy the necessary tools, the

government and its allies should launch the *pfumvudza/intwasa* farm equipment loan programme.

- The government and the private sector should collaborate to finance *pfumvudza/intwasa* farming so that farmers may have all agriculture inputs on time.
- It is important to identify and manage the logistical issues impacting the distribution of agricultural inputs so that farmers receive them at least two months before the start of the planting season.
- Research on the productivity and sustainability of *pfumvudza/intwasa* farming improvements by farmers, such as tilling the *pfumvudza/intwasa* plot and using herbicides and ox-drawn cultivators to manage weeds, needs further research to establish their sustainability for possible integration into the programme.
- Through the use of irrigation projects based on dams and boreholes, the government and its partners are urged to scale-up*pfumvudza/intwasa* farming.

  Additional study is advised to better understand the contribution of *pfumvudza/intwasa* farming to education.

REFERENCES

Chambers, R. & Conway, G.R. (1992). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. Institute of Development Studies Discussion Paper 296. Brighton, UK: Institute of Development Studies. https://repository.cimmyt.org/bitstream/handle/

Chigwanda, E. (2016). A Framework for Building Resilience to Climate Change through Girls' Education Programming. Center for Universal Education at Brookings. https://www.brookings.edu/wp-content/uploads/2016/12/global-20161202-climate-change.pdf

Chikwati, E. (2020). Govt intensifies Pfumvudza agriculture. *The Herald*, March 18, 2020. https://www.herald.co.zw/govt-intensifies-pfumvudza-agriculture/

Climate Technology Centre and Network (2017). Climate-Smart Agriculture Manual for Zimbabwe, Climate-Smart Agriculture Manual for Agriculture Education in Zimbabwe. https://www.ctc-n.org/

Creswell, J.W. & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches. (5th Ed.).* Los Angeles: SAGE.

Denzin, N.K. & Lincoln, Y.S. (Eds.) (2018). *SAGE Handbook of Qualitative Research. (5th Ed.*). Los Angeles: SAGE.

DFID (1999). Sustainable Livelihoods Guidance Sheets. London: DFID. https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf/

FAO (2008). *The State of Food and Agriculture (SOFA) 2008-Biofuels: Prospects, Risks and Opportunities*. Rome: Food and Agriculture Organisation of the United Nations.

FAO (2013). Climate-Smart Agriculture Sourcebook. https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/421842/

FA (2014). FAO Success stories on climate change Smart Agriculture. https://www.fao.org/3/i3817e/i3817e.pdf

FDI Global Food and Water Security Research Programme. (2012). http://www.futuredirections.org.au/publications/food-and-water-crises/597-zimbabwe-s-food-and-watersecurity-outlook.html

GoZ (2015). Zimbabwe's National Climate Change Response Strategy. http://ncuwash.org/newfour/wp-content/uploads/2017/08/Climate-Change-Response Strategy.pdf

Kaptymer, B.L. Ute, J.A, & Hule, M.N. (2019). Climate Smart Agriculture and its Implementation Challenges in Africa. *Current Journal of Applied Science and Technology*, *38*(4), 1-13. https://www.doi:10.9734/CJAST/2019/V381430371

Lee, N. & Thierfelder, C. (2017). Weed Control under Conservation Agriculture in Dryland Smallholder Farming Systems of Southern Africa. A Review. *Agronomy for Sustainable Development*, *37* (48), 1-25. https://www.doi:10.1007/s13593-017-0453-7

LFSP Zimbabwe Livelihoods & Food Security Programme (2021). LFSP Pfumvudza Performance Results for 2019/20 Season https://lfspzwcom.files.wordpress.com/2021/08/pfumvudza.pdf

Lipper, L, & Zilberman, D. (2018). A Short History of the Evolution of the Climate Smart Agriculture Approach and its Links to Climate Change and Sustainable Agriculture Debates. In: Liper, L, McCarthy, N.. *et al.* (eds) *Climate Smart Agriculture. Natural Resource Management and Policy*, 52. Cham: Springer. https://doi.org/10.1007/978-3-3-319-61194-52

Mhlanga, B. *et al.* (2015). Contribution of Cover Crops to the Productivity of Maize-Based Conservation Agriculture Systems in Zimbabwe. *Crop Science*, *55*(4), 1791-1805.

Milder, J.C, Majanen, T. & Scherr, S.J. (2011). Performance and Potential of Conservation Agriculture for Climate Adaptation and Mitigation in Sub-Saharan Africa. Ecagriculture Discussion Paper No. 6. Washington, DC: Ecoagriculture Partners.

Mugwara, T. (2020). The new farming concept offers Zimbabwean farmers higher yields. http://www.xinhuanet.com/english/2020-09/19/c_139381594.htm

Mujere, N. (2022). An Assessment of the Contribution of the Pfumvudza Concept Towards Climate Smart Agriculture in Zimbabwe: A Review. *J Agri Horti Res*, *5*(2), 69-76.

Nangombe, S.S. (2015). Drought conditions and management strategies in Zimbabwe. https://www.ais.unwater.org/ais/pluginfile.php/601/mod_page/content/29/Zimbabwe.

Ngwira, A.R., Thierfelder, C, & Lambert, D.M. (2013). Conservation Agriculture Systems for Malawian Smallholder Farmers: Long-term Effects on Crop Productivity, Profitability and Soil Quality. *Renewable Agriculture and Food Systems*, *28*(4), 350-363. https://www.doi:10.1017/s1742170512000257

Nyasimi, M. *et al.* (2014). Evidence of impact: Climate-smart agriculture in Africa. https://www.preventionweb.net/

Scoones, I. (2021). Can the Pfumvudza conservation agriculture programme deliver food security in Zimbabwe?https://www.future-agricultures.org/blog/can-the-pfumvudza-conservation-agriculture-programme-deliver-food-security-in-zimbabwe/

Serrat, O. (2008). The Sustainable Livelihoods Approach. https://www.adb.org/sites/default/files/publication/27638/sustainable-livelihoods-approach.pdf

Tesch, R. (1990). *Types and Software Tools*. New York: The Falmer Press.

Thematic Committee on Sustainable Development Goals and Gender and Development. (2021). Joint report of the thematic committee on sustainable development goals and gender development on the implementation of the national gender policy in the smallholder irrigation rehabilitation schemes and pfumvudza/intwasa agriculture programme. https://parlzim.gov.zw/wpcontent/uploads/2021/09/SENATE_HANSARD

Tsiko, S. (2021). Zimbabwe: Farmers Reap Benefits of Pfumvudza/Intwasa Concept. *The Herald*, October 14m 2021. https://allafrica.com/stories/202110140400.html

UNDP (2017). *Zimbabwe Human Development Report 2017*. Climate Change and Human Development: Towards Building a Climate Resilient Nation. Harare: UNDP.

UNFCC (2019). United Nations Climate Change Annual Report. https:// unfccc.int/sites/default/files/resource/unfccc/annual/report/2019.pdf

United Nations (2018). The 2030 Agenda and the Sustainable Development Goals: An Opportunity for Latin America and the Caribbean. Santiago: United Nations. https://repositorio.cepal.org/bitstream/handle/11362/40156/25/S1801140_en.pdf

USAID 2019. Climate risks in food for peace geographies: Zimbabwe. https://www.usaid.gov/sites/default/files/documents/1866/Zimbabwe_FFP_CRP_WITHOUT_Adaptive_Measures.pdf

Wagstaff, P. & Harty, M. (2010). The Impact of Conservation Agriculture on Food Security in Three Low Veldt Districts of Zimbabwe. *Trócaire Development Review 2010*, 67-84, https://www.trocaire.org/sites/default/files/resources/policy/2010

Welt Hunger Hilfe. (2021). Drought Hazard Risk and Humanitarian Impact Analysis and Inventorisation of Forecast Models in Zimbabwe. https://www.anticipation-hub.org

World Bank (2013). *Unlocking Africa's agricultural potential: An action agenda for transformation*. Washington, DC: World Bank.

Yin, R.K. (2018). *Case Study Research and Applications: Design and Methods. (6th Ed.).* London: SAGE.

A Human Factor Approach to State as a Security Provider in the Post Fast T-track Land Reform in Zimbabwe

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Abstract

Debates about why land reform has been carried out dominated academic discourse in agrarian studies over a period. This study utilises field-based evidence to fill the gap by developing new knowledge claims about human security and land ownership. Deploying the narrative inquiry within the qualitative research design, the study gleaned the lived experiences of beneficiaries of the Fast-track Land Reform (FTLR) in Masvingo who are owners of land now and argue that human security goes beyond the traditional meaning of physical security in resettled spaces but also implies the human well-being, human safety, dignity and social security. The study concludes that more can be done to raise the well-being of farmers through an improved human security perspective and land tenure system. There are low investments in the farms years after the reform, a weak social protection system and physical security, hence, the recommendation that the state, as a duty-bearer, ought to revisit its approach and embrace human security from a broad perspective.

Keywords: *human security, land tenure, food security, social protection.*

INTRODUCTION

Studies in political economy as well as socio-economic development have unravelled the contestations that are involved in access to and control over land. This is the reason agrarian studies hinged on land reform attract diverse views with regards to the effects of reforming land ownership. The fact that livelihoods are very much dependent on the land tenure system, cements the conflicts that have engulfed several regions as various categories of people fight for land ownership. Whilst previous studies have delved into this

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discourse, limited attention has been paid to the link between human security, in its broad sense, with land ownership. Thus, the current study utilises field-based evidence to fill the gap by developing new knowledge claims about human security and land ownership.

LAND CONFLICTS AND HUMAN SECURITY: INTERNATIONAL CONTEXT

The orld over, the state is the primary provider and key stakeholder in the provision of human security to its citizenry, including in turbulent situations of inter or intra-state conflicts (de Carvalho and Correa, 2007). The state, as the duty-beare,r provides human security concerning all situations and is complemented by humanitarian organisations and private corporates. Referring to the Brazilian scenario, de Carvalho and Correa (*ibid*.) further observed that the state provides security to citizens during a variety of situations threaten people, including armed conflicts, humanitarian and health crises and natural disasters, and ecological and environmental crises. Thus, the responsibility of the state in Brazil testifies that the meaning of human security is not restricted to the traditional sense of providing physical security only. In the context of the Indian land conflicts and human security, Pillay (2016) postulates that the modern Indian state appreciates human security as going beyond the traditional meaning of human security while protection of citizens from external and internal invasions continues to be an important aspect of security, it is not the only one. There are multiple aspects of human security and the traditional aspect is one. Therefore, human security in this article is understood from a Mahbub ul Hag conceptualisation, who contributed to the production of the UN Human Development Report in 1994. The Report ascribes to view human development capabilities from the perspective of confronting poverty, illiteracy, disease, elimination of disease and physical threats. Thus, accordingly, the 'human' was put at the forefront and represented a view that the concept of having human security and peace must be built upon the survival and freedoms of individuals, instead of focusing on the state. Thus, human security emphasizes freedom from fear and the ability to lead a dignified life because of good governance and good delivery of services by key stakeholders. In a report for the UNDP, Gomez, des Gasper and Mine (2013) identified seven domains of human security which are: economic, health, food, environment, personal, community and political security. This was buttressed by former UN Secretary-General, Kofi Annan, who added his view by saying human security is economic development, social justice, environmental protection, democratisation, disarmament and respect for the rule of law within nation-states (United Nations, 2005).

HUMAN SECURITY: NARROW AND BROAD APPROACHES

Approaches to human security can be collapsed into two major categories; narrow and broad approaches. The broad approach encompasses all forms of threats to the individual from all sources beyond the conventional threat of organised political violence recognised in the narrow approach. This includes threats of natural disasters, disease, environmental degradation, hunger, unemployment, political repression and economic downturn. The 1994 UNDP Human Development Report, the Commission on Human Security, the Government of Japan and academics are noted as supporters of the broad approach to human security (King and Murray, 2001). The narrow approach, on the other end, sees human security as the security of the individual from an organised identifiable perpetrator and is not a random occurrence, but is premeditated. Liotta and Owen (2006), proponents of the narrow approach, criticise the broad one and argue that it is too broad to be feasibly useful and pragmatic. This study, in its analysis of human security issues related to the FTLRP in Zimbabwe, is using the broad approach because it recognises that the traditional viewing of land in terms of being simply a physical form of a territory to be defended internally by a police force and externally by an army, is inadequate.

It is important to note that at the commencement of the land reform programme, both officials and farmers had to endure what seemed to be insecurity because they were not certain how the former landowners would react (Matondi, 2012). By extension, there were also challenges associated with resistance to change, whereby technical officials had to endure incidents of being physically threatened by former landowners and at the same time being hounded by the new beneficiaries impatient over the delays in getting on to their farms (*ibid*.). It is against this background and insurmountable pressure that officials resorted to making ad hoc decisions that had a far-reaching impact on the success or failure of the land reform programme. Notably, farmers resettled during this phase of FTLRP had to grapple with such challenges, yet there was also pressure to produce meaningful harvests. The prevailing circumstances also had serious consequences on the food productivity of these communities. Indeed, food security and food availability were premised on the conditions under which the production was exercised. In a similar but separate study, Matondi (2014) avers that post-settlement adjustments demonstrated several areas of stress, as new beneficiaries struggled to get access to basic services such as schools and health facilities. Such results render the FTLRP in the country

an unsustainable exercise because it meant the basic amenities needed by claim-holders could not be guaranteed.

THEORETICAL FRAMING

The premise of the human factor (HF) perspective is that development begins and ends with the people, particularly the local and indigenous people. The human beings within that country, nation, community or organisation should have the capacity to pursue the main goal of that institution. In concurrence, Mararike (2014) and Ofori-Amoah (1998), pursue the argument that humans should not only be reliable but committed and disciplined to pursue those goals. The people must believe strongly in the ideals of that society and practise them. Mararike (2014) gives an example of the vision Europeans had when they pursued the colonial agenda in the world and remained in their position until they achieved their goal. The essence of the human factor approach is to have people with the HF content trained to carry out to the end the ideals of an organisation or society. This happens when people have HF competencies and deal with their matters with readiness, preparedness, ability, willingness and awareness and react appropriately within the value systems rooted in African tradition and culture. Adjibolosoo (1996), another Afrocentric, makes it easier to understand the HF perspective as he states that it is a spectrum of personality characteristics and other dimensions of human performance that enable social economic and political institutions to function and remain functional over time. He further identified key dimensions of the HF for it to be effective, i.e. human competencies, human capital, moral capital, spiritual capital and human potential. Concerning development in Africa, Adjibolosoo (*ibid.*) further argues that until the quality of the human factor is improved, it may be impossible to enhance the process of sustainable development. Thus Ofori-Amoah (1998:53) asserts that:

> to be successful, the development directions must have a true-life premise … This premise provides hope, motivation and conviction that the direction will achieve something better than the previous one … However, if the premise itself is in error, then all the hopes and expectations will not only enslave people, but will also destabilise the very foundations of its existence

When these key dimensions of the human factor are not developed, it becomes difficult for any person to succeed in pursuing community or national programmes (Adjibolosoo 2014). Prosecutors of the development agenda end up with wrong conclusions, wrong goals and misplaced energies

that result in severe human factor decay. It is regarded as a syndrome evident in a person's expression of lifestyle choices that are reflective of negative personality traits, hence Adjibolosoo (2012:52) states that:

> It trumps the personal desire for virtuousness and promotes a lifestyle rooted in bad attitudes, behaviours and actions. Severe human factor decay is the primary root cause of human conditions. Any act of social injustice is a perfect replica of the images of severe human factor decay. It is a serious hindrance to the establishment of harmony and peace. It is a staunch enemy of productivity and growth. Its austerity paralyses the engine: a positive human factor that makes the social institutions function and remain functional over time. It stalls the wheels of the vehicle of family, government, schools, economy, law and religion. It is the sole factor that lies at the heart of the practice of identity theft, sexual harassment, spouse/child abuse and corruption in its diverse forms in any community. Those who suffer from severe human factor decay exhibit it in their attitudes and behaviours that are retrogressive, selfish and full of malice.

METHODOLOGICAL CONTOURS

The study focused on data collection and generation on 45 interlocutors comprising 40 landholders distributed around the only three resettlement areas in the district; 13 interviewees from Hwendedzo, 12 from Mushandike and 13 from Summerton resettlement sites in the Masvingo District. This was complemented by administering a fixed questionnaire to five key informants from the Department of Lands and Resettlement, District Administrators' office, in the Ministry of Agriculture, a chief, plus documentary analysis. The targeting of research participants was done under principles and practices of randomised sampling and all the interviews were done at the convenient locations of the interviewees. This was done in accordance with the guidelines of the mixed methods research design frame for its multi-methods matrix to examine multiple approaches to data (Creswell, 2014). The mixed methods research design allowed for the triangulation of qualitative and quantitative data sources and sought convergence across the traditional methods to produce multiple realities reached through both deductive and inductive reasoning (Lincoln and Guba, 1985).

RESULTS AND DISCUSSION

The results and discussion are centred on three human security themes that the study established and produced in-depth insights about the position of the State as evidenced by views and documentary material.

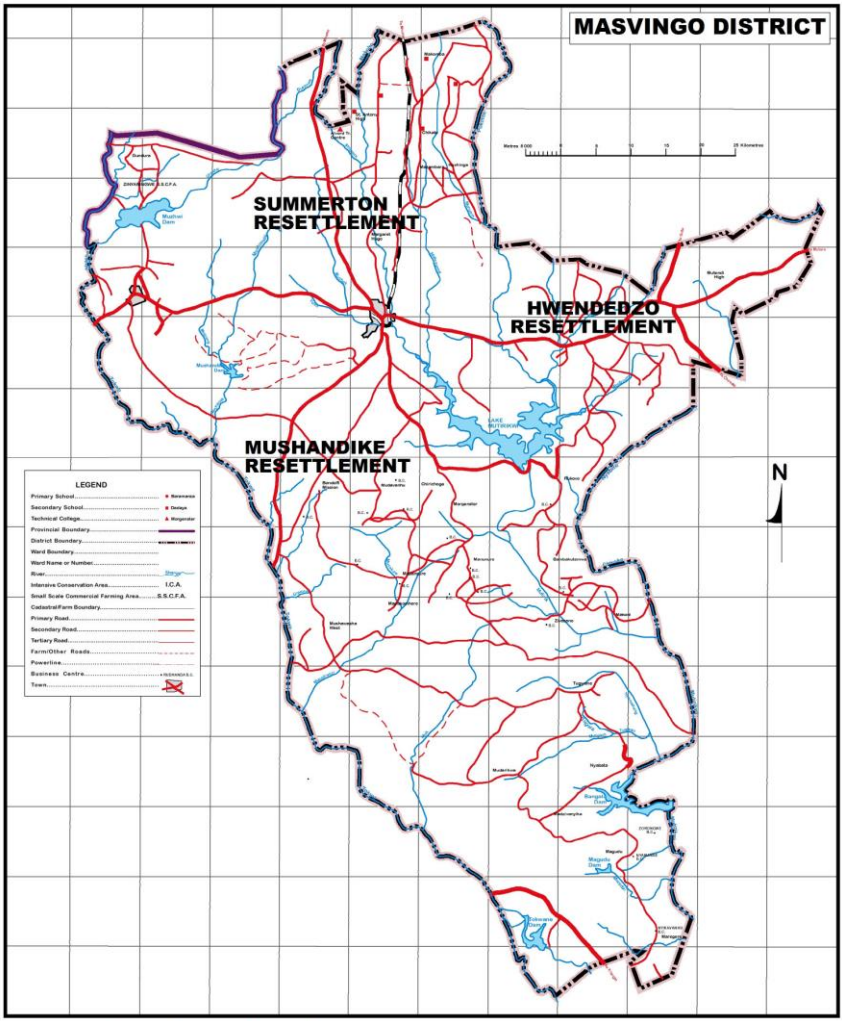

Figure 1: *Map of Masvingo showing resettlement sites* (Surveyor General Office)

PHYSICAL AND INDIVIDUAL SECURITY IN RESETTLEMENT AREAS

What is the sense of human or personal security of the residents of farms? The state is the sole provider of individual security through its arms of government, particularly the police working in collaboration with the justice delivery system. The research site, as shown in Figure 1 constituted the

following resettlement areas and commercial farms: Hwendedzo, located on the north eastern side of the town and adjacent to Mutimurefu Prison and Correctional Centre along the Masvingo-Mutare road; Summerton on the north west; and Mushandike on the southern side of the city. Before the FTLRP, these areas were strictly white commercial farming communities that received police protection from the Masvingo rural police station. This study's investigations revealed that since the opening of these farming communities to blacks, only one police sub-station was established to become a fully-fledged police station with a full complement of officers and other resources. Muchakata police station provides police services to parts of Mushandike resettlement, while other areas are covered by Nemanwa police station in Great Zimbabwe. Study results showed that no new police station was established in the resettlement sites specifically for easy provision of personal security in the 'new' communities, hence personal security remains compromised in these rural areas.

The state has been accused of being complicit in constructing an environment of insecurity against its citizens through the propagation of nationalist hate language, especially towards elections, targeted at perceived enemies (Ndlovu-Gatsheni, 2009). This behaviour results in violence aimed at intimidating the electorate and, ultimately, securing votes by political leaders. Conversations with farmers in the research site showed that the state could deploy security agents to contain any form of intimidation and ensure peaceful elections in new resettlements. According to Ndlovu-Gatsheni (*ibid*.), this populist and nativist sloganeering was deployed to fan violence against white farmers. However, field-based evidence showed that similar approaches were utilised against black farmers, farm labourers and those perceived to be unpatriotic and unsympathetic to the ruling political party. It is not in question that politically motivated violence generates a lot of debate and, in many cases, results in loss of life. However, it is the argument of this study that the question of social justice and vengeful violence fails to justify the trampling of people's rights, destruction of property and death of persons that remain an occurrence during and after elections in Zimbabwe. This was also raised by one research participant who said:

> Again and again, this violence happens and we now know that the elite incites certain members in the communities to intimidate and cause havoc for instilling fear and compliance. This violence is real my brother (Interview, 1/7/2017).

Based on the above narrative and other corroborative evidence, the study argues that the land question ought to be managed from a non-populist approach for land reform to be beyond the bio-politics of the north-south. The north-south debate is centred on western countries blaming the land

reform in Zimbabwe as the source of food insecurity, while black Zimbabweans and others from the south argued that the land reform was inevitable. However, in all these debates, the state remains the reference institution in the provision of personal security because it is the responsibility to protect citizens. Failure to provide security has been described from a human factor perspective as the severe human factor syndrome in which those who are supposed to have the capabilities, fail even to have the willpower and moral strength to protect (Adjibolosoo, 2014). It should be understood that there is no excuse for such failure to protect and guarantee basic rights and security.

FOOD AND SOCIAL SECURITY IN RESETTLEMENT SPACES

What did the field work establish in terms of food security in resettled spaces? Food security is defined as a situation where everyone in the country can access sufficient and decent foodstuffs for their normal well-being (*ibifd.*). The above-referred definition is derived from the Food and Agricultural Organisation (FAO) which states that it is 'a situation existing when all people, at all times, have physical and economic access to sufficient, safe and food preferences for an active and healthy life' (FAO, 2006). Results of this study adopt the above-referred definition in the presentation and discussion of results. Matondi (2012), Moyo (2013) and Scoones (2014) acknowledge and concur that the '*jambanja'* styled disorderly land redistributions, the FTLRP, triggered some level of food insecurity in Zimbabwe, compounded by the natural phenomenon of climate change-induced droughts. As such, from the early 2000s, Zimbabwe slipped from producing surplus grain for export and being a 'breadbasket' for Southern Africa (Alexander and McGregor, 2013).

Post-2000 food production fell drastically due to many natural and human-induced factors such that maize production which was at 314 000 tonness in 2001, fell to 18 000 tonnes in 2009 and, in 2016, it was 13 000 tonnes (Government of Zimbabwe, 2017). The 2001 soya beans production level was 175 000 tonnes, in 2010, the output dropped below 75% to around 40 000 tonness. The same applies to milk production, that fell to 50 million litres in 2010 from 187 million litres in 2000. Despite a steady rise since 2009, maize, wheat and other basic foodstuffs production by 2012 remained far below the pre-2000 production levels, thereby derailing all efforts towards food security in the country. The production levels given are evidence of food insecurity in Zimbabwe, largely ignited by the FTLRP. The above documentary evidence corroborated with what a Hwendedzo

resettlement site farmer, Mr Choto, said about government reactions to the food insecurity of vulnerable households:

> We haven't been able to produce enough food for both household consumption and sale, especially in the years when rains were low. Despite the government's failure to support us in those bad periods, it was at the forefront of providing food aid to identified vulnerable households through a community or village mapping project that was done by the Department of Social Welfare Services. As such, we did not experience situations when (where) people died of hunger. The government was with us in this regard (Interview 2017)

Documentary evidence at the Department of Social Welfare showed that 571 households were provided with 10 kg of maize per person in a household, meaning that those households with many dependants got more. It was observed that food security for the three resettlement sites, Hwendedzo, Summerton and Mushandike, took advantage of the proximity to Masvingo City. As already indicated in the research site description, the resettlement sites are part of the peri-urban environment of Masvingo City and many farmers have other livelihood projects in the city, including formal employment. As a result, farmers were able to take care of their food security requirements during lean periods.

The issue of humanitarian food aid ought to be viewed from the vantage position that international non-governmental organisations (NGOs), including international donor agencies, have not been keen to participate in food aid programmes in resettled spaces on the basis that they were still contested spaces. This position could have originated from the fact that at the international relations level, the Zimbabwean FTLRP attracted negative attention, even igniting the United States of America to enact an Act in Congress, the Zimbabwe Democracy and Economic Recovery Act (ZIDERA) of 2001, that spells out that Zimbabwean land redistribution is the reason it is not allowed to transact with the rest of the world. This brief background speaks to why the government took up a supportive position of farmers in terms of providing farming inputs to farmers both small-scale and large-scale. Results indicated that farmers benefited from the government support projects from the mid-2000s up to 2021.

Interviews with key informants in the department of lands and the District Administrator's office showed that farmers benefited from government inputs projects since 2005 Operation Maguta, Special Maize Programme for Imports, Farm Mechanisation, Command Agriculture and *pfumvudza/intwasa* farmer support projects. By the time of field visits, farmers were being identified for benefiting from the *Pfumvudza/Intwasa* Project. Out of the farmers interviewed, 60% cited that it was profitable to be

part of these government support projects. Data from the Ministry of Agriculture showed that in the 2016 to 2017 and 2017 to 2018 farming seasons, maize production at the district level doubled and contributed to the increased food storage at the Grain Marketing Board (GMB). In this regard, the government took up its responsibility of being the provider of human security by supporting farmers instead of waiting for other stakeholder or individual farmer initiatives. The development comes from within, having an Afrocentric approach, driven by the locals, using local resources and willing and responsible personnel (Asante, 1987; Mazama, 2001; Mararike, 2014;).

However, despite the discussed position of the government of providing food aid and farmer input support, the food security situation cannot be separated from other insecurities. The study established that the resettlement sites are spaces that did not receive major investment in terms of building clinics and hospitals. In each site, it was established that there was a single temporary clinic or health centre that took care of all the health issues of the community. The temporality was based on the fact that both the police base and clinic were housed at the former farmhouse that was not only designed for that type of work, but did not have enough rooms for the service. The clinics were manned, at most, by only two qualified nurses and at times could operate without a nurse, more so with limited medication and other medical equipment. This became clear that the clinics were not capacitated to provide health security during the Covid-19 pandemic. No single case was handled by the clinics. All cases suspected to be Covid-19 related were referred to Masvingo General Hospital.

Before 2000, part of the Zimbabwe that was anchored on agriculture was dependent on the few white farmers who owned commercial farms and value-addition industries in the urban areas. The economy was agro-based but sustainable as it earned foreign currency through export to countries in the region. Thus, dispossessing the white farmers of land meant the disruption of industries and, hence unemployment and income insecurity for many citizens and foreign currency shortages. This would have ripple effects in tax and revenue incomes for the fiscus and also social services deliverable to the people. Immediately after Zimbabwe was faced with a rising unemployment rate of over 60%, and expected to reach 100% by the end of the year (Chinamasa, 2001). Chinamasa further cites the Commercial Farmers Union (CFU) estimates that during the month of September, about 75 000 people, including workers and their families, had been forced off the farms. The Farm Community Trust of Zimbabwe, also cited by Chinamasa, estimated the number of displaced at 300 000, based on the government's

data on resettlement. Disturbances on the farms, as noted during fieldwork, produced similarities with the above narratives that had aspects of insecurity amongst a section of the population.

LAND TENURE SECURITY

What is the state of land tenure and how secure in terms of land ownership did the research participant feel? The study established that out of the four forms of land tenure in the post-land reform in Zimbabwe in which there is the freehold, communal, lease and land permit, in the three research sites, only the land permit exists. What is this land permit tenure system? Field-based engagements with landowners and key informants revealed that there were two dimensions of appreciating land tenure: Those who felt secure and those who did not feel secure in terms of entitlement to a piece of land. Based on 45 farmers who own land in Hwendedzo, Summerton and Mushandike resettlement schemes, 70% of those interviewed felt that the land tenure security was solid and above board in terms of ensuring that their rights to own and use land were protected. The other dimension of conceptualisation of land tenure was held by 20% of the interviewees. These landowners felt insecure in terms of land ownership based on the mistrust they hold against the State. One of them had this to say:

> We do not know when we may receive notification letters to vacate land from the Department of Lands and Resettlement. Land can be allocated to another person or repossessed by the State for whatever reason. There is no guarantee of occupancy in the far future, especially if one is suspected to be holding different political beliefs from the mainstream. A lot of people are just pretending to be part of the mainstream political ideological front in the protection of their land.

The remaining 10% were undecided and not sure of the situation or were not keen to share their opinions about land tenure security. The feelings of security and insecurity were tied to the ideological and political positions and affiliations held by the farmers. By identifying and being affiliated with the rung ZANU PF party, one felt secure on the basis that their party had been behind the land reform exercises and propagated the ideas of indigenisation, Africanisation and dismantling the previous racial land ownership structure. Those who did not hold similar political ideas but did not oppose the ruling party publicly for security reasons felt insecure. One of them said:

> once you are discovered that you do not support the elite, you are assured of losing your land through a smart legal process orchestrated by those in office and if it is elections time, you may find your houses burnt, what security is that?

The land tenure concept and practice in this study are regarded as the rules of a given society, be it customary or legal, that are amongst people and define

how land is allocated and used (Kazingizi, 2017). The study acknowledges that land tenure is not static and as such, post-independence Zimbabwe became endowed with the new land tenure system as influenced by social, political and economic transformations that occurred. The study's interests were around the issue of individual rights and protection against social and political manoeuvres. The land permit is a new tenurial regime that was an outcome of transformations of the FTLRP. In other studies, it was regarded as the 'offer letter' tenure regime and occupancy of land is regulated by a permit made by the State to the beneficiary. Thus, this study observed that tenure security of all these types is governed by social, legal and administrative procedures that give use rights, exclusion rights, transfer rights and enforcement rights. However, these rights are ensured and administered through the Constitution of Zimbabwe and a variety of statutes, for example the Lands Acquisition Act. The level of insecurity is also experienced by some farmers, especially those perceived as opponents of opposition political parties. The continued manifestations of land conflicts, evictions and generally how they are finalised, abrogate landholders' rights to land as reflected in the failures to protect the interests of the plot holders. This study refutes the argument that the failures of the socio-legal and administrative systems of the Zimbabwean land tenure systems only disadvantage women (Mazwi and Chambati, 2020). The study projects the view that systematic failures weigh on any ordinary landholder who may not be favoured by the system at the time in question.

The State, through its legal frameworks points out that all agricultural land continues to be vested in it as provided by section 293 of the Constitution:

> The State may alienate for value any agricultural land vested in it, whether through the transfer of ownership to any other person or through the grant of a lease or other right of occupation or use, but any alienation must be following the principles specified in section 289.

Landowners or beneficiaries are aware of the provisions of the law and the level of compromise in the administrative procedures and judiciary system in which those who may seek legal recourse may not succeed against the State. Thus, some landowners remain uncertain about their property rights. Some resettlement areas, where permits are the form of tenure system, argue that they have been reduced to a communal type of tenure in which all the land is managed or owned by the President through the rural district councils and traditional leaders. Land insecurity originating from political violence remained 'sanctioned' by the State during and after elections against perceived opponents of those seeking to be voted for (Ndlovu-Gatsheni, 2009). The trend is that such opponents may lose their land through political

manoeuvring of aspiring politicians. The role of government functionaries, particularly the district and provincial lands offices in their capacities as government, complicate the issues of secure land tenure when they engage in corruption, double permits and offer letters as mechanisms of repossessing land from those viewed differently politically. The case of a beneficiary who got land during the early 2000s under the FTLRP, lost that land towards the 2018 elections, when other persons were offered 'offer letters' from the Department of Lands. Interviewees also highlighted the issue of financial transactions between Lands Officers and land-seekers, corrupt tendencies that eventually are used to alienate 'unwanted' farmers. Although it was not possible to verify the occurrence of corrupt practices, the study picked such information which has serious negative implications for human security. When key dimensions of the human factor, for example, moral capital, get dislocated, '… no person can succeed in their community building and problem-solving effort' (Adjibolosoo 2014:34). Thus, the study argues that although the percentage of people or farmers who felt less secure in terms of land entitlement, their concerns remain a form of land tenure insecurity that the study further argues that it is tied to the legal and administrative provisions of the Constitution of Zimbabwe and its subsequent Acts of Parliament that are manipulated by state functionaries in favour of their interests. The study identified one interviewee with a legal background and had this to say about the Land Acquisition Act: Chapter 20.

> The Act does not give a complete guarantee of security of tenure. Its security of tenure is partial under the 99-year leases that arguably can be equated to ownership since the lease last for a lifetime. On the other hand, the permits offered to beneficiaries do not translate to legal ownership since they only give rights to use the land to the holder. Based on this, one would say that the Act does not guarantee for security of tenure.

A review of the Constitution of Zimbabwe of 2013 also indicates that Chapter 16 section 290 (1) states that all agricultural land continues to be vested in the State, leaving it with a lot of authority and autonomy to do anything with the land, whether it disadvantages others or not at law. Section 293 (1) of the Constitution further state that

> The state may alienate for value any agricultural land vested in it, whether through the transfer of ownership to any other person or through the grant of a lease or other right of occupation or use.

Thus, these legal provisions have made it impossible for any other person who felt wronged to be able to challenge the State in terms of land alienation and repossession. Few cases taken to the courts take long to finalise, eventually weakening the case and position of a land-owner who may be

advised not to utilise the land until the case is finalised. In the final analysis, the land insecurity experienced by farmers in resettlement areas cannot be separated or divorced from these legal administrative facets of land governance in Zimbabwe. Farmers know their rights and interpret the land law, hence their sense of insecurity.

CONCLUSION

Drawing from the above presentations and analysis of the interface of human security and land reform with a gaze at the role of the State, the study has shown that human security is a broad concept that covers a wide spectrum of issues, particularly in the context of land reform. The study has shown the narrow perspective and further delved into the broad definition and conceptualisation which takes into account food security, health, social protection services, physical and individual security, livelihoods, employment and political security. Despite this multiplicity, the study interrogated three main themes, the physical individualised security has been characterised by a lack of investment by the government in building and establishing police stations in resettlement sites as new communities. More than 20 years after the FTLRP, resettlement sites were still having temporary police stations. The other themes included food security and social protection services that indicated that the government played its role as protector of vulnerable households during food insecurity periods by providing food handouts, but still struggled in terms of health services. The most contested facet of human security discussed in the study is land tenure security. It brought out intriguing dimensions that included tied security and insecurity of land tenure to ideologies, political affiliations and legal administrations that both weaken or strengthen farmers' entitlement to their pieces of land. These issues cumulatively made the research study conclude that human security within the context of land reform in Zimbabwe requires that the State, as the key provider of that security, adopts a broader and pragmatic approach that conceptualises human security to include other dimensions that are traditionally left out. The contemporary state of human security in farms and resettled spaces represent the prospects and shortcomings of the State as the key stakeholder in providing human security, dignity, tranquillity social justice in communities.

REFERENCES

Adjibolosoo, S. (1996). *Human Factor Engineering and the Political Economy of African Economic Developmen*t. Westport, Praeger.

Adjibolosoo, S. (2014). 2014. Reflections on the Problems of Landownership and The Challenges of Title Deed Acquisition in Africa: In: Mararike, C.G. (ed), *Land: An Empowerment Asset for Africa. The Human Factor Perspective*, 30-58. Harare: University of Zimbabwe Publications. .

Adjibolosoo, S. (2012). *Human Factor in Free Market Efficiency*. New Delhi: New Century Publications.

Alexander, J. and McGregor, J. (2013). Introduction: Politics, Patronage and Violence in Zimbabwe. *Journal of Southern African Studies, 39* (4) 749-763.

Asante, A. K. (1987). *The Afrocentric Idea*. Philadelphia: Temple University Press.

Chinamasa, P. (2001). The Human Right to Land in Zimbabwe: The Legal and Extra-Legal Resettlement Processes. Unpublished Master's Dissertation, Makerere University, Kampala.

Constitution of Zimbabwe Amendment 20 Act, Government of Zimbabwe. 2013.

Creswell, J. (2014). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. Thousand Oaks: Sage.

De Carvalho, I. and Correa, R. (2007). Brazilian Perspectives in Human Security: Policy Issues and Actors. Center for Policy Studies, Johannesburg. Volume 20 number 8. Ford Foundation.

FAO (2006). Food Security Policy Brief Issue 2. FAO Rome.

Galtung, J. (1990). Cultural Violence, *Journal of Peace Research, 27* (3) 291-305.

Gomez, O. A.,. Des Gasper, S., and Mine, Y. (2013). Good Practices in Addressing Human Security through Human Development Reports, UNDP.

Hove, M. and Gwiza, A. (2012) The Fast Track Land Reform Programme and Food Insecurity: A Case of Zimbabwe from 1992 to the Present. *American International Journal of Contemporary Research, 2(*8), 282-294.

Kasimbazi, E. (2017). Land Tenure and Rights for Improved Land Management and Sustainable Development, Global Land Outlook, Working Paper, UN Convention to Combat Desertification, New York.

King, G. and Murray, C. (2001). Re-thinking Human Security, *Political Science Quarterly, 116* (4) doi: 10.2307/798222.

Lincoln, Y. and Guba, E. G. (1985). *Naturalistic Inquiry.* Newbury Park: Sage.

Liotta, P. H. and Owen, T. (2006). Why human Security? *The Whitehead Journal of Diplomacy and International Relations*. *9*. 37-54.

Mararike, C.G. (2014). Land and the Human Factor: Access, Control, Ownership and Utilisation, In: C. G. Mararike (ed), *Land: An Empowerment Asset for Africa, The Human Factor Perspective*, Harare: University of Zimbabwe Publications. 2-11.

Matondi, P. (2012). *Zimbabwe's Fast track Land Reform*. London: Zed Books.

Mazama, A. (2001). *The Afrocentric Paradigm.* Trenton: Africa World Press.

Mazwi, F. and Chambati, W. (2020). Towards a National Gender-sensitive Land Policy. in Zimbabwe: Issues for Consideration, SMAIAS.

Mid-year Fiscal Policy Review. (2017). Harare, Government of Zimbabwe

Moyo, S., and Chambati, W. (2013). Land and Agrarian Reform in Zimbabwe: Beyond White Settler Capitalism. Dakar and Harare: Codesria and Weaver Press.

Ndlovu-Gatsheni, S. (2009). Africa for Africans or Africa for 'Natives' Only? New Nationalism and Nativism in Zimbabwe and South Africa, *African Spectrum*, 44(1) 61-78.

Ofori-Amoah, B. (1998). The Human Factor Perspective and Development Education. In: Chivaura, V.G. and Mararike, C. G (eds.) *The Human Factor Approach in Africa,* Harare: University of Zimbabwe Publications.

Pillay, D.P.K. (2016). Applying Human Security in the Indian Context, *Strategic Analysis, 40*(1) 41-55.

Scoones, I. (2014). *Debating Zimbabwe's Land Reform*. London: James Currey.

UNDP. (1994). Human Development Report, New York: UNDP.

United Nations (2005). Kofi Annan, Large Freedom: Towards Development, Security and Human Rights for All, Report of the Secretary-General, United Nations.

Zimbabwe Democracy and Economic Recovery Act. 2001. United States Congress.