

Journal of Economic Policy and Management Issues

ISSN: 2958-6313 Volume 2, Issue 1, 2023, pp. 28-39

Agricultural extension services and household food security: Evidence from Murare resettlement scheme in Zimbabwe

D. Mundandishi
University of Zimbabwe, Harare, Zimbabwe
Email: mundandishi@gmail.com

T. Saungweme
Great Zimbabwe University, Masvingo, Zimbabwe

Abstract

Keywords:

- Agricultural extension services
- food security
- Murare rural resettlement scheme
- Mutare South Constituency

Since the late 1990s, Murare Resettlement Scheme in Mutare South Constituency of Zimbabwe, has experienced a decline in agricultural productivity and crop production. This is despite the presence of fertile soils and favourable climatic conditions. This study seeks to test the following primary goals: First, the study aims to examine the factors that contribute to the low agricultural productivity and rising food insecurity in the study area. Second, the study aims to examine the effectiveness of agricultural extension services in fostering sustainable household food security in Murare resettlement area. The study used a hybrid approach that combined both qualitative and quantitative methodologies in order to accomplish these prime goals. The research found that agricultural extension workers had a minimal impact in the study area and that the fundamental agricultural principles they are intended to be promoting to assist farmers are not being fully adopted. Based on the study findings, it is necessary to raise the visibility and competency of extension officers in supporting farmers so as to boost agricultural productivity and hence, increase food security in the area. Additionally, Extension Officers should be equipped with sufficient tools for their work. This includes tools for handling logistical problems like reliable road transport, fuel, and cutting-edge communication equipment. Considering the significance of women in rural development and food crop production in Murare Resettlement Scheme, particular attention should be focused upon women.

1. Introduction

Goal 2 of the Sustainable Development Goals established by the United Nations aims to achieve food security and find permanent solution to all forms of hunger by 2030 (United Nations, 2016). In order to achieve this aim, it is pertinent to guarantee equal access to land, technology, markets, agroecological systems, and resilient agricultural practices. This will increase small-scale farmers' productivity and profitability. In accordance with these global goals and initiatives, the Zimbabwean government signed both the United Nations Millennium Development Goals of the year 2000 and the Sustainable Development Goals of the year 2015 (United Nations Development Programmes/UNDP, 2016). By joining these international conventions, Zimbabwe demonstrated its commitment to and priority for improving food security throughout the country, region, and world.

Goal 2 of food self-sufficiency in Zimbabwe is being pursued domestically through numerous policies and initiatives that involve, among other things, redistribution of the means of production, particularly land. The land redistribution was the first necessary but insufficient step in increasing access to means of production by correcting the existing inequities in land access brought about by the previous administration (Saungweme, 2015; Saungweme and Magodo, 2014). At the time of political independence in 1980, there was a wide disparity in the ownership of land, with a handful of white Zimbabweans (who made up around 2% of the population) controlling 40% of the country's arable land, which contributed 40% to the GDP and 60% of export receipts (World Bank, 2022;

International Monetary Fund/IMF, 2016; Thirtle, et al., 1993). Due to these disparities, the government came under pressure to redistribute land to the majority black Zimbabweans.

The Zimbabwean government implemented a number of land redistribution programs, such as the resettlement programs of the 1980s and 1990s, and the fast-track land reform program in 1999 and 2000 (Jayne, et al., 2006; Thirtle, et al., 1993). The land issue was to be followed by investments and initiatives that would boost agricultural productivity, such as training, irrigation, and the construction of transportation infrastructure. The last step involved the introduction of suitable agricultural marketing policies and channels, as well as growth of agro-processing industries.

Unfortunately, Zimbabwe has seen a consistent decline in both agricultural and industrial output since 1997, despite what initially appeared to be a noble production and growth model for the country (World Bank, 2022, Saungweme, 2015). The fast-track land reform program in particular, which led to the cessation of donor funding for agricultural activities, balance of payment support, and both financial and market constraints in global markets, is one of the potential causes of the drop in agricultural production. Consequences included significant disruptions to formerly robust backward and forward economic links that supported sustainable food production and a steady supply of raw materials to downstream sectors. Prior to 2000, agro-industries received more than 60% of their raw materials from agriculture sector, and more than 70% of Zimbabweans made their living in that industry (Saungweme and Magodo, 2014).

Other potential causes of poor productivity and declining agricultural production in Zimbabwe include limited back-up services, unfavourable changes in the climatic conditions, lack of transport and rural isolation, subpar farming methods, and subpar pricing and marketing strategies, low pay, inadequate supervision, and limited and inappropriate training, (Saungweme, 2015; Cobbett, 1990). These elements have the potential to substantially reduce the effectiveness of agricultural productivity and meaningful rural development, especially at the essential micro-level. In light of the foregoing, the general goal of this study is to examine the effectiveness of agricultural extension services in promoting household food security in Murare Resettlement area of Zimbabwe. The study is motivated by what Cobbett (1990: 1) said “Agricultural extension is at the very heart of rural development. The success or failure of many Third World rural development plans will be determined to a significant degree by the impact of the agricultural extension services as ‘change agents’”.

The rest of the paper proceeds as follows: The background of study and theoretical foundation are synchronised in the next section. This is followed by empirical literature review. Section 4 presents the research design and methodology. The empirical analysis is presented in Section 5, while the main conclusions and policy implications are summed up in the last section.

2. Background of study and theoretical framework

2.1 Agricultural extension services and household food security in Murare resettlement scheme: An overview

The Government of Zimbabwe's (GoZ) resettlement effort led to the creation of the Murare Resettlement Scheme in 1983, located in Mutare South Constituency, Manicaland Province. The program aimed to give former landless indigenous people access to arable land as a means of emancipating citizens economically and enhancing household food security. Thomas (2003) claims that the Land Apportionment Act of 1930 and its predecessor, the Rhodesian Land Act, contributed to a greater expulsion of local blacks from their lands and into ‘reserves’ where the land was unsuitable for agriculture (see also, Palmer, 1990). Removal of native black people from their arable land and displacement to small non-arable land also contributed to the demise of a productive farming culture. According to Thomas (2003), only a small number of elite blacks were given the opportunity to acquire larger tracts of land and had simple access to master farmer training and Agricultural Extension Services (see also, Cobbett, 1990).

Thomas (2003) further asserts that the GoZ acquired land after attaining independence to resettle 160 000 families in its initial phase of resettlement program. In 1983, this phase led to the settlement of 350 households in the current study area. The GoZ pursued a concept credited to Walkins cited in Thomas' 2003 article about the new resettlement program, which said that: *‘a properly financed and well managed land reform programme could unleash the productive potential of peasant farmers in Zimbabwe as it did in South Asian countries such as South Korea, Taiwan and Japan’* (Thomas, 2003: 696).

The new resettlement schemes were created in such a way that the aggregate farm production on farms would not fall owing to disturbances during acquisition. As a result, Agricultural Extension Services (AES) were deployed in the new settlements and support for farming inputs were made available (Gonese, et al., 2002). The agricultural success in the 1980s was legendary, according to Moyo (1986), cited in Thomas (2003), and the Grain Marketing Board (GMB) recognised a large rise in delivered crop harvest (see also Gonese et al., 2002). This was also clear in the study area where the researchers, Mundandishi and Saungweme live – there was excess production, which was sold to GMB or other merchants to cover other food costs and other demands of living. Because of this,

the majority of villagers had access to enough basic necessities.

More specifically, Ward 22 is the subject of this study. According to early immigrants who were questioned, the area had five designated Agricultural Extension Officers who were in charge of crops and one Veterinary officer who covered the entire Zimunya area. Hanyana-Mlambo (2002) asserts that the role of extension services is to provide farmers with scientifically validated farming methods so they can achieve self-sufficiency in food production and eventually commercialise their farming activities. Being local villagers, the researchers in this study have first-hand knowledge of the decline in crop production since the 1980s and the consequent increase in food insecurity in most households.

The small landowners in the study area could produce an average of two tonnes of surplus maize per year, according to the Extension Officer for Villages A and B. This surplus maize might be sold to GMB. This proves unequivocally that most of households in the study area produced the cereal profitably and earned income to support themselves. However, this pattern did not last forever. Beginning in 2000, the output of resettled farmers declined precipitously, pushing the majority of families into poverty. Household- and community-levels production declined due to numerous constraints, including incessant droughts; poor irrigation systems; crop and animal diseases; declining soil fertility; poor physical and institutional infrastructure, such as bad roads, and limited market access; limited availability of agriculture extension services; limited input supplies; and shortages of farm power due to increased rural-urban migration by the economically aged people and absence of draft animals (see also Chingarande et al., 2020). Most of the families began receiving food aid from governmental and humanitarian organisations. Despite receiving the necessary inputs, the Manicaland Province Zimbabwe Vulnerability Assessment Committee Report (2021) revealed that a greater proportion of farmers who had signed up for the Pfumvudza/Itwasa Government Agricultural Inputs Loan Scheme had failed to generate excess crops due to low yields.

Meteorological Services Department of Zimbabwe (2022) reports that from 2015 to 2021, the Vumba range, which is home to the Murare Resettlement Scheme, had good annual rainfall averages of 1703,9 millilitres. When properly managed, the region's normally arable terrain may provide high-quality agricultural products, especially if agricultural extension specialists are available to offer guidance and help farmers adopt more productive farming techniques. The Food and Agriculture Organisation of the United Nations (FAO) (2021), however, states that due to food insecurity brought on by poor crops, the entire district of Mutare South has been getting food assistance. The empirical question that still has to be resolved is: Why is agricultural productivity dropping in the study region if Zimbabwe's agricultural extension system is successful? To the best of our knowledge, this is the first study of its sort to be conducted in the province of Manicaland with the intention of increasing agricultural productivity and encouraging food self-sufficiency. The study by Saungweme and Magodo (2015), which focuses on illegal land reform activities in the study area, is one earlier study that is comparable to the current study. Another study that comes close to the current analysis is that by Muvhuringi et al. (2021) on the effects of the coronavirus pandemic on agricultural extension and food supply in Zimbabwe.

2.2 Conceptualising agricultural extension system in Zimbabwe

In Zimbabwe, agricultural extension has been valued for a very long time. This appreciation extends back to the 1920s (Cobbett, 1990). During this period, white farmers received great assistance from the agricultural extension agency during this time, but black subsistence farmers received subpar service (Cobbett, 1990). However, the extension system has existed since the 19th century in both Europe and America and has evolved over time alongside civilisation (Maunder, 1972). Particularly, France was the first country to adopt extension services in 1872 (Maunder, 1972). Since then, most countries worldwide have adopted this concept in an effort to increase the capacity of their farmers in agricultural endeavours. Similar to this, the Zimbabwean government adopted this concept widely in an effort to increase the productivity of smallholder farmers.

The concept of the extension service in agriculture is one where capacities are enhanced through the transmission of technology to downstream farmers to enable them to be more productive through the application of contemporary technological innovations (Gulat, et al., 2018). According to Matsika (2012), agricultural extension is the dissemination of knowledge and technology concerning productive farming methods that are based on research and are transmitted through agents with the primary goal of increasing yields. An extension program, according to Oakley and Garforth (1985), is a non-formal educational approach that targets rural populations and seeks to alter farmers' perspectives on their challenges.

As a result, the Agricultural Extension System (AES) is primarily an adult education initiative that constantly supports farmers in enhancing their farming methods. It might also be referred to as an intervention by

agricultural experts in rural areas to advance farming methods and technology. The main goals are to increase agricultural output in both quality and quantity and to build or reinforce farmers' capacity in agri-business.

Oakley and Garforth (1985) assert that the agricultural extension system is more concerned with using the knowledge that already exists so that it is understood and put into practice by the farming community rather than developing knowledge as is done in educational or academic institutions or research institutes. Therefore, the primary purpose of the agricultural extension system is to assist farming communities in acquiring the best farming knowledge and skills for their growth and superior productivity. According to Coombs (1974), the primary goal of the agricultural extension system is to convince and assist farmers in increasing production by using better technical methods. According to Mapiye et al. (2021), agricultural extension is credited with bringing farming knowledge, inputs, and making it easier for smallholder farmers and producer groups to organise and receive training in order to improve production, livelihoods, and ensure better household income and food security. It also makes it easier for them to access markets and credit facilities.

The implementation of rural extension systems should be done in a way that is appealing and acceptable to the locals. Oakley and Garforth (1985) assert that the following guidelines can help an extension effort succeed:

- i. Extension works with the people and not for them,
- ii. Extension is accountable to its clients,
- iii. Extension allows for exchange of knowledge. It is not a one-way process or top-down approach,
- iv. Extension system should allow for working and cooperating with other relevant stakeholders, and
- v. Extension system allows for working with different target groups who have divergent characteristics and experiences.

2.3 Institutions offering agricultural extension services (AES) in Zimbabwe

After Zimbabwe gained its independence, there were three major changes to the country's agricultural extension services: the merger of Conex and Devag to form the Agricultural Technical and Extension Services (Agritex), the shift from white (commercial) areas to black (communal) areas, and the rapid racialisation of the management staff. The creation of Agritex was consistent with the goal of the government to end all forms of racial discrimination. The government also sought to strategically integrate black Zimbabweans into the national economy by closing the enormous gap between the commercial and communal sectors.

Currently, there are many organisations that offer agricultural extension services in Zimbabwe, and these can be divided into two categories: public-financed organisations and commercial institutions (see also Hanyana-Mlambo, 2002). The majority of small-scale farmers rely on publicly funded extension programs. On the one hand, a public supported agricultural extension system is one in which the central government finances extension programs. It uses a technology transfer system in which Extension Officers are used by the government to promote new technological applications to farmers. According to Mapiye et al. (2021), this kind of extension program is primarily intended to accomplish national agricultural goals, such as raising yields for particular crops and generally lowering associated costs. The planning and implementation processes are centrally controlled by the ministry in charge of agriculture in Zimbabwe. The dissemination of information is largely uniform across the country and is controlled by national policies and regulatory guidelines.

According to Eicher (1995), government-funded extension programs in Zimbabwe are credited for successfully promoting the use of hybrid maize varieties and fertilizers by small-scale farmers. This was thought to be the reason that maize production increased in the 1980s. The public-funded extension system, however, is missing in two-way communication. The top-down methodology is primarily used, with farmers acting as merely information recipients. According to FAO (2017), there are some institutional inefficiencies in the public extension system related to bureaucratic procedures, a lack of accountability, and subpar cross-disciplinary arrangements. The public extension system has also lagged behind in technological advancements since it primarily uses antiquated technology and is slow to adopt newer ones.

On the other hand, Umali-Deininger (1997) defines private AES as organisations made up of all economic agents whose goal is to produce profits either directly or indirectly for their owners, members, or shareholders. This industry includes cooperatives, commercial production and marketing firms including input manufacturers and distributors, agro-marketing and processing firms, commodity boards, private consulting and media organisations, as well as businesses run by a farmer or group of farmers (Umali-Deininger, 1997). A few examples of such providers include Seedco, Cotton Company of Zimbabwe, and Zimbabwe Fertilizer Company. Agricultural extension services can also be offered by farmer organisations and Non-Governmental Organisations (NGOs) whose sole purpose is to build the capacity of farmers (Umali-Deininger, 1997). Numerous such non-governmental organisations, including the World Vision and SNV Agricultural Extension Services Consultant, are assisting

farmers in Zimbabwe to produce a bountiful harvest.

2.4 Household food security in Manicaland province, Zimbabwe

The higher yields are crucial for ensuring household food security and releasing households from the poverty that is brought on by malnutrition and hunger. However, Chingarande et al (2020) noted that the main crop grown in Zimbabwe's Manicaland province has been the cereal maize crop and noted that the production of maize has been declining over the review period. Maize is the main grain consumed in Zimbabwe, and its scarcity could threaten domestic food security.

This study has postulate that the low production of food crops in Murare Rural resettlement Scheme may be due to poor implementation of the Agricultural Extension System among other problems. Food security in households is only guaranteed if the agricultural extension system is well-funded by both private and governmental donors (Gulati et al., 2018). This implies that the financing and assistance that AES providers receive from funders determines how well they can assist farmers in increasing their productivity.

2.5 Factors affecting crop production in resettlement areas of Zimbabwe

Many people think that the public extension system has been ineffective and has not successfully pushed smallholder farms toward commercialisation (Mapiye et al., 2021). FAO (2017) asserts that most extension activities fall short of farmers' demands because they are not driven by them. In addition, although Zimbabwean farmers started using hybrid maize seeds, there have been issues with the application of supported technologies including fertilizers, insecticides, and numerous other advised agronomic management methods (FAO, 2017). Additionally, extension agents have a propensity to focus on more progressive farmers who are quick to adopt new interventions and yield quick results. The reason why those isolated and vulnerable farmers are not included is not usually on purpose; rather, it is because they do not often stand up for themselves. Thus, it is encouraged that Extension Officers give poor communities special attention and provide them with agricultural education and assistance so that they can become productive and escape from poverty.

The number of agricultural extension workers are poorly trained or dissuaded from determining the needs of the farmers in order to provide knowledgeable assistance (see Thomas 2003). This may mean that most of the knowledge needs for farmers' line of work would continue to go unmet, which might prevent learning from happening. Additionally, it is recommended that farmers understand their preferred crops rather than those that the government or other outside factors favour.

In order for smallholder farmers to adopt farming as a business and increase productivity, it is necessary to technically capacitate them through the provision of knowledge, skills, and financial support (Ministry of Lands, Agriculture, Fisheries, Water, and Rural Resettlement, 2021). Only capable individuals who have had extensive farming training are able to capacitate farmers.

According to Oakley and Garforth (1985), a competent extension officer must possess the following knowledge and abilities:

- i. *Technical* - To effectively assist farmers, a qualified extension officer should possess philosophical, theoretical, and practical knowledge in agriculture and adult education.
- ii. *Rural life* - Since the majority of AES work is done in rural areas, an extension agent needs to be accustomed to living there.
- iii. *Policy* - AES is mostly institutionally based and adheres to the policies of the entities that support it. When performing extension work, Extension agents should always follow the institutional policies as a matter of ethics.
- iv. *Adult education*- The purpose of extension work in agriculture is to help farmers, who are primarily adults, learn about agriculture. In order to effectively communicate with and win over the farmers as their mentor or facilitator, the extension worker should have some knowledge with the conceptual underpinnings of adult education.

2.6 Potential approaches to the provision of AES in Zimbabwe

The methods of agricultural extension that are practiced and known in Zimbabwe may also have an impact on whether or not the service is successful. The following strategies for agricultural extension service were provided by Mapiye, et al. (2021):

- i. Technology transfer based extension,
- ii. The training and visit extension approach,
- iii. The commodity specialized approach,
- iv. Participatory Agricultural approach,
- v. The farmer field school,
- vi. The project (integrated) extension approach
- vii. The farming system research extension approach, and
- viii. The cost sharing extension approach.

3. Empirical literature review

There is virtually little empirical research on the effectiveness of agricultural extension officers in Zimbabwe. This is true even though the concept was initially proposed in the country in 1927. According to Mapiye et al. (2021) Zimbabwe has been using many approaches to AES with the aim to find the best solution to low agricultural productivity, particularly in resettled farmers. It is further stated that AES has also been benefiting to Farming Systems Research-extension programmes where contextually based technologies and farming methods has been promoted thereby solving problems in certain localities. Muvhuringi et al. (2021) used a sample of 100 agriculture extension officers to examine the effects of the coronavirus pandemic on agricultural extension, food supply, and the efficacy of suggested coping mechanisms in Zimbabwe. The study found that the pandemic had a significant negative impact on food availability and agricultural extension.

According to the Zimbabwe Vulnerability Assessment Committee (ZimVac) (2021) the majority of households in Murare Resettlement area, Manicaland, are experiencing a continual decline in food security. Hanyani-Mlambo (2015) claims that an average Agricultural Extension Officer in Zimbabwe travels up to 40 kilometres to see between 300 and 1800 farmers. The percentage is too high, and this could lead to inadequate coverage of all farming communities, which would marginalize some farmers.

According to Matsika (2012), some of the most popular agricultural extension strategies in Zimbabwe include farmer field schools, group demonstrations and one-on-one follow-up with farmers, group meetings, field days, train and visit, and master farmer training. Examples of success stories in the AES in Zimbabwe has been in the Commodity Based approach where the AGRITEX Extension Officers were combining efforts with private players like Crop buyers, Manufacturers and some Non-Governmental Organisations to capacitate and even sponsor a certain crop production, for example maize (SNV Agricultural Extension Services, 2015). This has helped some smallholder farmers to produce more and commercialise thereby securing their food self-sustenance.

A few previous studies from the area and beyond include those by Wanigasundera and Nihal (2019) for Sri Lanka and Raidimi and Kabit (2019) for South Africa. Raidimi and Kabit (2019) looked into how agricultural extension and training might help smallholder farmers long-term food security in South Africa. The results showed that agricultural extension helps farmers make educated decisions and thereby contributes to long-term food security. The study came to the conclusion that continued agricultural extension human resource development through investment in education is a precondition for the extension personnel to be better equipped for knowledge dissemination and to realize the objective of sustainable food security. Wanigasundera and Nihal (2019) looked at the impact of agricultural extension services in Sri Lanka from 2000 to 2018. The study found that the agricultural extension system in Sri Lanka had a number of significant flaws, including customer discontent, a bureaucratic approach, a significant performance disparity, diminishing investments in extension, and a poor response time to changing responsibilities.

In general, it can be said that the biggest issues facing the Extension Officers in Zimbabwe's agricultural extension system are the logistical difficulties, the size of the territory, and the high population to Extension Officers ratios. This is likely contributing to the diminishing food output and increased levels of poverty among farmers who have been resettled in rural Zimbabwe, along with unfavourable climatic conditions and underdeveloped irrigation and road infrastructure.

4. Research design and methodology

The study employs a mixed-methods approach, integrating aspects of qualitative and quantitative research. According to Giddens and Grant (2006), mixed methods designs are underpinned by positivist/postpositivist assumptions. To ensure there is congruence between the chosen methods and the research problem, the chosen mixed methods approach carefully considers the needs to be given to the assumptions supporting this research

methodology. The study's target populations are 4600 households and seven agriculture extension officers, who are involved in farming for their own food security and assisting farmers in achieving sustainable output, respectively. The household heads who reside in the Murare Resettlement Scheme served as the study's sample. Cluster sampling was used by the researchers to speak with local residents who were crucial informants, including Agricultural Extension Officers (AEOs), Village Heads, Local Councilors, and Civil Servants. Distribution of the sample subgroups is shown in Table 1:

Table 1. Study population and sample subgroups

Population group	Target population group size	Sample size
Public AEOs	5	3
Private AEOs	2	2
Households	4600	300
Total	4607	305

Both secondary and primary sources of data were used in the investigation. Interviews, questionnaires, and the researcher's own reflective blog were all used to collect data from participants. A total of 350 questionnaires were conveniently distributed to household heads with the help of AEOs. The benefit of employing questionnaires was consistent with Kumar's (2012) conclusions that they were less expensive to administer, provide a higher level of anonymity, and were considerably simpler for respondents to understand and reply to. Additionally, interviews were conducted over the phone and on social media. Interviews with 30 influential people from the study community and seven (7) agricultural extension officers (AEOs) were conducted for this study. In this study, the reflective journal was employed carefully to keep track of what transpired during interviews and to explain issues through self-perceptions based on actual, verifiable facts. The ability to evaluate interviewee responses and behaviours was made possible by the researchers' research and professional experiences. All interviewees were given code names to help conceal their identities, addressing the concern of interviewee confidentiality.

The following ethical considerations were noted: The study was (i) honest in that there was no information falsification or other form of cheating on the part of the researcher; (ii) voluntary in that all participants gave their consent voluntarily, without coercion, and of their own free will; (iii) informed in that participants were made fully aware of the study's goals and that they could withdraw at any time; and (iv) anonymous in that code names were used on interview reports. All participants' rights to privacy and confidentiality were upheld throughout the research.

5. Data analysis

Table 2 shows the demographic information gathered from the study sample as well as the participant response rate.

Table 2. Response rate and demographic data

	No of participants	% of the total participants
By instrument		
Interviews done	37	100%
Questionnaires	305	100%
Total Response	342	100%
Gender status of respondents		
Male	180	52.6%
Female	162	47.4%
Age distribution of respondents (years)		
20-39	152	44.4%

40-60	172	50.3%
Over 60	18	5.3%
Length of time farming in the area (years)		
1-10	20	5.8%
11-20	95	27.8%
21-30	110	32.2%
Over 30	117	34.2%
Educational status of participants		
Primary level	157	46%
Secondary level	127	37%
Tertiary level	58	17%
<i>Source: Authors' compilation of primary data from questionnaires and interviews</i>		

Table 2 indicates that there were no missing responses, indicating that the response rate was 100%. The researchers received back the completed questionnaires the same day. The high response rate contributed to the study tools' increased validity and reliability.

The demographic information taken into account for the study included the participants' residential status in the study area, their age, sex, how long they had been farming there, and the status of their educational achievements. This was carried out in order to describe the sample's features. According to the presented data, male household heads made up 52.6% of the sample population while female household heads made up 47.4%. This demonstrates unequivocally that most homes in the area are led by men. The statistics additionally demonstrate that gender balance was preserved in the research because both sexes were represented.

All of the participants were at least 20 years old. Although their presence cannot be completely ruled out, the families with children at home were not included in the study. Approximately 95% of the respondents were energetic people who are aged between 20 and 60 years. The percentages for those in the 20 to 39 year old and 40 to 60 year old age groups were 44.4 and 50.3, respectively. The elderly who are over 60 years old had the least percentage (5.3%). All of the participants were household heads and of consenting age.

Roughly 5.8% of the total participants were farmers who had been farming in the area for fewer than ten years. Overall, 65.8% of those who had been farming in the area for less than 30 years may have moved there informally or may have inherited land after the households were formally established in the 1980s. Those who have been farming in the area for more than 30 years make up the final category. With a frequency of 34.2%, this group is most likely made up of native farmers who were formally resettled by the government prior to the year 2000.

According to the participants' literacy levels, 157 individuals, or 46%, had only completed primary school and had not moved on to secondary school. A total of one hundred and twenty-seven (127), or 37% of the participants, completed secondary school. There were 58 participants, or 17% of the study population, who completed tertiary education. In the main, at least more than half, 54%, of the respondents had at least a secondary education. This level of education made it simpler for the respondents to answer the questionnaires and comprehend the training material delivered by AEOs.

The area under study had no secondary school before 2005 and the nearest secondary school was more than 10 kilometers away this could have been the cause for many having primary education. Their lower level of education can also be deduced as a sign of poverty in the area of study.

Source: Authors' reflective diary

The participants gave the following answers to questions about how they felt the local Agricultural Extension system was performing:

Table 3. Perceived duties of extension officers

Duties of Extension Officers	Frequency	Percentage
Teaching farming& sourcing inputs	45	13%
Teaching farming, donating food & inputs	113	33%
Teaching farming& sourcing markets	92	27%
Teaching farming, operating demonstration farms& farm visits	92	27%

Source: Primary data from questionnaires and interviews

About 13% of the farmers who were surveyed and interviewed said that Agricultural Extension Officers are in charge of instructing villagers in the best farming practices and distributing agricultural inputs to the farmers. Surprisingly, 113 respondents—or 33% of the farmers—thought that agricultural extension officers were in charge of educating farmers and assisting with food and agricultural input donations. On the plus side, 184 respondents, or 54% of all farmers, were aware of what Agricultural Extension Officers actually do.

Based on the opinions of the participants above, it was determined that every respondent agreed that Agricultural Extension Officers should educate farmers about best agricultural practices. The answers provided by the participants were in line with theory as confirmed by Oarkley and Garforth (1985), who summarised an agricultural extension agent's responsibility as being those of an educator, facilitator, and catalyst. The findings of this study tally with those in Raidimi and Kabit (2019) for South Africa.

The existence and duties of Agricultural Extension Officers are known in the area of study. The rural communities do respect the existence of the Agricultural Extension Officers whom they respect as government officials. This was exhibited in interviews where all participants referred to the Officers in respectful manner.

Source: Authors' reflective diary

According to participants, the primary methods of agricultural extension used by Agricultural Extension Officers in the research area are as follows:

- i. *Farm visit* - About 17% of the respondents said that their Extension Officers regularly visit farms to teach farmers how to be productive.

Interviews produced thirteen farmers who explicitly acknowledged being visited. The researchers noticed that they are seasoned smallholder farmers who also live in places that Extension Officers can visit quickly because they are close by and have superior roads. This supported a claim made by Hanyani-Mlambo (2015) that the majority of farm visits by extension agents are biased toward a select group of farmers who live close to extension offices. The study area has several isolated locations, particularly in informal settlements, without roads and sloppily developed topography that makes it difficult to build one. As a result, extension officers have little access to these places or visit them seldom.

Source: Authors' reflective diary

- ii. *Master farmer training* - Participants noted that this approach, chosen by 80% of respondents, was the most widely used one. However, it was discovered from the interviews with some extension officers and farmers that the trainings were last held in 2017 in the majority of the areas. The findings are not unique to the Murare Resettlement Scheme as they are consistent with those in Hanyani-Mlambo (2015). Most of the participants who were interviewed stated that the majority of the resettled farmers were enrolled in the program.
- iii. *Farmers groups* - No participant mentioned farmers grouping as a way to reach out farmers by Extension Officers. This clearly shows that the Farming groups are not being practiced in the area of study. The failure to establish such groups suggests lack of mobilisation initiatives and incompetence by local Extension Agents.
- iv. *Specialised commodity approach* - No one who answered the questionnaires had any experience with such a strategy. However, after explaining the concept to some farmers in the interviews, four participants mentioned the specialised commodity approach as a way for Extension Officers to interact with farmers. This proves conclusively that specialised commodity approach is uncommon in the research area. However, the researchers

found that contract farming of tobacco and chilli was taking place in the region and using the specialised commodity approach extension system.

- v. *Field day and demonstrations* - Participants who supported this strategy by a margin of 57% also used other strategies in addition to it. This demonstrated clearly that field trips and demonstrations were extremely common in the study area. However, based on the results of the interviews, it was determined that field days were typically held once a year, during the cropping season.
- vi. *Training and visit* - Fifty percent of the participants claimed they employed this strategy in conjunction with other tactics.

Despite the fact that half of the participants mentioned the training and visit, the 1:1150 farmer to extension officer ratio makes it very challenging to carry out. Hanyani-Mlambo (2015), who claimed that the existing agricultural extension system in Zimbabwe suffers from poor mobility and a high extension agent to farmer

Source: Authors' reflective diary

The research found that Extension Officers' lessons have a generally poor acceptance rate. The majority of farmers are aware of the new concepts, but according to the researchers' observations and interviews, they are unable to put them into practice because they lack the necessary resources, such as inputs. Explicitly, participants were stated that they were not fully adopting to the ideas because of things like lack of resources to use, lack of experience in the concepts, and poor orientation and fear of losing their traditional ways of farming. Interviews revealed that those with strong relationships with Extension Officers frequently sought their counsel.

The majority of the respondents, 53%, stated that they were able to support their families in part through crop harvests. About 27% of the participants said they had been harvesting enough over the previous five years to fully support their families. However, about 20% of the participants claimed that they had not produced enough harvest over the previous five years to support their families. According to interviews, maize, a staple food in Zimbabwe, is the crop that is farmed the most in the area. According to the results, the majority of participants rely on sources other than their farming methods to obtain food. Findings from Chingarande et al. (2020), who said that maize is the principal food crop planted in Manicaland and that production was low, support this. This shows the local food insecurity. According to information obtained from community members through interviews, most households rely on monthly food aid from donors, and government food handouts to some extent.

Farmers' inability to produce both enough food for their own needs and an excess to sell is due to a variety of factors. The majority of participants—about 56,7% that they were not producing enough because of a lack of inputs. The majority of farmers said they do not have the financial resources to purchase all the inputs required to produce wholesome farm products. This claim was supported by observations made by researchers on the maize crop in the study area in 2021–2022, which was highly unhealthy because it lacked insecticides, fungicides, and basal and top dressing fertilizers. This finding is supported by a study carried out by Mapiye et al (2021) which stated that funding problems to support agriculture are the cause of failure to produce by farmers in Zimbabwe.

About 20% of the study's participants claimed to be ignorant of contemporary farming methods. About 23.3% of the farmers attributed their inability to increase production to the Extension Officers. In interviews, Agricultural Extension Officers cited a lack of funding from the central government as the main reason they were unable to effectively assist farmers in increasing their output. It was also found that most farmers had reduced the amount of land they farmed on those tiny plots of land because of what the villages claimed was a lack of resources.

6. Conclusions and policy implications

Despite being well-established, Zimbabwe's agricultural extension service needs a significant overhaul to align with the country's policy of encouraging self-sufficiency in food. The pivotal role of agricultural extension within the food crop production is well acknowledged, but a shortage of manpower, finance, and other critical resources in Murare Resettlement Scheme preventing AEOs from operating at their maximum capabilities. The purpose of this study was to determine how effectively Agricultural Extension Services are supporting household food security in Mutare South, Zimbabwe's Murare Resettlement Scheme.

The researchers were motivated to look into the causes of agricultural underperformance and decreased food security because they believed that the Agricultural Extension System was a key factor in ensuring that families could feed themselves. In order to identify knowledge gaps and choose the optimal research approach, a survey of the literature on related studies and relevant knowledge on the subject was conducted. The majority of study participants had at least a secondary education, indicating that the region contained people with moderate education

levels who could understand farming concepts. About 44% of smallholder farmers have contradictory opinions about what an extension worker's duties are; among other things, they believe that they are responsible for finding and donating food and agricultural inputs, which has been proven to be erroneous. Each participant did, however, correctly point out that agricultural extension officers are there to disseminate or facilitate agricultural information and technology. The most widely used agricultural extension tactic in the area is Master Farmer Training. However, it was determined that the training was last conducted in 2017. Although less frequently, the specialised commodity approach is also used in the study area, mostly in contract crops such as tobacco and chillies. The study results further revealed that the impact of interventions by Extension Officers was low. This proves categorically that participants had a negative opinion of agricultural extension officers. The study also showed that farmers in the study region were not fully implementing the agricultural principles that Extension Officers assist them with for a number of reasons, including a lack of resources, knowledge, and orientation, as well as in some cases a fear of giving up their traditional farming methods.

The study recommends a considerable improvement in the Murare Resettlement Scheme's Agricultural Extension System standards. One of the most important things to take into account is that Extension Officers should increase their visibility and competence in order to assist farmers in becoming more productive and enhancing their food security. A resource centre should be established to support the work of Extension Officers. The Group approach to agricultural extension, which is not being applied in the study area, may be helpful in making Agricultural Extension Officers reach and train more people cheaply. Agricultural Extension Officers should also use more participative strategies in their interventions if they want people to support their initiatives. Instead of concentrating only on crops for the rainy season, agricultural extension programs should also promote winter crops. This might improve households' access to food. Agricultural Extension Officer visits to farms should be combined with frequent farmer training sessions. In order to provide quality intervention, the proportion of Agricultural Extension Officers to farmers should also be decreased. Additionally, the Extension Officers should be equipped with sufficient tools for their work. This includes tools for handling logistical problems like reliable road transport, fuel, and cutting-edge communication equipment. Considering the significance of women in rural development and food crop production in Murare Resettlement Scheme, particular attention should be focused upon women.

Acknowledgments

The authors would like to thank the University of Zimbabwe, Community and Social Development Department, for facilitating and making it possible to undertake the research. More particularly, the University of Zimbabwe ensured that all ethical principles were fully followed throughout the study. The authors are also grateful to Mr. TL Magwirototo for his ongoing advice and assistance during the course of the study.

References

- Chingarande, D., Matondi, P., Mugano, G., Chagwiza, G., and Hungwe, M. (2020). Zimbabwe Food Security Desk Research: Masvingo Province. https://www.rtachesn.org/wp-content/uploads/2020/01/RTAC_Masvingo-Food-Security-Desk-Review_FINAL-3-1.pdf.
- Cobbett, M. (1990). Agricultural extension in Zimbabwe : The basis for rural development. [Online]. Retrieved from <https://www.sahistory.org.za/sites/default/files/archive-files2/rejan85.8.pdf>. [21 December 2022].
- Coombs, PH. (1976). Nonformal education: Myths, realities, and opportunities, *Comparative Education Review*, 20(3), 281-293.
- Eicher, C.K. (1995). Zimbabwe's maize-based Green Revolution: Preconditions for replication, *World Development*, 23(5), 805-818. [https://doi.org/10.1016/0305-750X\(95\)93983-R](https://doi.org/10.1016/0305-750X(95)93983-R).
- Food and Agriculture Organisation of the United Nations (FAO). (2021). Zimbabwe - FAO in the 2021 humanitarian appeals. FAO.
- Giddens, L and Grant, B. (2006). Mixed methods research for the novice researcher, *Contemporary Nurse*, 23(1), 3-11.
- Gonese, FT., Marongwe, N., Mukora, C., and Kinsey, B. (2002). Land reform and resettlement implementation in Zimbabwe: An overview of the programme against selected international experiences. [Online]. <https://minds.wisconsin.edu/bitstream/handle/1793/23060/LRRPOverview.pdf>.
- Gulati, A., Sharma, P., Samantara, A., and Terway, P. (2018), Extension system in India; Review of the current status, trends and the way forward. Indian Council for Research on International Economic Relations.
- Hanyani-Mlambo, B.T. (2002). Strengthening the Pluralistic Agricultural Extension System: A Zimbabwean Case

- Study, Food and Agriculture Organisation of the United Nations, Geneva, Switzerland.
- International Monetary Fund (IMF). (2016). Unlocking Zimbabwe's agricultural potential. <https://www.elibrary.imf.org/downloadpdf/journals/002/2020/082/article-A005-en.xml>.
- Jayne, TS., Chisvo, M., Rukuni, M., and Masanganise, P. (2006). Zimbabwe's food insecurity paradox: Hunger amid potential. Book Chapter in *Zimbabwe's Agricultural Revolution Revisited*, Rukuni, M, Tawonezvi, P and Eicher, C (eds). University of Zimbabwe Publications.
- Kumar, U. (2012). Status and constraints of extension services, in *Status of Agricultural Development in Eastern India*. eds: Joydeep Mukherjee, Adlul Islam, A. Dey, pp. 479 -492, ICAR Research Complex for Eastern Region, Patna.
- Manicaland Province Zimbabwe Vulnerability Assessment Committee (ZimVAC). (2021). 2021 Rural Livelihoods Assessment Report. ZimVAC, Harare: Zimbabwe.
- Mapiye, O., Makombe, G., Molotsi, A., Dzama, K., and Mapiye, C. (2021). Towards a revolutionised agricultural extension system for the sustainability of smallholder livestock production in developing countries: the potential role of ICTS, *Sustainability*, 13(11). DOI: 10.3390/su13115868.
- Matsika, E. (2012). How to make agricultural extension services more effective in responding to the needs of female-headed households farmers. Case of Svosve communal area in Marondera District, Zimbabwe. University of Applied Sciences, Van Hall Larenstein.
- Maunder, AH. (1972). *Agricultural Extension. A Reference Manual*. United Nations Food and Agriculture Organisation.
- Meteorological Services Department. (2022). 2021/22 Seasonal rainfall forecast for Zimbabwe. https://t792ae.c2.acecdn.net/wp-content/uploads/2021/09/2021_22-NACOF-statement-Public.pdf.
- Moyo, S. (1986). The land question, in Mandaza, I (ed), *Zimbabwe: The Political Economy of Transition 1980-1986*, pp. 165-201. Codesria, Dakar: Senegal.
- Muvhuringi P.B, Nyamuziwa T.K and Chigede, N. (2021) The impact of COVID-19 on agricultural extension and food supply in Zimbabwe, *Cogent Food & Agriculture*, 7(1), 1 -11. DOI: 10.1080/23311932.2021.1918428.
- Oakley, P. and Garforth, C. (1985). *Guide to Extension Training*, Food and Agriculture Organisation of the United Nations. Rome.
- Palmer, R. (1990). Land reform in Zimbabwe, 1980-1990, *African Affairs*, 89(355), 163-181.
- Raidimi, E.N and Kabit, H.S. (2019). A review of the role of agricultural extension and training in achieving sustainable food security: A case of South Africa, *South African Journal of Agricultural Extension*, 47(3), 120-130. <http://dx.doi.org/10.17159/2413-3221/2019/v47n3a520>.
- Saungweme, T. (2015). Cash-crop production in Zimbabwe: Possible strategies to sustainably revive the cotton and tobacco industries, *Russian Journal of Agricultural and Socio-Economic Sciences*, 42(6), 35-40.
- Saungweme, T. and Magodo, L. (2014). Parallel land reform: A case study for Mutare South Constituency, Manicaland, Zimbabwe, *International Journal of Economic Research*, 5(5), 51-55.
- Thirtle, C., Atkins, J., Bottomley, P., Gonese, N., Govereh, J., and Khatri, Y. (1993). Agricultural Productivity in Zimbabwe, 1970-90, *The Economic Journal*, 103 (March), 474-480.
- Thomas, NH. (2003). Land reform in Zimbabwe, *Third World Quarterly*, 24(4), 691-712.
- Umali-Deininger, D. (1997). Public and private agricultural extension: partners or rivals? *The World Bank Research Observer*, 12(2), 203-224
- United Nations. (2016). Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. [Online]. Retrieved from [https://unstats.un.org/sdgs/report/2016/goal-02/#:~:text=Goal%20%20seeks%20sustainable%20solutions,widespread%20promotion%20of%20sustainable%20agriculture](https://unstats.un.org/sdgs/report/2016/goal-02/#:~:text=Goal%20%20seeks%20sustainable%20solutions,widespread%20promotion%20of%20sustainable%20agriculture.). [02 May 2023].
- United Nations Development Programmes (UNDP). (2016). Sustainable Development Goals: Background on the Goals. [Online]. Retrieved from <https://www.undp.org/sdg-accelerator/background-goals>. [02 May 2023].
- Wanigasundera, W.A.D.P and Nihal, A. (2019). Extension reforms in Sri Lanka: Lessons and policy options, in *Agricultural Extension Reforms in South Asia*, <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/agricultural-extension-services>
- World Bank. (2022). *World development indicators*, Washington DC, World Bank.
- Zimbabwe Vulnerability Assessment Committee (ZimVac). (2021). *Rural Livelihood Assessment Report*. ZimVac.