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Towards Attaining Sustainable Strategies for Improving Livelihoods in The Lowveld Region Through The Teaching of Agriculture in Rural Secondary Schools.

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ABSTRACT

The Lowveld region of Zimbabwe, characterized by its arid climate and limited economic opportunities, faces significant challenges in achieving sustainable livelihoods. Agriculture, being the backbone of the region's economy, presents a viable pathway for improving rural livelihoods. However, the effectiveness of agricultural education in secondary schools plays a pivotal role in equipping the youth with the necessary skills and knowledge to engage in sustainable agricultural practices. This paper explores the current state of agricultural education in Lowveld secondary schools, identifies challenges faced in teaching Agriculture, and proposes intervention strategies to enhance the quality of agricultural education. The study argues that improving agricultural education can contribute significantly to sustainable livelihoods in the region. Data for this study was gathered through a review of existing literature, interviews with educators, focus group discussion with secondary school learners and observations in selected schools. The findings reveal gaps in the curriculum, inadequate resources, and a lack of practical training. The paper concludes with recommendations for curriculum reform, teacher training, and community engagement to foster sustainable agricultural practices and improve rural livelihoods.

Keywords-Agriculture, sustainable livelihoods, Lowveld region, secondary school learners

INTRODUCTION

The Lowveld region of Zimbabwe, spanning areas such as Chiredzi, Mwenezi, and Beitbridge, is characterized by low rainfall, high temperatures, and limited economic opportunities Madhanzi,(2021. Agriculture remains the primary source of livelihood for the majority of the population, yet the region faces persistent challenges such as food insecurity, poverty, and environmental degradation. In this context, agricultural education in secondary schools is critical for equipping the youth with the skills and knowledge needed to engage in sustainable agricultural practices. This paper examines the role of agricultural education in promoting sustainable livelihoods in the Lowveld region, focusing on the current state of agricultural teaching, challenges faced, and potential intervention strategies.

METHODOLOGY

This study employed a mixed-methods approach, combining qualitative and quantitative data collection methods. Data were gathered through the following methods. Firstly, a review of existing literature on agricultural education and rural livelihoods in Zimbabwe was conducted to establish what has currently been investigated on the phenomenon in question. Such a review was necessary so as to assist the researchers to focus on other factors relating to fostering the development of quality livelihoods in the Lowveld region of Zimbabwe. Interviews with 20 Agriculture teachers purposively sampled from 10 secondary schools in the Lowveld region were also conducted with a view to generating current data on how agriculture contributes to the development of sustainable livelihoods in the Lowveld. The sampled schools have been offering Agriculture for ten years and the selected teachers have a minimum of five years teaching experience making them information rich on both

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the teaching of the subject as well as its contribution to sustainable development. Observations of Agriculture lessons and school facilities in selected schools as well as conducting focus group interviews were the other tools used to generate data for this study. The data were analyzed thematically to identify key patterns and insights.

How is Agriculture Currently Being Taught in Lowveld Secondary Schools?

Agriculture is a compulsory subject in Zimbabwean secondary schools, and it is taught from Form 1 to Form 4. The curriculum covers topics such as crop production, animal husbandry, soil science, and agricultural economics. However, the teaching of Agriculture in Lowveld secondary schools is largely theoretical, with limited emphasis on practical skills Ministry of Primary and Secondary Education 2022. Agriculture education in the Lowveld region of Zimbabwe is primarily delivered through formal and informal channels. In formal education, agriculture is taught as a subject in primary and secondary schools, as well as in tertiary institutions such as agricultural colleges and universities. Participants, in this study, observed that the agriculture curriculum often focuses on theoretical knowledge. This is supported by Bryington (2020) who pointed out that the practical application of this knowledge is limited due to resource constraints, such as inadequate access to land, farming equipment, and demonstration plots.

Agriculture in the Lowveld is also taught through informal approaches. Such approaches are often community-based and include extension services provided by the government and non-governmental organizations (NGOs). These programs aim to equip farmers with practical skills and knowledge to improve productivity and sustainability. Observations by participants in this study indicate limited use of informal approaches. This is also supported by Mutekwa (2021) who asserts that the reach and effectiveness of these approaches are often hindered by limited funding, poor infrastructure, and a lack of trained personnel.

Another observation by participants is that the current curriculum is broad but lacks depth in addressing region-specific challenges such as drought-resistant farming and water conservation. Additionally, most teachers rely on lecture-based methods, with limited use of participatory or experiential learning approaches.

Furthermore, secondary school learners confirm that while the curriculum includes practical components, many schools lack the necessary resources, such as school gardens, livestock, and irrigation equipment, to implement these activities effectively.

Challenges in Teaching Agriculture in Lowveld Secondary Schools

Several challenges hinder the effective teaching of Agriculture in the Lowveld region**.** One of the most significant challenges in teaching agriculture in the Lowveld region is the lack of resources. One teacher observed that it is normal practice to find a class of forty students sharing one textbook. Learners, through focus group discussions, also confirmed that they lack access to agriculture textbooks hence it is difficult for them to acquire skills that could enhance livelihood skills in the Lowveld. This was also confirmed through class observations. In support of the foregoing Chazovachii (2023) notes that schools and training centers often lack basic infrastructure, such as laboratories, irrigation systems, and farming equipment, which are essential for practical training. This limits the ability of students to gain hands-on experience, which is crucial for understanding and applying agricultural concepts.

Another challenge raised by participants in this study is that the current agricultural curriculum is often criticized for being too theoretical and not aligned with the practical needs of farmers in the region. As intimated by Scoones, (2008) the curriculum does not adequately address local challenges such as drought, soil degradation, and pest management, which are prevalent in the Lowveld. As a result, graduates often find it difficult to apply their knowledge in real-world farming scenarios. Teachers in this study noted that the interaction between extension workers and agriculture teachers and students in the Lowveld is not quite visible yet extension services play a critical role in disseminating agricultural knowledge and best practices to farmers. According to Matsa (2021) such services are often underfunded and understaffed, leading to limited outreach and impact. Farmers, teachers and students particularly those in remote areas, often lack access to the latest agricultural technologies and practices, which hampers their productivity and sustainability.

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Mutambara et al (2022), note that the Lowveld region is particularly vulnerable to climate change, with frequent droughts and erratic rainfall patterns. These environmental challenges make it difficult for farmers to achieve consistent yields which in turn affects the relevance and effectiveness of agricultural education. In the context of this study teachers and learners in Lowveld schools pointed out that they often struggle to incorporate climate-smart agricultural practices into the curriculum due to a lack of resources and expertise.

In discussing the development of sustainable livelihoods participants indicated that poverty and unemployment are significant barriers to effective agricultural education in the Lowveld region. Many families cannot afford to send their children to school, and those who do often prioritize subjects perceived to offer better employment opportunities, such as business or science, over agriculture (Matsa, 2021). This results in a lack of interest and motivation among students to pursue agricultural studies.

Other challenges identified by both teachers and learners include, but are not limited to the following:

1. There is a shortage of qualified Agriculture teachers in the Lowveld region. Additionally, many teachers lack training in modern agricultural techniques and sustainable practices.
2. Schools often lack adequate facilities such as greenhouses, irrigation systems, and storage facilities for agricultural produce
3. There is minimal collaboration between schools and local communities, which limits opportunities for students to learn from experienced farmers (Mutekwa,2021).

Intervention Strategies for Improving Agricultural Education

To address the challenges identified, the following intervention strategies were proposed by teachers, agriculture opinion leaders and secondary school learners:

- Corroborating Mutambara et al (2022) extension workers, teachers and secondary school learners suggested the need to revise the agricultural curriculum to make it more relevant to the local context. This could involve incorporating modules on climate-smart agriculture, sustainable land management, and pest control strategies that are specific to the Lowveld region. In addition participants proposed that practical training should be emphasized, with more focus on hands-on activities and field-based learning.
- To improve the quality of agricultural education, there needs to be significant investment in infrastructure. This includes the construction of well-equipped laboratories, demonstration farms, and irrigation systems that can be used for practical training. Schools and training centers should also be provided with modern farming equipment to enhance the learning experience (Mavedzenge et al 2019).
- Another intervention proposed by participants is that extension workers should be revitalized through increased funding and the training of more extension officers. These officers should be equipped with the latest agricultural technologies and practices, which they can then disseminate to secondary schools. Additionally, mobile extension units could be deployed to reach remote areas, ensuring that all secondary schools and farmers have access to vital information and support (Chazovachii,2023).
- Given the vulnerability of the Lowveld region to climate change, there is a need to promote climate-smart agricultural practices. This could involve training teachers and farmers on techniques such as conservation agriculture, agroforestry, and water harvesting (Madhanzi, 2021). These practices can help farmers adapt to changing climatic conditions and improve their resilience.
- To address socio-economic barriers, there needs to be a concerted effort to raise awareness about the importance of agriculture and its potential to provide sustainable livelihoods. This could involve community outreach programs, farmer field schools, and partnerships with local leaders to promote agricultural education. Teachers and secondary school learners also suggested that scholarships and financial incentives could also be provided to encourage more students to pursue agricultural studies.
- Acknowledging that many agriculture teachers in the Lowveld were not adequately trained a proposal to provide ongoing professional development for Agriculture teachers, focusing on modern farming techniques, climate-smart agriculture, and participatory teaching methods was made by participants
- To improve the teaching of agriculture in the Lowveld participants suggested the need to equip schools with essential resources such as farming tools, irrigation equipment, and greenhouses to facilitate practical learning.

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The findings of this study highlight the critical role of agricultural education in promoting sustainable livelihoods in the Lowveld region. By equipping students with practical skills and knowledge, schools can empower the youth to engage in productive agricultural activities, thereby contributing to food security and economic development. However, achieving this goal requires addressing the existing challenges through targeted interventions and collaborative efforts.

CONCLUSION

Agricultural education has the potential to transform rural livelihoods in the Lowveld region of Zimbabwe. However, this potential can only be realized through a concerted effort to address the challenges faced by schools and to implement effective intervention strategies. By reforming the curriculum, providing adequate resources, and fostering community involvement, stakeholders can create an enabling environment for sustainable agricultural practices. This, in turn, will contribute to improved livelihoods and economic resilience in the region.

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