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Challenges Faced by Smallholder Scale Farmers in Zambia: A Case of Northern Province

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A B S T R A C T

Small-scale farmers in Zambia's Northern Province face multifaceted ted challenges that hinder their productivity and economic growth. These challenges include limited access to credit, reliance on traditional farming practices, climate change impacts, poor infrastructure, high input costs, and insecure land tenure. Despite various interventions, such as Government subsidies and extension services, significant gaps remain in addressing these issues effectively. This study explores the systemic barriers faced by small-scale farmers in the region and examines potential solutions to enhance their productivity and livelihoods. Drawing from recent literature, this analysis underscores the need for targeted policies to improve access to financing, modern agricultural technologies, and resilient farming practices to mitigate the effects of climate change and market constraints. Improve agriculture technologies to enhance productivity. To access the readily available market, small-scale farmers will need good transport and better feeder roads.

Keywords: Agriculture input, traditional farming practices, Climate change, limited access to finance, access to market

Introduction

Northern Province is one of the ten (10) provinces in Zambia. It has both commercial and subsistence farmers. The province is about 77,650 square kilometers. It is made up of 12 districts: Luwingu, Mporokoso, Mbala, Mpulungu, Kasama the provincial capital, Nsama, Kaputa, Mungwi, Lunte, Senga Hill, Lupososhi, and Mungwi. The Province lies in the Northern part of Zambia, bordering Luapula in the west and Muchinga Province in the east. The Province shares an international boundary with the Democratic Republic of Congo in the North, Tanzania in the North-East and the Great Lakes region through Lake Tanganyika. The province has good rich soils for farming and the land is arable.

The province is not a mining area; its main activities include farming, fishing, and trade. Zambia accounts for about 1.6 million smallholder farmers, Zambia Statistical Agency (2014). The small-scale farmers are involved in mixed farming. These smallholder farmers cultivate land about 2 hectares and below. There are a lot of difficulties for small-scale farmers that have inhibited them from expanding their food production. The farming inputs have been difficult to access; if accessed, they are at an exorbitant price. The Farmer Input Support Programme (FISP) from the Ministry of Agriculture supports small-scale farmers with the issuance of agricultural inputs (seed, fertilizer). Financing institutions normally give loans at high interest rates. This has been prohibiting small-scale farmers from accessing loans to expand their hectarage. Although drought has hit Zambia, the Northern part of the country has been spared, hence the research.

Small-scale farmers in Zambia's Northern Province face significant challenges that hinder their ability to enhance productivity and improve livelihoods. These include limited access to affordable credit, reliance on traditional farming methods, high input costs, poor infrastructure such as feeder roads, and insecure land tenure. Despite Government interventions like the Farmer Input Support Programme (FISP), systemic barriers persist, preventing the effective expansion of agricultural productivity and market access for smallholders.

This study provides insights into the systemic challenges hindering the productivity and sustainability of small-scale farmers in Zambia's Northern Province. By identifying these barriers and proposing targeted solutions, the research aims to inform policymakers, stakeholders, and development partners on how to create a more enabling environment for smallholder agriculture. Addressing these challenges can contribute to food security, poverty alleviation, and economic growth, particularly in rural areas. Enhancing agricultural practices and infrastructure will also help small-scale farmers access broader markets, achieve better yields, and improve their livelihoods.

This research aimed to cover smallholder farmers in Zambia over the past eight years.

The specific objectives included:

- Examining the systemic barriers that limit the productivity of small-scale farmers in the Northern Province.
- Analyzing the impact of limited access to credit, high input costs, and poor infrastructure on smallholder farming.
- Assessing the effectiveness of Government interventions, such as the Farmer Input Support Program (FISP), in addressing the challenges faced by small-scale farmers
- Proposing sustainable solutions that can enhance agricultural productivity and improve market access for smallholder farmers.

The study seeks to understand the primary challenges faced by small-scale farmers in Zambia's Northern Province. It also aims to explore how limited access to credit, high input costs, and traditional farming methods influence agricultural productivity. Additionally, the research investigates the role of Government support programs, such as FISP, in alleviating the challenges encountered by these farmers. Lastly, it seeks to identify policies or strategies that can enhance productivity and facilitate better market access for small-scale farmers. The Study further applies the Sustainable Livelihood Framework (FAO, 2006) analysis to determine factors affecting farmers livelihoods in Northern Province of Zambia.

2.0 Methodology

To explore these issues empirically, a mixed-methods research design combining qualitative and quantitative approaches was adopted. This approach provides a holistic understanding of the challenges faced by small-scale farmers.

Data collection methods included both primary and secondary data sources. Primary data were collected through structured interviews or surveys with small-scale farmers to assess their experiences with credit access, inputs, land tenure, and climate challenges. Focus group discussions were conducted with agricultural officers, cooperatives, and NGOs to gain additional insights. Secondary data were obtained from reviews of Government agricultural policies, market reports, and climate data, as well as existing literature on smallholder farming in Zambia.

Sampling employed a purposive approach, targeting farmers from different regions, such as the Northern Province and other areas affected by climate variability, to gather diverse perspectives.

Data analysis involved both quantitative and qualitative methods. Quantitative analysis uses statistical tools like SPSS or Stata to analyze survey data. Descriptive statistics summarized the demographics and challenges of the farmers, while regression analysis identified relationships between credit access and productivity. Qualitative analysis used thematic analysis of interview and focus group transcripts to identify key patterns. These patterns included barriers to credit, perceptions of land tenure security, and experiences with climate variability and infrastructure challenges. Triangulation was used to cross-validate findings from both qualitative and quantitative data, ensuring reliability and consistency in addressing the research questions.

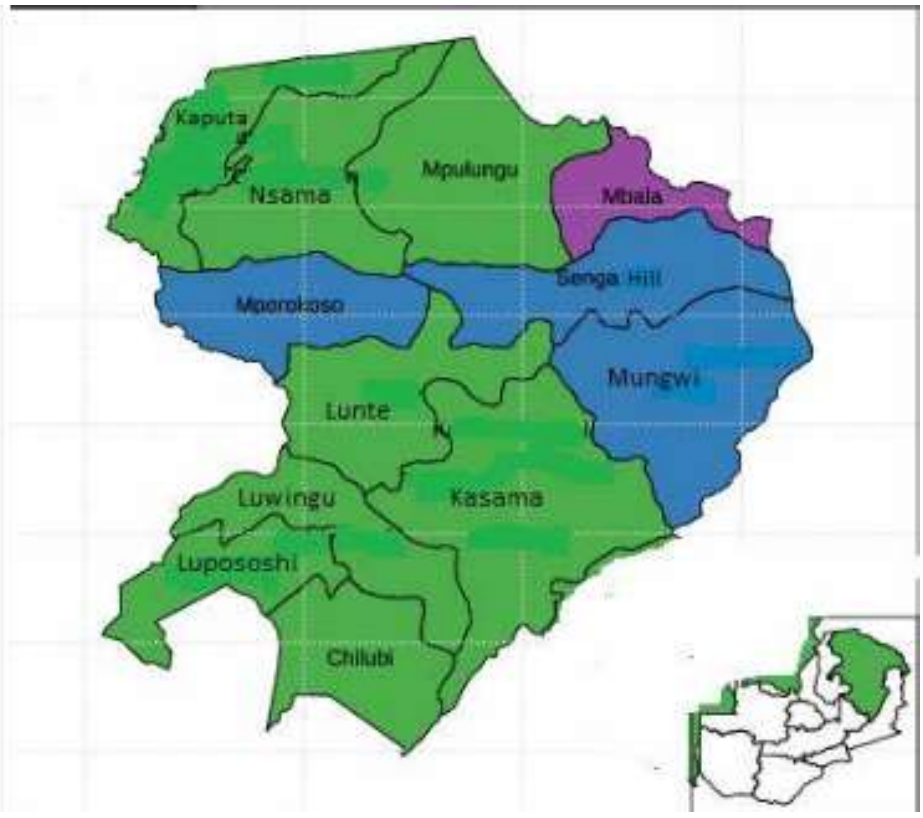

Figure 1: Northern Province of Zambia indicating 12 Districts

5.0 Findings

Small-scale farmers face significant barriers to accessing credit due to high interest rates and lack of collateral. This has demotivated small-scale farmers in the Northern part of Zambia. Further, the distance to the collection center of subsidized farming inputs is long. Investments in fertilizer, seed, and farming equipment have been low because of financial constraints Farmers are unable to access farming inputs as the cost is high.

However, providing short-term loans to farmers could help boost output and revenues among the farmers, Mapanje et al (2023). They have relied heavily on rain-fed agriculture and high cost of inputs.

The lack of adequate extension services prevents farmers from adopting modern farming practices, reducing productivity. The extension officers in most cases have difficulties in reaching out to farmers in remote areas for extension service delivery, this makes them vulnerable when pests and diseases attach to their crops. Farmers' reliance on traditional methods is exacerbated by insufficient knowledge transfer and training support.

Climate variability, including unpredictable rainfall, droughts, and floods, leads to substantial crop losses. Adoption of climate-resilient farming techniques remains limited due to resource and knowledge constraints. Farmers needed to grow crops that could stand during drought periods. The rainfall pertain has drastically changed in Zambia.

Poor road networks and storage facilities hinder farmers' access to markets, forcing reliance on middlemen who exploit them with low prices. The term “Briefcase supplier” refers to middlemen who exploit farmers by buying their produce at a lower price and reselling it at a higher price. This is due to logistical inefficiencies that reduce profit margins, discouraging increased production. The World Bank has noted poor infrastructure in Zambia, generally. World Bank (2019) notes that sub-Saharan Africa, including Zambia, has one of the lowest rural road densities globally, which limits market accessibility for rural farmers. The smallholder farmers are in the remote parts of Zambia but having access to good road networks is a hassle.

Despite subsidies, many farmers struggle to afford fertilizers and seeds due to inflated input costs driven by market inefficiencies. Logistical and supply chain challenges further disadvantage smallholders. FISP supplies smallholder farmers with agricultural inputs at a price they fail to afford. Although the Northern province received 73% of the farming inputs, it is not every smallholder farmer managed to get the inputs. Some of the inputs found themselves in private hands. Farmers who never applied for farming inputs benefit in one way or another through dubious means. They collude with officers who distribute farming inputs at times.

Support with food security and resilience measures is required for smallholder farmers who have few resources and incentives. At first glance, programs like FISP that target farmers to address food security and poverty reduction seem like an excellent concept. On the other hand, those with potential and motivation need help on how to maximize economic growth.

The strategies that have been examined show that the issues of poverty alleviation and food security must be kept distinct.

The Farmer Investment Support Programme FISP which is a poverty alleviation program has been performing badly despite significant investment partly because the focus has been on governance as opposed to smallholder farmers Kaoma (2023). Despite its poor performance, the intention is to help smallholder farmers to access farming inputs at an affordable price.

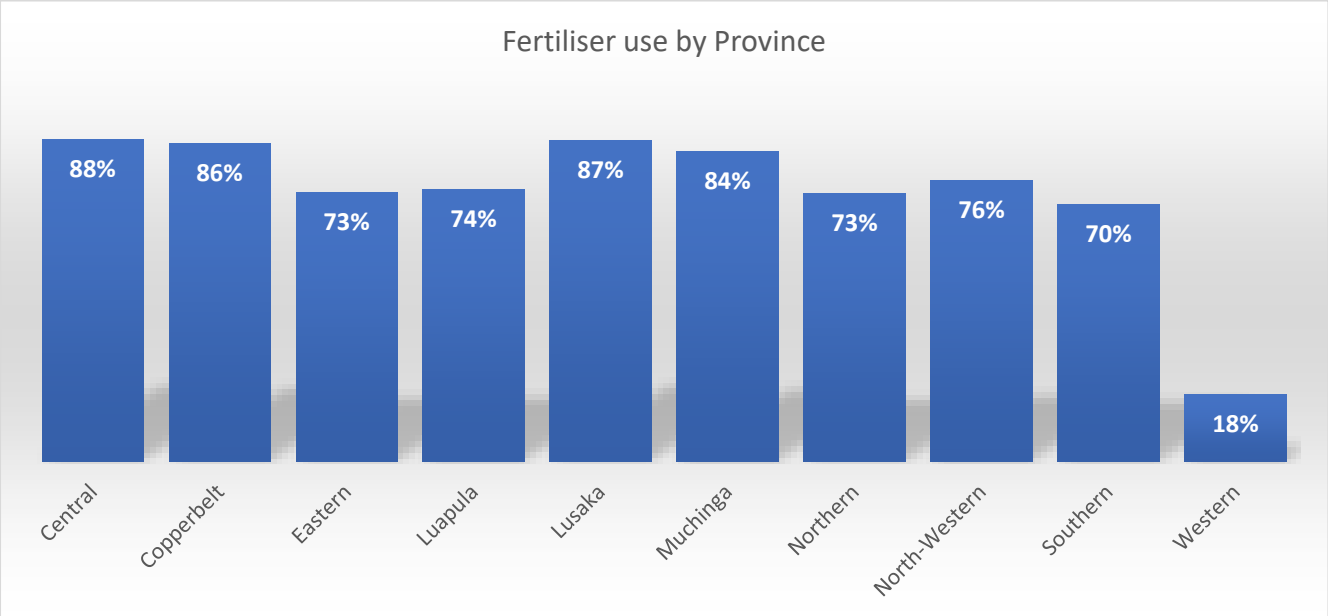

Figure 2: Fertilizer use among smallholder farmers by province, 2021/2022 agricultural season. Source: MoA CFS (2022)

As illustrated in Figure 2 above, small-scale farmers were able to access farming inputs 73% on average or equal to the other provinces. Farmers enjoy farming when they know they own land sorely. Sometimes, they get displaced by village headmen in preference for a foreign investor who buys land at

a high price. Insecure land tenure discourages long-term agricultural investments, such as irrigation systems, which are critical for sustainable productivity. Ambiguities in land ownership create uncertainty and reduce farmers' confidence in undertaking significant improvements.

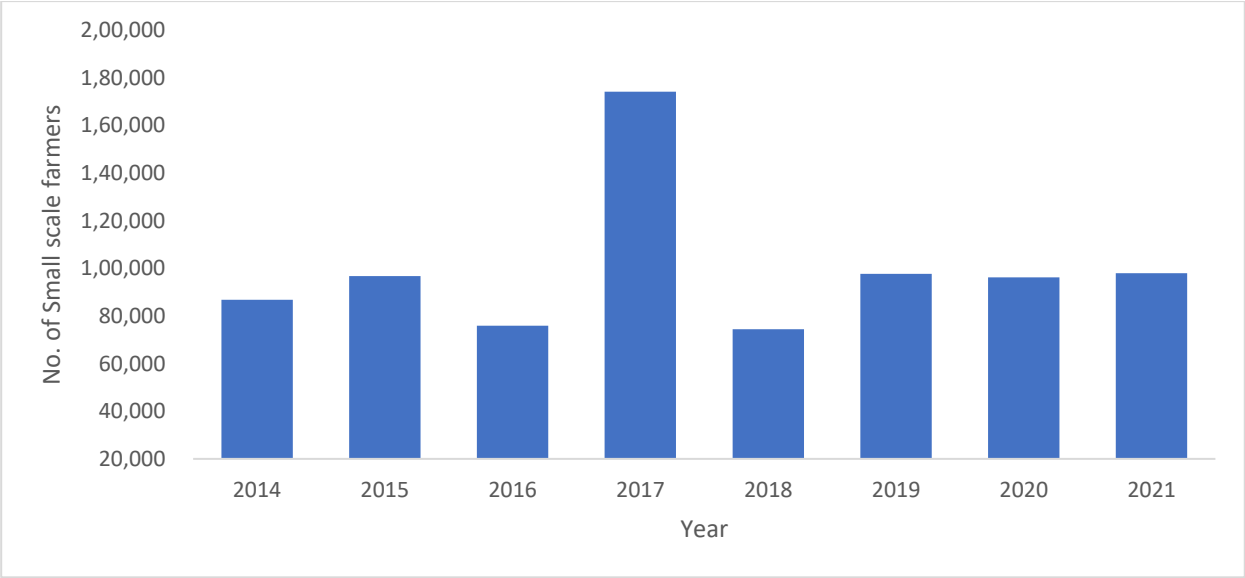

Figure 3: Trends Among Small-Scale Farmers in the Northern Province of Zambia

As shown in Figure 3, small-scale farmers in the Northern Province have consistently accessed farming inputs. Additionally, the number of farmers benefiting from the Farmer Input Support Program (FISP) remained relatively constant between 2019 and 2021 an average were 100,000. Except for the year 2017, the number of small-scale farmers who accessed farming input was 100,000 higher than in previous years due to political influence. Political influence plays a bigger role in each province.

4.0 Discussions

Access to agricultural financing is critical for productivity enhancement. Mulenga and Hichaambwa (2020) noted that small-scale farmers face significant barriers in obtaining credit, including high interest rates and lack of collateral. This financial exclusion limits their ability to invest in improved seeds, fertilizers, and modern equipment, perpetuating a cycle of low productivity.

While systemic barriers are mentioned, the role of Government subsidies or agricultural financing policies is not critiqued. Policies like the Farmer Input Support Programme (FISP) are critiqued for focusing on governance rather than directly addressing these financial challenges Kaoma (2023). There could be an exploration of whether such policies are adequately targeted or implemented FAO (2014).

The reliance on traditional farming methods has been a long-standing challenge. Tembo et al. (2019) highlight that inadequate access to extension services prevents farmers from adopting modern agricultural practices. Additionally, poor soil fertility and a lack of mechanization further reduce yields in the Northern Province. However, farmers may be aware of modern practices but lack the financial means or motivation to implement them due to high risks or poor returns Feder & Umali (1993). Modern practices may be easy to implement but are costly to the farmers in the long run.

Climate variability has increasingly affected small-scale agriculture in Zambia. Zimba et al. (2021) report that unpredictable rainfall patterns, droughts, and floods disrupt farming activities, leading to substantial crop losses. The limited adoption of climate-resilient farming techniques compounds this issue. Drought-resistant crops need to be grown in the Northern province.

However, Pingali, (2007 noted that promoting mechanization without considering farm sizes, affordability, and labor dynamics might lead to impractical solutions. Farm mechanization may be an alternative to drought as farmers will be able to carry out irrigation. Poor infrastructure, including inadequate road networks and storage facilities, significantly hampers farmers' ability to reach

markets World Bank (2019). Sitko and Jayne (2014)**,** support that poor storage infrastructure exacerbates price volatility and income insecurity among Zambian smallholders. This has discouraged most farmers from producing on a large scale. Middlemen have taken advantage of the small-scale farmers of poor infrastructure. The storage of farm output has been poor. Farmers have been marginally making profits only to sustain their families and for the next buying of farming inputs.

Despite Government efforts to subsidize farming inputs, many small-scale farmers still struggle to afford essentials like fertilizers and seeds. Mason et al. (2016) argue that market inefficiencies and logistical challenges inflate the costs of these inputs, further disadvantaging smallholders. The failure of FISP to adequately target smallholders exacerbates the challenges of input accessibility Banda (2020). Inputs have been accessed, however, by those farmers who have enough cash to buy. This has significantly affected small-scale farmers.

Land tenure insecurity remains a critical barrier to agricultural investment. Unclear land tenure and ownership rights discourage smallholder farmers from investing in long-term improvements like irrigation systems Deininger (2003). Sitko and Jayne (2014) supported the fact that unclear land ownership rights discourage farmers from adopting long-term strategies, such as irrigation systems, which could improve yields and resilience. The fear is farmers can be removed from the land at any time by the village headman in preference to foreigners. This is because the headmen want to benefit from land sales.

6.0 Recommendations.

Poor road networks and irrigation systems hinder development in remote areas. The Government and development partners need to prioritize investments in rural roads, electrification, and irrigation systems to reduce barriers to market access World Bank (2019)**.**

Encouraging collective marketing through cooperatives can help farmers negotiate better prices and access larger markets, Zulu et al., (2011)**.** When small-scale farmers form cooperatives, it becomes easy to negotiate for prices of farming inputs from suppliers. On the other hand, the Government finds it easier to distribute farming inputs to already established cooperatives in remote areas.

Mobile technology can bridge the gap by providing market information and linking farmers directly to buyers FAO (2018)**.** This innovation is recommendable in this present age. This reduces the cost of doing business once technology is employed.

The Sustainable Livelihoods Framework emphasizes addressing natural, financial, and social assets to improve agricultural resilience Scoones (1998). However, diversification of livelihoods and investments in sustainable land management is recommended for long-term agricultural success Pretty et al., (2001). For this reason, structural changes in policy and institutional frameworks are required to support smallholder farmers effectively Dorward et al., (2004). The contribution of smallholder agriculture to food security and rural development is well-documented Wiggins & Keats (2013).

The Government should plan for capacity-building and educating small-scale farmers in the Northern province. Governments and development partners should prioritize farmer education programs to enhance skills in modern agricultural practices, financial management, and business strategies World Bank (2020). Providing farming inputs to small-scale farmers without short training will not yield much-desired results.

Small-scale farmers should have access to credit and financial services to improve production and productivity**.** Establishing and supporting microfinance institutions or other financial services can help smallholder farmers access affordable credit to invest in high-quality inputs and technologies IFAD (2019).

The Government should strengthen agricultural extension services. The remote parts of the Northern Province should deliberately receive extension services in order to increase participation and stir interest among communities that have continued with very rudimentary farming practices them**.** Increasing the reach and quality of agricultural extension services can provide small-scale farmers with timely technical advice, market information, and support for adopting sustainable practices FAO (2021).

The Government should promote climate-smart agriculture in the Northern Province of Zambia. Encouraging climate-resilient farming techniques, such as agroforestry and conservation agriculture, can mitigate the effects of climate change while boosting productivity UNDP (2018).

7.0 Conclusion

The challenges faced by small-scale farmers in Zambia, especially in the Northern Province, are multifaceted, involving financial, infrastructural, environmental, and institutional barriers. Addressing these issues demands a holistic approach informed by research and practice.

Financial constraints are among the most critical challenges, as smallholder farmers struggle with limited access to affordable credit and financial services. Studies suggest that innovative financial mechanisms, such as microcredit and value chain financing, can significantly improve smallholders' access to necessary inputs and market participation (FAO, 2014; Mulenga & Hichaambwa, 2020). These tools should be designed to suit the unique characteristics of rural farmers.

Infrastructural inadequacies, including poor road networks and storage facilities, contribute to high transaction costs and post-harvest losses. Investments in rural infrastructure, such as the construction of feeder roads and cold storage facilities, are essential to improve market accessibility and reduce inefficiencies in the supply chain (Zulu et al., 2011; Sitko & Jayne, 2014).

Environmental challenges, such as unpredictable rainfall patterns and rising temperatures, exacerbate the vulnerability of small-scale farmers. Promoting and strengthening climate-smart agricultural practices and providing access to climate information services can bolster resilience and productivity Zimba et al., (2021). Moreover, integrating local knowledge with scientific innovations is vital to developing adaptive strategies tailored to regional conditions.

Institutional barriers have also significantly limited smallholder productivity; these may hinge on skill-set and infrastructural limitations. Weak farmer organizations and fragmented policies hinder collective bargaining and effective resource distribution. As Zulu et al. (2011) recommend, strengthening farmer cooperatives can empower farmers to access better prices, services, and inputs. Furthermore, cohesive policy frameworks aligned with local needs can enhance the implementation of agricultural development programs Feder & Umali, (1993).

A multi-stakeholder approach is essential to address these interconnected challenges. Government agencies must prioritize agricultural investment, focusing on infrastructure and policy reforms. Financial institutions should collaborate with development partners to create inclusive financial products.

Development agencies can support capacity-building programs and introduce sustainable agricultural practices. Strengthened farmer organizations can act as a conduit for technology dissemination and collective action (Pingali, 2007; Mason et al., 2016).

Zambia can create a conducive environment for small-scale farmers to thrive once challenges are addressed through integrated strategies. This will not only improve livelihoods but also contribute significantly to national food security and economic growth. Such an approach must be inclusive, participatory, and resilient to ensure long-term success.

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