

Evaluating the Sustainability of CEEC Initiatives Among Rural Small-Scale Agri-Businesses in Chipata District, Zambia

Mutale Patrick Bwalya Mapesa¹, Kingsley Namangala²

^{1,2}MBA Student, University of Zambia, in Collaboration with Zimbabwe Open University

Corresponding author: Mutale Patrick Bwalya Mapesa

Abstract—This study evaluated the sustainability of Citizens Economic Empowerment Commission (CEEC) initiatives among rural small-scale agri-businesses in Chipata District, Zambia. The study addressed three objectives: to assess the sustainability of CEEC-supported initiatives; examine factors influencing sustainability; and evaluate the effect of CEEC initiatives on business growth and performance. A pragmatic philosophy and mixed-methods sequential explanatory design were adopted. Quantitative data were obtained through structured questionnaires from 96 CEEC-supported agri-business owners, while qualitative evidence came from 20 key informants comprising agri-business owners, CEEC officials, community leaders and financial institution representatives. Quantitative data were analysed using descriptive statistics, chi-square tests, ANOVA and multiple linear regression, while interview data were analysed thematically. The findings showed mixed sustainability outcomes: 54.2% of businesses were actively operating, 50.0% reported increased revenue, 16.7% had closed and only 39.6% believed they could continue without further CEEC support. Only 34.8% of loan recipients had fully repaid their loans. Major challenges were poor roads/transport (60.4%), inadequate capital (58.3%), lack of storage (55.2%), high input costs (54.2%) and difficulty finding buyers (52.1%). Training was significantly associated with revenue growth ($\chi^2 = 6.128$, $p = 0.047$), while businesses receiving loans above K15,000 recorded higher sustainability scores ($F = 4.562$, $p = 0.014$). The regression model explained 55.1% of the variance in sustainability ($R^2 = 0.551$, $p < .001$), with infrastructure, funding amount, market access, timeliness and training emerging as significant predictors. The study concludes that CEEC support contributes to enterprise development, but sustainability remains fragile where financial support is insufficient, delayed or not accompanied by infrastructure, market linkages and continuing capacity building.

Keywords— Sustainability, CEEC Initiatives, Small-Scale Agri-business, Rural Development, Chipata District, Zambia.

I. INTRODUCTION

Small-scale agri-businesses are important to rural livelihoods, food security and local economic activity in Zambia. However, the ability of rural enterprises to move beyond subsistence production and remain commercially viable is constrained by limited capital, weak market access, inadequate infrastructure and limited managerial and technical capacity. The study's background identifies this tension within Zambia's agricultural economy, where agriculture supports a large share of the population while rural poverty remains persistent (Chanda, 2018; Mwanza, 2020). These structural conditions have encouraged government interventions designed to broaden citizen participation in productive economic activities.

Under the Citizens Economic Empowerment Act No. 9 of 2006, the Citizens Economic Empowerment Commission (CEEC) was established to promote broad economic involvement, especially among those who have been historically marginalized or disadvantaged. CEEC support includes financial assistance and capacity-building interventions intended to enable citizens to establish, strengthen and expand enterprises (Government of the Republic of Zambia, 2006; Citizens Economic Empowerment Commission, 2018). In rural agriculture, such interventions are expected to overcome capital constraints while improving productive capacity and participation in agricultural value chains.

Chipata District provides an important setting for assessing whether empowerment support produces sustainable enterprise outcomes. The district has a predominantly smallholder agricultural economy involving crop production, livestock, aquaculture, agro-processing and agricultural trading. CEEC has supported several activities in the district, including agricultural value-chain initiatives and aquaculture infrastructure. Nevertheless, the dissertation identified concerns about delayed disbursement, rigid programme models, weak market access and infrastructure limitations, suggesting that receipt of support does not automatically translate into long-term enterprise sustainability (Sikanyika & Sambo, 2023; Banda, Chisenga, & Zulu, 2021).

The central problem addressed by the study was therefore the uncertainty surrounding the long-term sustainability of CEEC-supported rural agri-businesses in Chipata District. Previous Zambian studies had identified financing, market access, infrastructure and capacity-building problems, but evidence directly measuring sustainability among CEEC beneficiaries in Chipata remained limited. The study consequently sought to provide empirical evidence from both beneficiaries and other stakeholders.

The main objective was to evaluate the sustainability of CEEC initiatives among rural small-scale agri-businesses in Chipata District. Specifically, the study sought to: (i) assess the sustainability of CEEC-supported initiatives; (ii) examine factors influencing sustainability; and (iii) evaluate the effect of CEEC initiatives on the growth and performance of small-scale agri-businesses. These objectives formed the organising structure for the literature review, results and discussion presented in this journal article.

II. LITERATURE REVIEW

The literature reviewed in the dissertation was organised from global evidence to African and Zambian studies, allowing the study to identify common determinants of sustainability and the contextual gaps that justified the Chipata investigation. Across the literature, sustainability is not treated as a consequence of finance alone. Instead, enterprise survival and growth depend on the interaction between financial resources, skills, infrastructure, market access, institutional support and the ability of entrepreneurs to adapt to shocks.

2.1 Global evidence

Weis (2007) argues that small producers can be structurally disadvantaged by concentration in input supply, processing and retailing. This perspective is useful because financial support may have limited effects where producers remain weak in negotiating markets and capturing value. The IAASTD (2009) similarly emphasised that sustainable agricultural development requires stronger support for small-scale farmers, particularly through policies that improve productivity, market participation and resilience.

Evidence from microfinance provides mixed but useful lessons. Khandker (2005) found positive effects of sustained access to finance on household consumption and asset accumulation, with stronger benefits among longer-term participants. Conversely, Banerjee et al. (2015) found relatively modest effects of microfinance on business creation and investment, showing that credit alone does not guarantee broad welfare improvements. Karlan and Valdivia (2011) found that entrepreneurship training improved business knowledge and practices but did not necessarily produce immediate profit increases. These studies suggest that the quality, duration and complementary nature of support matter as much as the initial financial intervention.

Value-chain studies further show that market integration is central to sustainability. Maertens and Swinnen (2009) found income gains among smallholders participating in modern supply chains, although benefits were concentrated among farmers able to meet quality and consistency requirements. Minten, Randrianarison and Swinnen (2009) similarly showed that access to inputs, credit and markets can support smallholder participation, but resource requirements may exclude poorer producers. Climate literature also demonstrates that agricultural enterprises face risks that can undermine financial sustainability unless adaptation is incorporated into support programmes (Lobell, Falcon, & Naylor, 2008).

2.2 African and regional evidence

African studies reinforce the importance of combining finance with complementary support. Adebayo and Adeola (2018) found that agricultural microcredit can improve productivity and household income, but inadequate loan sizes and limited access to complementary inputs constrain outcomes. Olomola (2013) reported that agricultural value-chain financing performs better when credit is combined with technical assistance, market linkages and organisation. Kato and Nkote (2019) also found that business training combined with credit improved enterprise survival more than credit alone.

Evidence from empowerment programmes shows that implementation quality matters. Akinola, Adeyemo and Oyedeji (2020) found that beneficiary participation, technical support and market access influenced agricultural programme effectiveness in Nigeria. Mubangizi (2014) reported mixed results from Uganda's Prosperity for All programme, with weaknesses in implementation, beneficiary participation and follow-up limiting effectiveness. Chinsinga (2012), studying Malawi's Farm Input Subsidy Programme, similarly showed that production gains may not translate into sustainability where complementary investments in soil health, irrigation and markets are inadequate.

2.3 Zambian evidence and research gap

Zambian studies identify constraints that closely resemble the conditions examined in Chipata. Sikanyika and Sambo (2023) found delayed disbursements, rigid programme models and inadequate knowledge among some CEEC-supported aquaculture farmers. Chisanga and Zulu (2020) identified improved access to credit and training through CEEC but also reported poor market access, inadequate infrastructure and weaknesses in capacity building. Banda, Chisenga and Zulu (2021) documented the importance of road infrastructure and market linkages for rural farmers. Phiri and Mwale (2020) highlighted the importance of ongoing support and mentorship, while Chanda and Tembo (2018) associated financial literacy with the effective management and sustainability of small-scale enterprises.

The literature gap was therefore not simply the absence of studies on CEEC. Rather, previous work had not adequately combined beneficiary-level quantitative evidence with stakeholder explanations to assess sustainability across several agri-business types in Chipata. The present study addressed geographic, sectoral, sustainability, multi-stakeholder and capacity-building gaps by examining operational continuity, revenue, profitability, assets, expansion, independence from further support and loan repayment, alongside the factors that shape these outcomes.

III. METHODOLOGY

The study adopted a pragmatic research philosophy and a mixed-methods sequential explanatory design. Pragmatism was selected because the research required both measurable evidence of sustainability and contextual explanations of why some businesses performed better than others (Creswell & Plano Clark, 2018). The quantitative phase was followed by qualitative interviews to explain and contextualise the statistical patterns.

The target population comprised approximately 120 CEEC-supported small-scale agri-businesses in Chipata District over the five years preceding the study, together with CEEC officials, community leaders and financial institution representatives. Using Yamane's formula at a 5% margin of error, the minimum quantitative sample was 93; this was increased to 102 to allow for non-response. Stratified random sampling was used across crop production, livestock, aquaculture, agro-processing and agricultural marketing/trading. Ninety-six completed questionnaires were

returned, giving a 94.1% response rate. Purposive sampling produced 20 qualitative key informants: 9 agri-business owners, 4 CEEC officials, 4 community leaders and 3 financial institution representatives.

Data were collected using a structured questionnaire and semi-structured interview guides aligned to the three research objectives. The questionnaire measured CEEC support, sustainability indicators, influencing factors and perceived programme impact. Pilot testing was conducted before the main survey, and content validity was assessed through expert review. Reliability testing used Cronbach's Alpha, while qualitative trustworthiness was strengthened through triangulation, member checking and peer debriefing.

Quantitative data were analysed using SPSS version 26. Frequencies, percentages, means and standard deviations were used for descriptive analysis. Chi-square tests examined associations between categorical variables, ANOVA compared sustainability scores across loan categories, and multiple linear regression identified the relative contribution of major predictors. Statistical significance was assessed at the 95% confidence level. Interview data were transcribed and analysed thematically using NVivo, and the two strands were integrated during interpretation.

Ethical clearance was obtained from the University of Zambia Humanities and Social Sciences Research Ethics Committee. Participation was voluntary, informed consent was obtained, confidentiality and anonymity were protected, and participants were informed of their right to withdraw. The ethics approval was issued on 1 June 2026 under HSSREC reference HSSREC: 2026-MAY-008.

IV. RESULTS OF THE FINDINGS

4.1 Objective One: Sustainability of CEEC-supported initiatives

The first objective assessed sustainability using operational status, revenue change, profitability, asset acquisition, business expansion, ability to continue without further CEEC support and loan repayment. The findings showed a mixed sustainability picture. Of the 96 respondents, 54.2% reported that their businesses were actively operating, while 29.2% were operating but struggling and 16.7% had closed. Half of the businesses reported increased revenue compared with the period before receiving CEEC support. However, only 39.6% believed that their businesses could continue without further CEEC support, indicating considerable dependence on external assistance.

Loan repayment was another important sustainability indicator. Only 34.8% of loan recipients had fully repaid their loans. The ANOVA results indicated that businesses receiving more than K15,000 had significantly higher sustainability scores than those receiving less than K5,000 ($F = 4.562$, $p = 0.014$). The result indicates that the scale of financing is associated with the ability of enterprises to establish viable operations and sustain them beyond the initial intervention.

4.2 Objective Two: Factors influencing sustainability

The most frequently reported challenges were poor roads/transport (60.4%), lack of capital (58.3%), lack of storage

(55.2%), high input costs (54.2%) and difficulty finding buyers (52.1%). Timeliness of CEEC support was also important: only 35.4% reported receiving support on time, while the remainder experienced either slight or significant delays. Training coverage was incomplete, with 58.3% reporting that they had received training.

Inferential analysis confirmed that training was significantly associated with revenue growth ($\chi^2 = 6.128$, $p = 0.047$, Cramer's $V = 0.253$). The multiple regression model was statistically significant ($F = 22.045$, $p < .001$) and explained 55.1% of the variance in sustainability ($R^2 = 0.551$). Infrastructure had the strongest positive standardised contribution (Beta = 0.324), followed by funding amount (Beta = 0.312), market access (Beta = 0.298), timeliness (Beta = -0.298) and training (Beta = 0.287). Thus, stronger infrastructure, larger funding, better market access and training were associated with improved sustainability, while greater delay reduced sustainability.

The qualitative findings reinforced these statistical patterns. Agri-business owners described CEEC loans as helpful but insufficient for long-term sustainability. They identified unreliable buyers, poor roads, inadequate storage, gaps in technical training and climate adaptation, and repayment pressure as continuing constraints. CEEC officials acknowledged disbursement delays, rigid programme models, limited monitoring and follow-up resources, while community leaders emphasised ongoing support and infrastructure development.

4.3 Objective Three: Effect of CEEC initiatives on growth and performance

CEEC support had positive effects for a substantial proportion of beneficiaries. Overall, 56.3% agreed that CEEC support helped their businesses grow, while 66.1% of trained beneficiaries indicated that training improved their business skills. Nevertheless, only 44.8% reported that their businesses had expanded, and the relatively low proportion able to continue without further support indicates that growth was not always converted into autonomous sustainability.

The regression coefficient for funding amount showed that each additional K1,000 of funding increased the sustainability score by 0.156 points, holding other factors constant. Conversely, each unit increase in delay reduced the sustainability score by 0.423 points. These results demonstrate that the effect of CEEC is shaped not only by whether support is received, but also by its adequacy, timing and complementary conditions.

V. DISCUSSION OF THE FINDINGS

5.1 Sustainability of CEEC-supported initiatives

The mixed sustainability outcome suggests that CEEC support is capable of producing positive enterprise results but does not consistently create self-sustaining businesses. The 54.2% operational rate and 50.0% revenue increase demonstrate tangible benefits, while the 16.7% closure rate, 39.6% perceived ability to continue independently and 34.8% full loan repayment rate show that a sizeable proportion of beneficiaries remain vulnerable. This finding is consistent with Khandker (2005), who emphasised sustained access to

resources rather than one-off interventions, and with Banerjee et al. (2015), whose findings showed that credit alone can have modest effects. The significant association between larger loan size and sustainability also supports the argument that financing must be sufficient to establish a viable operating scale.

The findings are also consistent with Zambian CEEC evidence. Sikanyika and Sambo (2023) reported low yields and programme implementation challenges among aquaculture beneficiaries, while Chisanga and Zulu (2020) identified market access, infrastructure and capacity-building constraints. The current study extends these observations by demonstrating statistically that infrastructure, funding, market access, timeliness and training jointly explain a substantial proportion of variation in sustainability.

5.2 Factors influencing sustainability

Infrastructure emerged as the strongest predictor in the regression model. This is consistent with Banda, Chisenga and Zulu (2021), who identified poor road networks and weak market linkages as recurring barriers to rural enterprise development. In Chipata, poor transport and lack of storage increase post-harvest losses, force producers to sell when prices are low and raise the cost of moving inputs and outputs. Consequently, financial support can lose effectiveness when the physical environment prevents beneficiaries from converting production into profitable sales.

Market access was also a significant predictor. The finding agrees with Maertens and Swinnen (2009) and Olomola (2013), who demonstrate the importance of reliable value-chain connections for translating production into income. The result also supports the study's conceptual framework, which treats market access as an intervening factor between CEEC support and business sustainability.

Timeliness had a significant negative effect. Only 35.4% received support on time, and qualitative evidence showed that delays could cause beneficiaries to miss planting or production windows. This finding directly echoes Sikanyika and Sambo (2023). In agricultural enterprises, timing is not a minor administrative issue: it can determine whether funds are available when inputs, labour or production activities are required.

Training was positively related to sustainability and significantly associated with revenue growth. This supports Kato and Nkote (2019), who found stronger enterprise survival when credit was combined with business training. However, the qualitative evidence showed that beneficiaries wanted more technical agricultural training, climate adaptation support and follow-up. This is consistent with Phiri and Mwale (2020), who argued that one-off capacity building without continuing mentorship can limit long-term outcomes.

5.3 Effect of CEEC initiatives on growth and performance

The finding that 56.3% believed CEEC support helped their businesses grow indicates that the programme has a meaningful developmental effect. Training also generated perceived improvements in business skills. Nevertheless, only 44.8% reported business expansion, suggesting that initial improvements do not always translate into sustained scaling. The result supports the broader literature that financing

produces stronger outcomes when accompanied by business management, technical support and market access. The evidence therefore challenges a financing-only interpretation of empowerment and supports an integrated enterprise-development model.

The regression findings provide further evidence that programme design matters. Larger funding was positively associated with sustainability, while delays reduced it. Qualitative evidence additionally showed that repayment schedules were sometimes misaligned with agricultural production cycles. This can create pressure before harvest and undermine the ability of enterprises to retain working capital. The implication is that financing effectiveness depends on the fit between loan size, timing, repayment conditions and the cash-flow characteristics of agricultural businesses.

5.4 Overall interpretation

Taken together, the findings strongly support the study's conceptual framework. CEEC support provides important financial and capacity-building inputs, but the pathway to sustainability is mediated by market access, infrastructure, entrepreneurial capacity and socio-community conditions. The regression model's R^2 of 0.551 indicates that the selected predictors explain a substantial proportion of observed variation. Sustainability is therefore best understood as a system outcome rather than a direct consequence of a loan or grant.

VI. CONCLUSION

The study concludes that CEEC-supported rural small-scale agri-businesses in Chipata District demonstrate fragile and mixed sustainability. CEEC support has enabled many businesses to continue operating, increase revenue, improve skills and undertake some expansion. However, business closure, limited independent continuation and low full loan repayment indicate that the intervention has not consistently achieved long-term self-sufficiency.

The evidence shows that sustainability is significantly shaped by the adequacy and timeliness of financial support, access to markets, infrastructure and training. Infrastructure was the strongest predictor in the regression model, while delayed support had a significant negative effect. The study therefore concludes that CEEC support should not be treated as a stand-alone financing intervention. Its long-term effectiveness depends on an enabling ecosystem that connects finance with capacity building, infrastructure, market linkages and agricultural production cycles.

VII. RECOMMENDATIONS

First, CEEC should review the scale of financing for viable small-scale agri-businesses. The significant difference associated with loans above K15,000 suggests that very small loans may be insufficient to establish sustainable operations. A graduated or tiered financing model should be considered, with loan amounts matched to enterprise type, production scale and realistic working-capital requirements.

Second, CEEC should align repayment schedules with agricultural production cycles. Repayment should reflect the timing of planting, production, harvesting and sales rather than

applying uniform schedules across businesses with different cash-flow patterns. This could reduce repayment pressure and improve the capacity of enterprises to reinvest earnings.

Third, disbursement processes should be streamlined to minimise delays. Since timeliness had a significant negative association with sustainability, approval and disbursement procedures should be redesigned around agricultural calendars. District-level implementation capacity and digital tracking could be strengthened to identify bottlenecks before they cause production losses.

Fourth, CEEC and relevant government stakeholders should strengthen market linkages. Beneficiaries need support in identifying reliable buyers, negotiating fair prices, participating in producer groups and connecting with institutional and value-chain markets. Market development should be treated as a core component of empowerment rather than an optional post-financing activity.

Fifth, investment in rural infrastructure should accompany enterprise financing. Communal storage facilities, improved roads, water systems and other productive infrastructure can reduce transaction costs and post-harvest losses. The strong regression coefficient for infrastructure makes this particularly important for Chipata's agricultural enterprises.

Sixth, CEEC should make training more comprehensive and continuous. Universal or near-universal training should cover financial literacy, record keeping, business management, technical agricultural practices and climate adaptation. Refresher training, mentorship and follow-up visits should continue after disbursement so that beneficiaries can respond to emerging operational problems.

Finally, programme monitoring should place greater emphasis on sustainability indicators rather than disbursement alone. CEEC should track enterprise survival, revenue, profitability, asset accumulation, market access, loan repayment and independence from further support over time. Such monitoring would provide stronger evidence for adapting programme models to local conditions.

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