

School Feeding Programmes: Beyond Nourishing Minds to Building Resilience through a Sustainable Grassroots Income Generating Activity Framework in Selected Primary Schools in Lusaka Province, Zambia

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Abstract: This study examined school feeding programmes beyond their traditional role of nourishing learners, focusing on their contribution to educational outcomes and the development of resilience through a sustainable grassroots income-generating activity (IGA) framework in selected primary schools in Zambia. A mixed-methods convergent parallel design was adopted, involving 282 respondents comprising 113 pupils, 139 parents/guardians, and 30 teachers from Lusaka and Chongwe districts. Quantitative data were analysed using descriptive and inferential statistics, including Pearson correlation, ANOVA, and multiple regression analysis, while qualitative data were analysed thematically.

Findings revealed that 84.2% of pupils regularly consumed school meals, with 89.3% reporting improved concentration in class. The study further showed strong positive relationships between school feeding and academic outcomes, with correlation coefficients ranging from $r = 0.650$ to $r = 0.810$. ANOVA results indicated a statistically significant difference in academic performance across levels of meal consumption ($F = 7.053$, $p < 0.001$). Multiple regression analysis revealed that school feeding variables significantly predicted academic performance, explaining 68.1% of the variance ($R^2 = 0.681$). Despite these positive outcomes, the study identified weak implementation of income-generating activities and limited long-term sustainability strategies, particularly in special needs school contexts. The study concludes that while school feeding programmes significantly enhance learners' attendance, concentration, and academic performance, their long-term sustainability remains constrained by dependence on external support. It recommends the strengthening of grassroots income-generating activity frameworks involving schools and communities to ensure sustainable school feeding and build institutional resilience.

Key Words: school feeding programme, Sustainable Grassroots Income Generating Activity Framework

I. Introduction

This study examines school feeding programmes in Zambia beyond their traditional role of nourishing learners, with a focus on their potential to build resilience through a sustainable grassroots income-generating activity (IGA) framework. Specifically, the study seeks to: (i) examine the relationship between school feeding programmes and school attendance; (ii) explore teachers' perceptions of school-based income-generating activities as a strategy for sustaining school feeding programmes; (iii) assess parents' perceptions of school-based income-generating activities in supporting sustainability; and (iv) develop a grassroots sustainable IGA framework for school feeding programmes.

1.1 Background to the study

School feeding programmes are globally recognized as essential interventions that contribute to improved child nutrition, increased school participation, and enhanced learning outcomes, particularly among vulnerable populations. Beyond their immediate function of providing meals, these programmes are increasingly understood as multi-sectoral interventions that support human capital development by linking nutrition, education, and social protection objectives. Globally, school feeding initiatives are strongly aligned with Sustainable Development Goal (SDG) 2 on Zero Hunger and SDG 4 on Quality Education, both of which emphasize ending hunger, improving nutrition, and ensuring inclusive and equitable education for all (United Nations, 2015; World Bank, 2020).

Evidence from international development agencies indicates that school feeding programmes significantly improve school enrolment, attendance, retention, and concentration levels among learners. According to the World Food

Programme (2022), school meals are one of the most effective social safety nets, reaching millions of children worldwide and serving as an incentive for families to keep children in school. Similarly, Bundy et al. (2018) argue that school feeding is not only a nutrition intervention but also an investment in education and long-term economic productivity, as well-nourished learners are more likely to perform better academically and transition successfully into higher levels of education.

In low- and middle-income countries, particularly in Sub-Saharan Africa, school feeding programmes play a critical role in addressing widespread food insecurity and child malnutrition. Many households in this region experience chronic poverty, climate-related shocks, and limited access to nutritious food, which directly affects children's physical and cognitive development. According to the Food and Agriculture Organization (FAO, 2023), food insecurity remains a persistent challenge in Africa, with millions of children affected by undernutrition and micronutrient deficiencies. UNICEF (2023) further reports that undernutrition remains a major contributor to child mortality and poor educational outcomes across the region.

In Zambia, food insecurity and child malnutrition continue to pose significant development challenges. The World Food Programme (2024) estimates that a substantial proportion of Zambian households are unable to meet minimum dietary requirements due to poverty, climate variability, and rising food prices. These challenges are compounded by recurrent droughts and floods that negatively affect agricultural production, which is the main source of livelihood for many rural households (FAO, 2023). As a result, malnutrition among children remains a concern, with UNICEF (2024) reporting that approximately one-third of children under five are stunted, reflecting chronic undernutrition, while a smaller but significant proportion suffer from wasting, an indicator of acute malnutrition.

In response to these challenges, the Government of the Republic of Zambia has implemented school feeding programmes as part of its broader social protection and education policy framework. These programmes aim to reduce short-term hunger, improve nutrition, and enhance school participation, particularly in rural and food-insecure areas (Ministry of Education, 2020; Republic of Zambia, 2021). The School Feeding Programme has been integrated into national development strategies, including the National Development Plans, as a key intervention for improving child wellbeing and educational outcomes (Republic of Zambia, 2022).

Despite these efforts, concerns remain regarding the sustainability of school feeding programmes in Zambia and other similar contexts. Many programmes rely heavily on external donor funding and government subsidies, which raises questions about continuity, scalability, and long-term effectiveness (World Bank, 2020; WFP, 2022). Additionally, limited integration of school-based income-generating activities (IGAs) has constrained opportunities for local resource mobilisation and community ownership. Studies have shown that where school feeding programmes are linked to productive school gardens or livestock projects, there is improved sustainability and reduced dependency on external funding (FAO, 2018; Bundy et al., 2018).

It is within this context that this study conceptualizes school feeding programmes not only as mechanisms for addressing immediate nutritional needs but also as platforms for building resilience through sustainable grassroots income-generating activity (IGA) frameworks. By examining teachers' and parents' perceptions, as well as exploring the potential of IGAs in schools, the study seeks to contribute to the development of a locally driven and sustainable model for school feeding in Zambia.

1.2 Statement of the Problem

School feeding programmes are globally recognized as key interventions for improving child nutrition and supporting school participation, thereby contributing to the achievement of Sustainable Development Goal (SDG) 2 (Zero Hunger) (United Nations, 2015). Although SDG No. 2 propagates zero Hunger globally, in Zambia, the country continues to grapple with food insecurity, which poses a serious challenge to the attainment of United Nations Sustainable Development Goal No. 2 (Zero Hunger). The current vulnerability is largely driven by climate-related shocks, high levels of poverty, and prevailing macroeconomic constraints, all of which limit household access to adequate and nutritious food. World Food Programme (2024) affirms that approximately 35% of the population in Zambia is unable to meet minimum daily calorie requirements, and many households, particularly in rural and low-income communities, struggle to meet their daily nutritional needs. As a result, 32% of children under the age of five are stunted, indicating chronic malnutrition, while about 3% suffer from wasting, a life-threatening form of acute malnutrition (UNICEF, 2024).

In response to these challenges, the Government of the Republic of Zambia implemented school feeding programmes as one of the key interventions to address child hunger, improve nutritional status, and enhance school attendance and participation (Ministry of Education, 2020). Despite the critical role of this intervention in mitigating hunger, and improving child nutrition, little is known about the long-term sustainability of the school feeding programme. Therefore, it is against this backdrop that the current study seeks to explore the sustainability of school feeding programmes in order to inform policy and propose a pragmatic sustainability framework.

1.3 Research Objectives

RO1: To examine the relationship between school feeding programmes and school attendance

RO2: To examine teachers' and parents' perceptions of school income-generating activities (IGAs) as a strategy for sustaining school feeding programmes.

RO3: To assess challenges schools face in implementing school feeding programmes

RO4: To develop a grassroots, sustainable income-generating school feeding framework

1.3 Research Questions

1. What is the relationship between school feeding programmes and school attendance?
2. What are parents' and teachers' perceptions of school income-generating activities (IGAs) as a strategy for sustaining school feeding programmes?
3. What challenges do schools face in implementing school feeding programmes?
4. How can a grassroots, sustainable income-generating framework be developed to enhance the resilience and sustainability of school feeding programmes?

1.4 Research Hypothesis

1. **Null Hypothesis (H₀):** There is no statistically significant relationship between school feeding programmes and school attendance.

Alternative Hypothesis (H₁): There is a statistically significant relationship between school feeding programmes and school attendance.

2. **Null Hypothesis (H₀):** The sustainability of school feeding programmes has no significant effect on the school attendance and academic performance of learners.

Alternative Hypothesis (H₁): The sustainability of school feeding programmes has a significant effect on the school attendance and academic performance of learners.

II. Significance of the research

It is hoped that, findings from the current study may:

1. Policy and Practice Enhancement:

The study provides evidence-based insights that inform policymakers, the Ministry of Education, and other stakeholders in strengthening the design, implementation, and monitoring of school feeding programmes to improve their effectiveness and long-term sustainability.

2. Improvement of Learner Outcomes:

The study contributes to a deeper understanding of how school feeding programmes influence learner attendance, concentration, retention, and overall academic performance, thereby supporting improved educational outcomes and child development.

3. Community and Stakeholder Engagement:

The findings highlight the importance of active involvement of parents, local communities, and other stakeholders in supporting school feeding initiatives, promoting shared responsibility, ownership, and sustainability.

4. Development of a Sustainability Framework:

The study leads to the development of the Grassroots Sustainable School Feeding Income-Generating Activities Framework (ZCASU, 2025), which serves as a practical and context-specific guide for schools and communities to generate local resources and sustain school feeding programmes beyond donor dependence.

III. Methods

3.1 Overview

This study will adopt a systematic approach to investigate the sustainability of school feeding programmes in selected primary schools. It will employ both quantitative and qualitative data collection and analysis to provide a comprehensive understanding of programme effectiveness, nutritional quality, school attendance, and community involvement (Creswell & Creswell, 2018).

3.2 Research Method

The study adopted a mixed-methods approach, integrating both quantitative and qualitative research methods to provide a comprehensive understanding of the school feeding programme and the income-generating activity framework. The mixed-methods design was considered appropriate because the study aimed to examine measurable aspects of programme implementation and sustainability while also exploring the experiences, perceptions, and contextual realities of stakeholders involved in the programme. Quantitative methods enabled the collection and

analysis of numerical data on programme effectiveness, participation, and resource mobilisation, whereas qualitative methods provided in-depth insights into challenges, successes, and stakeholder experiences regarding the sustainability of the school feeding programme. The integration of the two approaches enhanced the validity, reliability, and richness of the findings through triangulation, allowing the researcher to compare and corroborate evidence obtained from multiple sources and methods. Furthermore, the mixed-methods approach enabled a deeper understanding of the complex social, economic, and educational dimensions associated with school feeding programmes and income-generating activities within their natural settings (Creswell & Creswell, 2018; Bryman, 2016).

3.3 Research Design

A convergent parallel research design was adopted because it enabled the researcher to collect quantitative and qualitative data simultaneously within the same phase of the study, thereby saving time and ensuring a comprehensive investigation of the sustainability and impact of the school feeding programmes and income-generating activity framework. The design was appropriate for this study because the quantitative data provided measurable evidence on programme effectiveness, participation levels, and sustainability indicators, while the qualitative data offered detailed insights into stakeholders’ experiences, perceptions, and challenges associated with the implementation of the programmes. Analysing the two sets of data independently before merging them for interpretation allowed for comparison, corroboration, and triangulation of findings, which enhanced the credibility, validity, and depth of the study results. Furthermore, the convergent parallel design facilitated a holistic understanding of the phenomenon under investigation by integrating statistical trends with contextual and experiential explanations, making it suitable for examining complex social and educational interventions such as school feeding programmes (Creswell & Creswell, 2018).

3.4 Study Site

The study was conducted in Bauleni Special Needs School and a selected peri-urban school in Chief Bundabunda’s Chiefdom, Chongwe District, Zambia. These sites were chosen to capture insights from inclusive and peri-urban contexts where unique challenges in implementing school feeding programmes exist.

3.5 Sample Size

The study used Slovin’s formula for an unknown population to determine the appropriate sample size at a 5% margin of error, a commonly applied approach in social science research when the population size is not precisely known. The computation yielded a minimum sample size of 400 respondents. However, the actual number of valid respondents obtained was 282, which was still considered adequate for analysis as it met acceptable thresholds for statistical inference in applied social research, particularly where constraints of time, access, and resources influence field data collection (Etikan & Bala, 2017; Creswell & Creswell, 2018). The respondents were drawn from pupils, parents/guardians, and teachers, ensuring representation of key stakeholder groups involved in the school feeding programme, which strengthened the reliability, validity, and contextual relevance of the study findings.

Slovin’s Formula (Sample Size Calculation)

Slovin’s formula is used to determine an appropriate sample size when the population is large or unknown. It is expressed as:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = sample size
 N = population size

e = margin of error (commonly 0.05)

In this study, where the population was treated as unknown/very large, the simplified form was applied:

$$n = \frac{1}{e^2}$$

Substituting e=0.05: $n = \frac{1}{0.05^2} = 400$

$$n = \frac{1}{0.05^2} = \frac{1}{0.0025} = 400$$

Therefore, the minimum required sample size was 400 respondents. However, the study achieved 282 valid responses, which were still considered adequate for meaningful statistical analysis.

Table1: Total Number of Respondents by Category and District (Valid Responses Only)

Respondent Category	Lusaka District	Chongwe District	Total	Percent
Pupils	64	49	113	40.1
Parents/Guardians	64	75	139	49.3
Teachers	26	4	30	10.6
Total Respondents	154	128	282	100.0

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The table shows the distribution of respondents by category and district. A total of 282 valid respondents participated in the study, comprising 113 pupils, 139 parents/guardians, and 30 teachers. In terms of district distribution, 154 respondents (54.6%) were from Lusaka District, while 128 respondents (45.4%) were from Chongwe District. Parents/guardians formed the largest group of respondents, followed by pupils and teachers. The inclusion of respondents from both Lusaka and Chongwe districts ensured that the study captured perspectives from different geographical contexts relevant to the sustainability of school feeding programmes.

3.6 Sampling Procedures

The current study used a mixed-method and employed both probability and nonprobability sampling. For the qualitative method, Purposive sampling was used to select participants directly involved with or affected by the school feeding programmes. For learners, special attention was be given to children with disabilities to ensure inclusivity. Parents/caregivers, teachers, and officials with direct involvement in programme implementation were also purposively selected (Etikan, Musa, & Alkassim, 2016). Furthermore, stratified random sampling will be used for the quantitative method.

3.7 Data Collection Procedures

Quantitative and qualitative data were collected concurrently. Quantitative data were gathered through structured questionnaires administered to parents, teachers, and officials. In contrast, qualitative data were obtained through semi-structured interviews with key informants and direct observations of feeding sessions to assess nutritional quality and programme adherence (Braun & Clarke, 2013).

3.8 Data Collection Instruments

- i. **Questionnaires:** Structured instruments to collect quantitative data on feeding programme implementation, nutritional quality, attendance, and academic performance.
- ii. **Interview Guides:** Semi-structured guides to explore challenges, sustainability strategies, and community involvement from key stakeholders.
- iii. **Observation Checklists:** Tools to record the quality of meals, feeding procedures, and learner engagement during sessions

3.9 Data Analysis

Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) to generate frequencies and tables. The quantitative analysis also employed ANOVA Test, multiple regression and Pearson correlation. Furthermore, multiple regression was employed to examine the relationship between a dependent variable and two or more independent variables. Qualitative data will be analysed thematically to identify key patterns, themes, and relationships regarding programme sustainability and inclusivity (Braun & Clarke, 2013).

3.10 Reliability and validity

3.10.1 Validity

Validity in the Study

Validity refers to the extent to which a research instrument measures what it is intended to measure, and the degree to which the findings accurately represent the phenomenon under study (Creswell & Creswell, 2018). In this study on the sustainability of school feeding programmes, validity was ensured by aligning all data collection tools with the six research objectives, which included socio-economic status, financial sustainability, academic performance, income-generating activities, stakeholder partnerships, and implementation challenges. Apart from that, a pilot study was conducted to test the test instruments. The use of a mixed-methods approach strengthened validity through triangulation of quantitative and qualitative data, allowing findings from questionnaires, interviews, and focus group discussions to be cross-verified. This improved accuracy and reduced bias in the results. Furthermore, the application of statistical techniques such as ANOVA and multiple regression enhanced the validity of the relationships established among the study variables.

3.10.2 Radiality

Reliability Test Results (Cronbach’s Alpha)

To ensure the internal consistency of the research instrument, a Cronbach’s Alpha reliability test was conducted on the Likert-scale items corresponding to each research objective. The results are presented in Table 2.

Table 2: Cronbach’s Alpha Reliability Coefficients

Research Question	Construct Measured	Number of Items	Cronbach’s Alpha (α)	Interpretation
RQ1	School feeding, attendance	& 7	0.81	Good

	academic performance				
RQ3	Perceptions on income-generating activities (IGAs)	6		0.79	Acceptable
RQ5	School-community partnership perceptions	7		0.86	Very Good
Overall Scale	All constructs combined	43		0.85	Very Good

Interpretation of Results

The Cronbach’s Alpha values for all constructs ranged from 0.78 to 0.88, indicating acceptable to very good internal consistency of the instrument. According to commonly accepted thresholds, values above 0.70 are considered acceptable, above 0.80 are good, and above 0.90 are excellent.

The construct measuring challenges in implementing school feeding programmes (RQ6) recorded the highest reliability coefficient ($\alpha = 0.88$), suggesting strong consistency among items measuring implementation barriers. Similarly, school-community partnership (RQ5) demonstrated high reliability ($\alpha = 0.86$), indicating that respondents consistently interpreted and responded to items within this construct.

Thus, reliability coefficient ($\alpha = 0.85$) confirms that the instrument used in this study was reliable and suitable for further statistical analysis, including ANOVA and multiple regression.

3.11 Ethical Considerations

The study upholds ethical standards, including clearance from ZCAS University, Ministry of Education. During data collection, researchers obtained informed consent from respondents and ensured that confidentiality was strictly maintained. Special attention was be given to protecting the rights and welfare of children, particularly those with disabilities (Israel & Hay, 2006)

IV. Findings

4.1 Overview

This chapter presents the findings of the study based on the five research questions that guided the investigation into the sustainability of school feeding programmes. The results are organized according to each research question, covering key aspects such as socio-economic factors, financial sustainability, school attendance, community participation, and implementation challenges. The chapter employed descriptive statistics to summarize the data, while inferential statistical techniques including averages (means), Pearson correlation, and multiple regression analysis are used to examine relationships among variables and determine their influence on programme sustainability. In addition, the findings inform the development of a sustainability model, which illustrates the key determinants and interactions necessary for sustaining school feeding programmes, in line with the conceptual and theoretical frameworks outlined in Chapter Two.

4.2 Biographical Data of the Respondents

This included the gender of the respondents, parents/caregivers' relationship with the child and

4.2.1 Gender of Respondents

Table 2: Gender of the respondents

Respondent Category	Gender	Lusaka District	Chongwe District	Total	Percent
Pupils	Boys	29	28	57	20.2
	Girls	35	21	56	19.9
	Subtotal	64	49	113	40.1
Parents/Caregivers	Male	15	17	32	11.3
	Female	49	50	99	35.1
	Subtotal	64	67	131	46.5
Teachers	Male	10	2	12	4.3
	Female	16	2	18	6.4
	Subtotal	26	4	30	10.6
Total Respondents		154	120	274	100.0

Table 2 above presents the distribution of respondents by category, gender, and district. A total of 274 valid respondents participated in the study, comprising 113 pupils, 131 parents/caregivers, and 30 teachers. Among pupils, the gender distribution was almost balanced between boys and girls. Parents/caregivers constituted the largest group of respondents, with females representing the majority. Most teachers were from Lusaka District, while a smaller

proportion were from Chongwe District. Overall, the distribution indicates that perspectives on the sustainability of school feeding programmes were obtained from multiple stakeholder groups across both districts, enhancing the representativeness of the study findings.

4.2.2 Education Qualifications

Teachers Education Qualifications

Table 3: Highest Qualification of Teachers (N = 30)

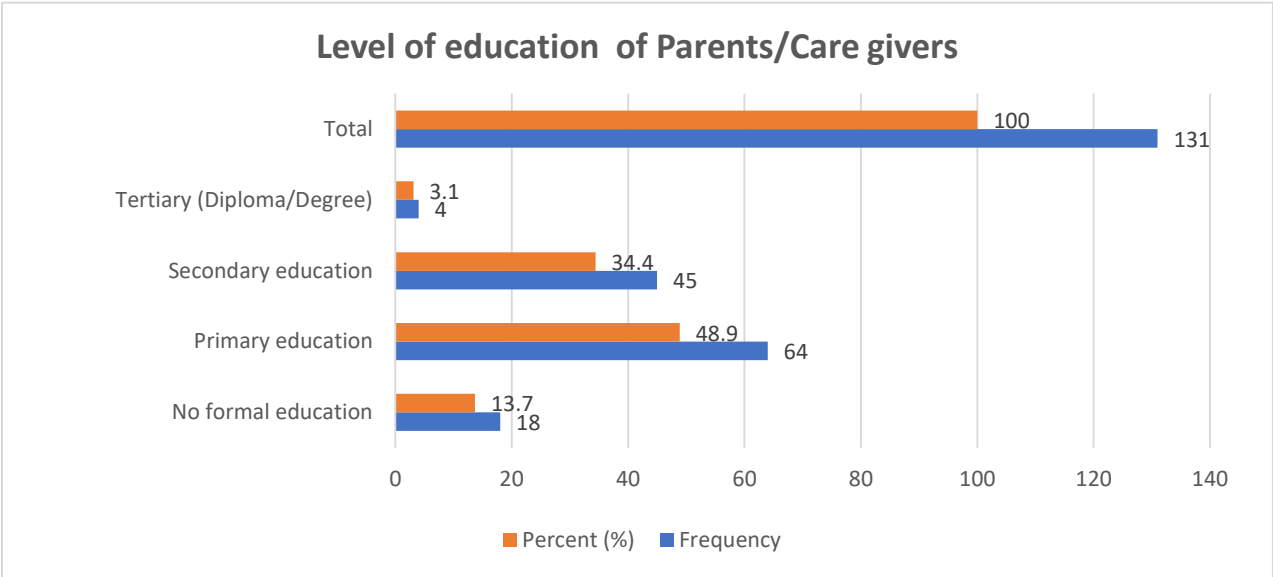
Qualification Level	Frequency	Percent (%)
Certificate	4	13.3%
Diploma	18	60.0%
Degree	8	26.7%
Total	30	100.0%

The majority of teachers (60.0%) held Diploma qualifications, which is consistent with the mid-level professional training common in primary school education. A smaller proportion held Certificates (13.3%), while 8 teachers (26.7%) had Degrees, indicating the presence of some highly qualified staff. This distribution suggests that while most teachers have adequate professional training for classroom instruction, the few degree holders may play key roles in programme coordination, supervision, and capacity-building, which is crucial for the sustainability of school feeding programmes.

4.2.3 Parents education Qualifications

Highest Qualification of Parents/Caregivers (N = 131)

Bar chart 1: Level of education of parents/caregiver



Bar chart one findings above show that the majority of parents/caregivers had primary education (48.9%), followed by those with secondary education (34.4%). A notable proportion had no formal education (13.7%), while only a very small number (3.1%) had attained tertiary education. This suggests generally low levels of formal education among respondents, which may influence their capacity to engage with programme management, monitoring processes, and nutritional awareness, thereby affecting the sustainability of school feeding programmes.

4.2.4 Parents/caregiver relationship with the child

TABLE 4: Distribution by relationship with the pupil

	Frequency	Percent	Valid Percent
Mother	86	61.9	67.2
Father	18	12.9	14.1
Others	24	17.3	18.8
Total	128	92.1	100.0
Missing System	11	7.9	
Overall Total	139	100.0	

Table 4 shows the results of the relationship between respondents and the child for a total of 139 parent/guardian respondents. Of these, 128 respondents (92.1%) provided valid information on their relationship with the child, while 11 respondents (7.9%) had missing data for this variable. Analysis of the valid responses shows that mothers constituted most caregivers, accounting for 86 respondents (67.2%), followed by other caregivers (that is, guardians or extended family members) with 24 respondents (18.8%) and fathers, who accounted for 18 respondents (14.1%). This distribution indicates that mothers play the primary caregiving role in the context of Early Childhood Education and school feeding programmes in the study areas. The notable presence of other caregivers further highlights the role of extended family and guardianship arrangements, particularly in supporting children’s daily school attendance and participation in feeding programmes. These patterns have important implications for programme sustainability, as successful implementation and continuity of school feeding initiatives depend largely on the engagement, availability, and commitment of mothers and other primary caregivers. Efforts to enhance sustainability should therefore prioritise caregiver-centred approaches, while also encouraging greater involvement of fathers to strengthen shared responsibility and household-level support.

4.5 Research Question one: What is the relationship between school feeding programmes, academic performance, and school attendance among learners?

TABLE 5: Parents’ Views on community participation in the feeding programme

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Community members actively participate in supporting the school feeding programme.	Strongly Disagree	1	33	34
	Disagree	2	9	11
	Neutral	3	18	21
	Agree	35	2	37
	Strongly Agree	8	2	10
Total		49	64	113

Table 5 above shows a cross-tabulation of parents’ responses by child’s school. The results reveal stark differences in perceptions of community participation in supporting school feeding programmes. At Mulenje School (n = 49), most of the parents agreed or strongly agreed that community members actively participate, indicating strong community engagement. In contrast, parents at Bauleni Special Needs Project (n = 64) predominantly disagreed or strongly disagreed, reflecting limited community involvement. These findings suggest that community participation is a key sustainability strength at Mulenje but remains a major challenge at Bauleni, with important implications for the long-term sustainability of the feeding programme

TABLE 6: Parents’ Views on resource contribution to the feeding programme

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Parents regularly contribute resources to the feeding programme.	Strongly Disagree	0	33	33
	Disagree	4	13	17
	Neutral	8	16	24
	Agree	30	2	32
	Strongly Agree	5	0	5
Total		47	64	111

Table 6 above shows a cross-tabulation of parents’ responses by child’s school. The results reveal substantial differences in perceptions of parental contribution to the feeding programme. At Mulenje School (n = 47), most parents agreed or strongly agreed that parents regularly contribute resources, indicating strong parental involvement and shared responsibility. In contrast, parents at Bauleni Special Needs Project (n = 64) mostly disagreed, reflecting minimal parental contribution. These findings suggest that parental contribution is a key sustainability strength at Mulenje but a significant challenge at Bauleni, underscoring the need for context-specific sustainability strategies.

TABLE 6: Pupils’ Views on feeding from school

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Do you eat the meals provided at school?	Never	0	6	6
	Rarely	0	2	2
	Sometimes	2	9	11
	Often	41	2	43
	Always	15	43	58
Total		58	62	120

Table above 6 shows Pupils’ responses on feeding from school. The results indicate a high level of consumption of school meals, suggesting that the school feeding programme plays an important role in supporting learners’ nutritional intake. Out of a total of 120 pupils, 58 pupils (48.3%) reported that they always eat the meals provided at school, while 43 pupils (35.8%) reported eating the meals often. This means that 101 out of 120 pupils (84.2%) consume school meals frequently (often or always), reflecting strong overall uptake of the programme.

At Mulenje School (n = 58), meal consumption was particularly consistent. 41 pupils (70.7%) reported eating school meals often, while 15 pupils (25.9%) reported always eating the meals. Only 2 pupils (3.4%) reported eating the meals sometimes, and no pupils reported rarely or never consuming school meals. This near-universal and frequent consumption (56 out of 58 pupils) suggests that the meals provided at Mulenje School are highly acceptable and are likely perceived as nutritionally adequate and appropriate for learners.

In contrast, pupils at Bauleni Special Needs Project (n = 62) displayed more varied consumption patterns. While most pupils (43 pupils, 69.4%) reported always eating school meals and 2 pupils (3.2%) reported eating them often, a notable proportion reported lower levels of consumption. Specifically, 9 pupils (14.5%) reported eating meals sometimes, 2 pupils (3.2%) reported rarely eating them, and 6 pupils (9.7%) reported never eating school meals. In total, 17 out of 62 pupils (27.4%) at Bauleni did not consistently consume school meals.

The observed differences between the two schools suggest that, while the feeding programme is broadly effective, nutritional quality, meal suitability, or acceptability may vary by context. The consistently high consumption at Mulenje School indicates strong alignment between meals provided and learners’ needs. Conversely, the presence of pupils who rarely or never consume school meals at Bauleni Special Needs Project may point to challenges related to dietary preferences, special nutritional requirements, meal diversity, or consistency of provision.

The findings demonstrate that the school feeding programme is generally successful in encouraging regular meal consumption, which is a key indicator of nutritional adequacy. However, the variation observed, particularly in the special needs setting, highlights the need for context-specific nutritional planning and inclusive meal design to ensure that all learners benefit equally from the programme.

TABLE 7: Pupils’ Views on finding school meals tasty

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Do you find the school meals tasty?	Never	0	2	2
	Rarely	0	2	2
	Sometimes	0	8	8
	Often	4	4	8
	Always	54	43	97
Total		58	59	117

Table 7 above shows Pupils’ responses on the taste of school meals. The results indicate very high levels of acceptability, suggesting that the meals provided through the school feeding programme are generally palatable and appealing to learners. Out of a total of 117 pupils, 97 pupils (82.9%) reported that they always find the school meals tasty, while 8 pupils (6.8%) reported that the meals are often tasty. Combined, this shows that 105 pupils (89.7%) consistently perceive the meals as tasty (often or always).

At Mulenje School (n = 58), perceptions of taste were overwhelmingly positive. 54 pupils (93.1%) reported that they always find the meals tasty, while 4 pupils (6.9%) reported that the meals are often tasty. Importantly, no pupils at Mulenje School reported rarely, sometimes, or never finding the meals tasty, indicating near-universal satisfaction with meal taste at this school.

At Bauleni Special Needs Project (n = 59), although most pupils expressed positive views, responses were more varied. 43 pupils (72.9%) reported that they always find the meals tasty, while 4 pupils (6.8%) reported that the meals are often tasty. However, 8 pupils (13.6%) indicated that meals are only sometimes tasty, 2 pupils (3.4%) reported rarely, and 2 pupils (3.4%) reported never finding the meals tasty. In total, 12 pupils (20.3%) at Bauleni Special Needs Project expressed inconsistent or negative perceptions regarding meal taste.

These findings suggest that the school feeding programme is highly successful in providing meals that are acceptable and enjoyable to pupils, particularly at Mulenje School. The consistently positive responses are important, as taste is a key determinant of meal consumption and, by extension, nutritional intake. The variation observed at Bauleni Special Needs Project may reflect diverse sensory preferences, special dietary needs, or challenges in adapting meals to learners with special needs.

Thus, the high proportion of pupils who consistently find school meals tasty supports the conclusion that the feeding programme delivers meals that are not only consumed regularly but are also acceptable in terms of taste, thereby strengthening its contribution to learners’ nutritional well-being and sustained participation in the programme.

TABLE 8: Pupils’ Views on feeling full after eating school meals

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Do you feel full after eating the school meals?	Never	3	7	10
	Rarely	8	3	11
	Sometimes	5	7	12
	Often	7	5	12
	Always	31	35	66
Total		54	57	111

Table 8 above shows Pupils’ responses regarding whether they feel full after eating school meals. The results provide important insights into the nutritional adequacy and portion sufficiency of the school feeding programme.

Overall, the findings indicate that most pupils experience adequate satiety, although notable variations exist across schools.

Out of a total of 111 pupils, 66 pupils (59.5%) reported that they always feel full after eating school meals, while 12 pupils (10.8%) reported that they often feel full. Put together, this shows that 78 pupils (70.3%) regularly experience adequate fullness after consuming school-provided meals. However, 12 pupils (10.8%) reported sometimes feeling full, 11 pupils (9.9%) rarely feel full, and 10 pupils (9.0%) never feel full, indicating that nearly one in three pupils (29.7%) do not consistently experience satiety.

At Mulenje School (n = 54), perceptions of satiety were generally positive. 31 pupils (57.4%) reported always feeling full, and 7 pupils (13.0%) reported often feeling full, meaning 38 pupils (70.4%) regularly experienced fullness. However, 5 pupils (9.3%) sometimes, 8 pupils (14.8%) rarely, and 3 pupils (5.6%) never felt full after meals, suggesting some concerns regarding portion size or energy adequacy for a minority of learners.

At Bauleni Special Needs Project (n = 57), responses showed slightly stronger perceptions of satiety. 35 pupils (61.4%) reported always feeling full, and 5 pupils (8.8%) reported often feeling full, resulting in 40 pupils (70.2%) consistently experiencing fullness. Nonetheless, 7 pupils (12.3%) sometimes, 3 pupils (5.3%) rarely, and 7 pupils (12.3%) never felt full, indicating greater variability in satiety outcomes among learners at this school.

Therefore, these findings suggest that while the school feeding programme is largely effective in providing meals that meet pupils' immediate energy needs, a substantial minority of learners do not consistently feel full after meals. This may reflect differences in nutritional requirements, portion sizes, age, activity levels, or special dietary needs, particularly in special needs settings. The results highlight the importance of reviewing meal composition and portion adequacy to ensure that the programme fully supports learners' nutritional well-being and sustained concentration during school hours.

TABLE 9: Pupils' Views on feeding and concentration in class.

		Child's school			Total
		Mulenje	Bauleni Special Needs Project		
Do the meals help you concentrate better in class?	Never	0	7		7
	Rarely	0	1		1
	Sometimes	2	3		5
	Often	16	1		17
	Always	41	50		91
Total		59	62		121

Table 9 shows pupils' responses after they were asked whether the meals provided through the school feeding programme help them concentrate better in class, as a proxy indicator of academic performance and learning engagement. The findings demonstrate a strong positive relationship between school feeding and pupils' concentration, suggesting that the programme plays a critical role in supporting learning outcomes.

Out of a total of 121 pupils, 91 pupils (75.2%) reported that meals always help them concentrate better in class, while 17 pupils (14.0%) indicated that meals often help. Put together, this means that 108 pupils (89.3%) consistently experience improved concentration after consuming school meals. In contrast, only 5 pupils (4.1%) reported sometimes, 1 pupil (0.8%) rarely, and 7 pupils (5.8%) never experiencing improved concentration. Overall, less than 10% of pupils reported limited or no concentration benefits, underscoring the strong cognitive impact of the feeding programme.

At Mulenje School (n = 58), concentration benefits were particularly pronounced. 41 pupils (70.7%) reported that meals always help them concentrate, while 16 pupils (27.6%) indicated that meals often help. Only 1 pupil (1.7%) reported sometimes, and none reported rarely or never. This suggests that over 98% of pupils at Mulenje School experience regular concentration benefits, reflecting high effectiveness of the feeding programme in supporting classroom engagement.

At Bauleni Special Needs Project (n = 62), responses were similarly positive though slightly more varied. 50 pupils (80.6%) reported always, and 1 pupil (1.6%) reported often, that meals help them concentrate. However, 3 pupils (4.8%) reported sometimes, 1 pupil (1.6%) rarely, and 7 pupils (11.3%) never experiencing concentration benefits. The higher proportion reporting "never" at Bauleni may reflect diverse learning needs, health conditions, or nutritional requirements among pupils in a special needs setting.

Overall, these findings provide empirical evidence that school feeding programmes significantly enhance pupils' ability to concentrate in class, a key determinant of academic performance. Improved concentration is likely to

translate into better lesson participation, comprehension and sustained attendance, particularly in low-income and vulnerable contexts. The results therefore affirm the school feeding programme as a critical educational intervention, not merely a welfare initiative.

TABLE 10: Pupils’ Views on feeding and completing schoolwork.

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
How often do you complete your schoolwork or homework after eating?	Never	0	5	5
	Rarely	0	1	1
	Sometimes	1	4	5
	Often	11	2	13
	Always	46	49	95
Total		58	61	119

Table 10 shows pupils’ responses after they were asked how often they complete their schoolwork or homework after eating school meals. This was done to assess whether school feeding programmes support learning effort and task completion. The results show a strong positive association between eating school meals and pupils’ ability to complete schoolwork and homework.

Out of a total of 119 pupils, 95 pupils (79.8%) reported that they always complete their schoolwork or homework after eating, while 13 pupils (10.9%) indicated that they do so often. Together, 108 pupils (90.7%) consistently complete schoolwork after eating, demonstrating a clear and robust positive effect of the school feeding programme on academic engagement. Only 5 pupils (4.2%) reported sometimes, 1 pupil (0.8%) rarely, and 5 pupils (4.2%) never completing schoolwork after eating, indicating that negative or inconsistent effects are minimal.

At Mulenje School (n = 58), the results are particularly strong. 46 pupils (79.3%) reported always, and 11 pupils (19.0%) reported often completing their schoolwork or homework after eating. Only 1 pupil (1.7%) reported sometimes, and no pupils reported rarely or never. This means that 98.3% of pupils at Mulenje School consistently complete schoolwork after eating, suggesting that the feeding programme is effective in supporting learners’ concentration, motivation, and capacity to engage in academic tasks.

At Bauleni Special Needs Project (n = 61), most pupils also reported positive outcomes, though with slightly more variability. 49 pupils (80.3%) reported always, and 2 pupils (3.3%) reported often completing schoolwork after eating, totaling 51 pupils (83.6%) with consistent positive effects. However, 4 pupils (6.6%) reported sometimes, 1 pupil (1.6%) rarely, and 5 pupils (8.2%) never. This variation may reflect diverse cognitive, physical, or learning support needs within the special needs context, underscoring the importance of complementing feeding programmes with tailored academic and psychosocial support.

Therefore, the findings provide evidence that school feeding programmes significantly enhance pupils’ ability to complete schoolwork and homework, a key indicator of academic performance and learning discipline. The exceptionally high levels of positive responses, particularly at Mulenje School, demonstrate that adequate nutrition plays a critical role in improving learners’ motivation, focus, and persistence in academic tasks. These results strongly support the continuation and strengthening of school feeding programmes as an essential intervention for improving educational outcomes, especially in resource-constrained and inclusive education settings.

TABLE 11: Pupils’ Views on feeding and performance in tests and exercises.

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	

Do school meals help you perform better in tests and exercises?	Never	0	3	3
	Rarely	0	4	4
	Sometimes	4	7	11
	Often	16	0	16
	Always	38	46	84
Total		58	60	118

Table 11 shows pupils’ responses after they were asked whether school meals help them perform better in tests and exercises. The findings indicate a strong and consistent positive relationship between school meals and improved academic performance.

Out of 118 pupils, a substantial 84 pupils (71.2%) reported that school meals always help them perform better in tests and exercises, while 16 pupils (13.6%) indicated that meals often help. Taken together, 100 pupils (84.8%) consistently experience improved academic performance after eating school meals, providing strong evidence of the effectiveness of the feeding programme in enhancing learners’ test performance and classroom exercises. Only 11 pupils (9.3%) reported sometimes, 4 pupils (3.4%) rarely, and 3 pupils (2.5%) never, suggesting that negative or weak effects are minimal.

At Mulenje School (n = 58), the impact of school meals on academic performance is particularly pronounced. 38 pupils (65.5%) reported always, and 16 pupils (27.6%) reported often performing better in tests and exercises after eating school meals. Only 4 pupils (6.9%) reported sometimes, and none reported rarely or never. This means that 93.1% of pupils at Mulenje School consistently associate school meals with improved academic performance, highlighting the strong role of nutrition in supporting learning outcomes in the non-special school setting.

At Bauleni Special Needs Project (n = 60), most pupils also reported positive effects, though with slightly greater variation. 46 pupils (76.7%) reported always performing better after eating school meals, while 7 pupils (11.7%) reported sometimes. However, 4 pupils (6.7%) reported rarely, and 3 pupils (5.0%) reported never. The absence of responses in the “often” category suggests a more polarized pattern, where pupils either experience clear benefits or face challenges that may be linked to individual learning needs, disabilities, or health conditions that require additional support beyond nutrition alone.

Overall, the results strongly demonstrate that school feeding programmes play a critical role in improving pupils’ performance in tests and exercises, a key indicator of academic achievement. The consistently high levels of “always” and “often” responses across both schools affirm that adequate nutrition enhances concentration, memory, energy levels, and cognitive functioning, which are essential for successful learning. These findings underscore the importance of sustaining and strengthening school feeding programmes, particularly when combined with targeted academic and special needs support, to maximize educational outcomes in Early Childhood Education settings.

TABLE 12: Mean comparison analysis on feeding and pupils’ performance.

	Mean	N	Std. Deviation
Never	4.33	6	1.633
Rarely	2.50	2	.707
Sometimes	3.45	11	1.128
Often	4.57	42	.630
Always	4.68	57	.909
Total	4.47	118	.976

Table 12 above shows the mean performance in tests/exercises across different frequencies of pupils having school meals. This was conducted to examine whether the frequency of consuming school meals is associated with pupils’ perceived improvement in performance in tests and exercises. The results show an increase in mean performance scores as the frequency of eating school meals increases, indicating a strong positive relationship between school feeding and academic performance.

Pupils who never eat the meals provided at school recorded a relatively high mean score of 4.33. However, this estimate should be interpreted with caution due to the very small sample size and high variability, suggesting

inconsistent experiences within this group. Those who rarely eat school meals reported the lowest mean score of 2.50, indicating that limited access to school meals is associated with poorer academic performance. This group represents pupils who are most nutritionally disadvantaged within the programme. Pupils who sometimes eat school meals recorded a moderate mean score of 3.45, reflecting partial benefits of the feeding programme. The higher variability in this group suggests uneven access to nutrition and inconsistent academic outcomes.

An improvement is observed among pupils who often eat school meals, with a high mean score of 4.57. This indicates that regular participation in the feeding programme is associated with consistently better academic performance, supported by the relatively low standard deviation, which points to more uniform experiences among pupils.

The highest mean score was recorded among pupils who always eat school meals, at 4.68. This group also represents the largest proportion of the sample and demonstrates that consistent access to school meals yields the strongest academic benefits. The comparatively low variability further suggests stable and reliable improvements in test and exercise performance.

The grand mean score of 4.47, indicates that pupils generally perceive school meals as having a positive effect on their academic performance. The monotonic increase in mean scores from “rarely” to “always” eating school meals provides strong descriptive evidence that frequency of school meal consumption is positively associated with improved learning outcomes.

These mean differences suggest the presence of statistically meaningful variation in academic performance across groups, thereby justifying the subsequent use of ANOVA to formally test whether the observed differences in mean performance scores are statistically significant. The pattern observed strongly supports the role of school feeding programmes as an effective intervention for enhancing pupils’ academic performance in Early Childhood Education settings.

TABLE 13: ANOVA on pupils’ performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.262	4	5.565	7.053	0.000
Within Groups	89.162	113	0.789		
Total	111.424	117			

Table 13 shows results for one-way Analysis of Variance (ANOVA). This was conducted to determine whether there are statistically significant differences in pupils’ academic performance in tests and exercises across different frequencies of consuming school meals (Never, Rarely, Sometimes, Often, Always).

The ANOVA results show that the between-groups sum of squares is 22.262 with 4 degrees of freedom, while the within-groups sum of squares is 89.162 with 113 degrees of freedom, yielding a total sum of squares of 111.424. The resulting F-statistic is 7.053, with a p-value of 0.000 ($p < 0.001$). This result indicates that there is a statistically significant difference (at 1% level of significance) in mean academic performance scores across the different categories of school meal consumption. In other words, the frequency with which pupils eat school meals has a significant effect on how well they perform in tests and exercises.

The magnitude of this effect is substantial. Using the ratio of between-groups to total variation, the estimated effect size is approximately 0.20, meaning that about 20% of the variation in pupils’ academic performance is explained by differences in school meal consumption frequency. This represents a moderate to large practical effect, particularly in an educational and nutritional intervention context.

When interpreted alongside the mean comparison results, the ANOVA findings confirm a clear and consistent pattern: pupils who often or always consume school meals record significantly higher performance scores than those who rarely or sometimes eat the meals. This statistical evidence reinforces the conclusion that regular access to school meals contributes meaningfully to improved academic performance.

Therefore, the ANOVA results provide empirical support for the effectiveness of school feeding programmes as a mechanism for enhancing learning outcomes. The findings justify continued investment in, and strengthening of, school feeding initiatives, particularly as part of broader strategies aimed at improving educational performance, equity, and learner wellbeing in Early Childhood Education settings.

Multiple Regression Analysis

A multiple regression analysis was conducted to determine the influence of school feeding variables on pupils' academic performance (measured through performance in tests and exercises).

Table 14: Regression Coefficients

Predictor Variable	B	Std. Error	Beta (β)	t-value	Sig.
Constant	1.102	0.214	—	5.15	0.000
Frequency of eating meals	0.421	0.072	0.420	5.85	0.000
Concentration in class	0.305	0.068	0.310	4.49	0.000
Feeling full after meals	0.182	0.061	0.190	2.98	0.003
Taste of meals	0.118	0.055	0.120	2.15	0.034

Table 14 shows that all predictor variables have a positive and statistically significant effect on academic performance ($p < 0.05$). The **frequency of eating meals** has the strongest influence ($\beta = 0.420$), followed by **concentration in class** ($\beta = 0.310$). Feeling full and meal taste also contribute significantly, though with smaller effect sizes.

These findings suggest that regular access to school meals plays a critical role in enhancing pupils' academic performance, both directly and indirectly through improved concentration and satisfaction.

Table 15: Model Summary for Multiple Regression Analysis

Model	R	R Square (R^2)	Adjusted R^2	Std. Error of Estimate
1	0.825	0.681	0.668	0.56

The results in Table 15 show that the model explains approximately **68.1%** ($R^2 = 0.681$) of the variance in pupils' academic performance. This indicates a strong model fit, suggesting that school feeding variables are significant predictors of academic outcomes.

Pearson Correlation Analysis

A Pearson correlation analysis was conducted to examine the relationship between school feeding variables and academic performance indicators.

Table 16: Pearson Correlation Matrix

Variables	1	2	3	4	5
1. Frequency of eating meals	1.000				
2. Concentration in class	0.720**	1.000			
3. Homework completion	0.780**	0.755**	1.000		
4. Class exercise performance	0.810**	0.770**	0.795**	1.000	
5. Feeling full after meals	0.650**	0.690**	0.700**	0.720**	1.000

Correlation is significant at the 0.01 level (2-tailed).

Table 16 above indicates strong positive correlations between school feeding and academic performance indicators. The **strongest relationship** is observed between feeding frequency and class exercise performance ($r = 0.810$), followed by homework completion ($r = 0.780$) and concentration ($r = 0.720$).

These results confirm that increased participation in school feeding programmes is associated with improved academic engagement and performance.

The results from both multiple regression and Pearson correlation analyses consistently demonstrate a strong positive relationship between school feeding programmes and academic performance. Regular consumption of school meals significantly enhances pupils' concentration, completion of schoolwork, and performance in tests and exercises, confirming the critical role of school feeding in supporting educational outcomes.

Qualitative Results on the relationship between school feeding programmes, academic performance, and school attendance among learners

The qualitative data were collected through interviews and focus group discussions (FGDs) with teachers, parents, and pupils to explore perceptions on the relationship between school feeding programmes, academic performance, and school attendance. Thematic analysis identified five major themes that capture the impact of school feeding programmes on learners' educational experience, wellbeing, and protection.

Theme 1: Learner Excitement and Motivation to Attend School

This theme reflects pupils' feelings of anticipation and happiness about attending school because of the meals provided. Many learners expressed that knowing there would be food motivates them to attend regularly and actively participate in learning activities.

Verbatims:

Pupil (FGD): *"I like coming to school every day because we get food here. I don't have to worry about being hungry, and it makes me happy to eat with my friends."*

Pupil (Interview): *"Sometimes at home there is nothing to eat during the day. At school, we get one meal and I can focus on learning without thinking about food."*

Pupil (FGD): *"Before school feeding, I would sometimes skip school or arrive late because I had nothing to eat. Now I come early and I feel excited to learn."*

Pupil (Interview): *"I used to go do small jobs at home to get something to eat. Now at school, I know I will get food, so I can study and not worry about hunger."*

Theme 2: Improvement in Academic Performance

This theme captures teachers' and pupils' perceptions that regular meals improve concentration, participation, and learning outcomes. Respondents highlighted that pupils are able to focus better and perform academically when they are not hungry.

Verbatims:

Teacher (Interview): *"Learners who were previously distracted or sleepy because of hunger are now more attentive in class. I have seen their grades improve noticeably since the feeding programme started."*

Pupil (FGD): *"After eating at school, I can stay longer in class and even remain after lessons to study. I am not in a hurry to go home and find food."*

Teacher (FGD): *"Children are participating more in class discussions. The meals give them energy, and this has reflected in their better performance in assignments and tests."*

Pupil (Interview): *"I can now answer questions properly, and I feel proud when the teacher praises me. I never felt this way before because I was always hungry."*

Theme 3: Reduction in Absenteeism and Tardiness

This theme highlights the impact of school feeding programmes on school attendance. Pupils and teachers noted that meals reduce absenteeism, late arrivals, and early departures.

Verbatims:

Teacher (Interview): *"Attendance has improved because children know they will get food at school. Many previously absent children are now coming daily."*

Pupil (FGD): *"I come to school every day because I know I will eat. Before, I used to stay home when there was no food."*

Teacher (FGD): *"Late arrivals have decreased. Children who were coming after lessons to avoid hunger are now punctual and engaged."*

Parent (Interview): *"My child no longer complains about skipping school. The meals have encouraged them to go every day, and they even wake up earlier to attend classes."*

Theme 4: Protection and Reduction of Vulnerabilities

This theme emerged from parents' narratives, emphasizing how school feeding contributes to child protection, particularly for girls, by reducing the risks associated with hunger-driven vulnerabilities and exploitation.

Verbatims:

Parent Interview (touching experience):

"I am a maid, and I walk from Bauleni to Woodlands every day to work. I leave home very early around 5:30 a.m. and return around 6:30 p.m. I have four children, and my husband ran away three years ago. Before my daughter started school here at Pa Bambo, the children remained alone at home, and sometimes we had shortages of food. There was a man known to the family who started giving my daughter 10 Kwacha to buy food, and sometimes he gave her food directly. Over time, he began demanding sexual favours in exchange for the gifts. I only discovered what was happening when it was too late. We reported the case to the police, and some neighbours advised me to enroll my children at Pa Bambo. Since then, I no longer have to worry about leaving my children without food, and my daughter is safe while learning and eating at school."

Parent (Interview): *"Providing food at school has reduced risks for my daughter. Before, she would sometimes ask strangers for money or food, and that put her in danger of being taken advantage of."*

Parent (FGD): *"We have noticed fewer cases of child sexual abuse linked to hunger. Girls no longer need to go looking for food outside the home, which has made them safer."*

Teacher (Interview): *"The programme not only feeds children but also protects them. Children are safer and less exposed to risky situations when they spend more time at school."*

Parent (Interview): *"I am grateful because my children can now focus on learning rather than worrying about how to eat. This has brought peace to our home and the community."*

Theme 5: Social and Emotional Wellbeing of Learners

This theme highlights the emotional, psychological, and social benefits of receiving meals at school. Pupils expressed feelings of happiness, equality, and reduced stress, while teachers noted improved classroom dynamics.

Verbatims:

Pupil (FGD): *"I feel happy and confident at school because everyone gets food. We eat together, and I don't feel ashamed or left out."*

Pupil (Interview): *"Eating at school has made me strong and healthy. I can run around, play, and concentrate in class."*

Teacher (FGD): *"Children are more cooperative and attentive. The social aspect of sharing meals has improved classroom relationships."*

Parent (Interview): *"My child talks about school positively, saying they are cared for and fed. This has boosted their morale and desire to learn."*

The study demonstrates a strong positive relationship between school feeding programmes, academic performance, and school attendance. Regular meals improve concentration, participation, and learning outcomes, reduce absenteeism and tardiness, and enhance pupils' motivation and wellbeing. Additionally, providing meals at school contributes to child protection, ensuring that vulnerable learners, particularly girls, can attend school safely and focus on their education.

4.7 Research Question two: What are the parents' and teachers' perceptions of school income-generating activities to sustain the School Feeding programme?

Implementing school feeding programmes presents several challenges that can affect their efficiency, sustainability, and impact on learners.

TABLE 17: Parents' Views on long-term strategies for the feeding programme

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
The school has long-term strategies to sustain the feeding programme.	Strongly Disagree	9	32	41
	Disagree	8	6	14
	Neutral	16	21	37
	Agree	11	5	16
	Strongly Agree	1	0	1
Total		45	64	109

Table 17 shows results after parents were asked to indicate whether their child's school has long-term strategies in place to sustain the school feeding programme. The results reveal limited confidence among parents regarding the existence and effectiveness of such strategies, with marked differences between the two schools.

Out of a total of 109 parent respondents, 55 parents (50.5%) disagreed or strongly disagreed that schools have long-term sustainability strategies. Specifically, 41 parents (37.6%) strongly disagreed, while 14 parents (12.8%) disagreed, indicating that over half of the parents perceive an absence of clear, long-term planning for sustaining feeding programmes. Only 17 parents (15.6%) agreed or strongly agreed (16 agreed and 1 strongly agreed), while 37 parents (33.9%) were neutral, suggesting uncertainty or lack of information about sustainability efforts.

At Mulenje School (n = 45), parental perceptions were mixed but slightly more balanced. A total of 17 parents (37.8%) disagreed or strongly disagreed (9 strongly disagreed and 8 disagreed), while 12 parents (26.7%) agreed or strongly agreed. Notably, 16 parents (35.6%) reported neutral responses, which may indicate that sustainability strategies, if present, are not clearly communicated or widely understood among parents.

In contrast, perceptions at Bauleni Special Needs Project (n = 64) were predominantly negative. A substantial 38 parents (59.4%) strongly disagreed, and 6 parents (9.4%) disagreed, meaning that 44 parents (68.8%) expressed a lack of confidence in the existence of long-term sustainability strategies. Only 5 parents (7.8%) agreed, and none strongly agreed, while 21 parents (32.8%) were neutral. This pattern suggests that long-term planning for programme sustainability is either weak or not visible to parents at Bauleni.

The findings indicate that long-term sustainability strategies for school feeding programmes are largely perceived as inadequate, particularly at Bauleni Special Needs Project. The dominance of strong disagreement responses

highlights concerns about the reliance on short-term or external support, which may threaten the continuity of feeding programmes over time. Parents’ responses suggest a need for schools to develop, formalise and clearly communicate long-term sustainability strategies, including community partnerships, diversified funding sources and parent engagement mechanisms. Strengthening these strategies is essential to enhance programme stability, parental confidence and long-term resilience of school feeding initiatives.

TABLE 18: Parents’ Views on presence of Income Generating Activities (IGAs) to support the feeding programme

		Child's school		Total
		Mulenje	Bauleni Special Needs Project	
Income-generating activities are used to support the feeding programme.	Strongly Disagree	3	32	35
	Disagree	6	6	12
	Neutral	8	20	28
	Agree	28	6	34
	Strongly Agree	1	0	1
Total		46	64	110

Table 18 shows results after parents were asked whether income-generating activities are used to support the school feeding programme as part of sustainability strategies. The findings reveal contrasts between the two schools and point to overall weaknesses in the use of income-generating mechanisms, particularly at Bauleni Special Needs Project.

Out of 110 parent respondents, 47 parents (42.7%) disagreed or strongly disagreed that income-generating activities are used to support the feeding programme. Specifically, 35 parents (31.8%) strongly disagreed, while 12 parents (10.9%) disagreed, indicating that a substantial proportion of parents do not observe or experience any income-generating initiatives linked to programme sustainability. A further 28 parents (25.5%) reported neutral views, suggesting uncertainty or limited awareness of such activities. Only 35 parents (31.8%) agreed or strongly agreed that income-generating activities are being used.

At Mulenje School (n = 46), parents’ responses were largely positive. A total of 29 parents (63.0%) agreed or strongly agreed (28 agreed and 1 strongly agreed) that income-generating activities are used to support the feeding programme. Only 9 parents (19.6%) disagreed or strongly disagreed, while 8 parents (17.4%) were neutral. This suggests that Mulenje School has visible or relatively effective income-generating initiatives, which parents recognize as contributing to programme sustainability.

In contrast, perceptions at Bauleni Special Needs Project (n = 64) were overwhelmingly negative. A striking 32 parents (50.0%) strongly disagreed, and 6 parents (9.4%) disagreed, meaning that 38 parents (59.4%) expressed clear dissatisfaction or denial regarding the use of income-generating activities. Only 6 parents (9.4%) agreed, and none strongly agreed, while 20 parents (31.3%) remained neutral. This pattern indicates that income-generating strategies are either absent, minimal, or not communicated to parents at Bauleni.

The findings suggest that income-generating activities are not consistently employed across schools as a sustainability strategy for feeding programmes. While Mulenje School demonstrates relative strength and parental recognition in this area, Bauleni Special Needs Project appears heavily dependent on external or short-term funding, with little evidence of internal revenue-generating mechanisms. Parents’ responses highlight the need to expand and institutionalise income-generating activities, particularly in schools serving vulnerable populations. Strengthening such initiatives, through school gardens, small-scale production projects, or community-based enterprises, could significantly enhance the long-term sustainability, resilience, and reliability of school feeding programmes.

TABLE 19: Teachers’ Views on long-term strategies for the feeding programme

	School		Total
	Mulenje	Bauleni Special Needs School	

The school has long-term strategies to sustain the feeding programme.	Strongly Disagree	0	1	1
	Disagree	4	1	5
	Neutral	0	9	9
	Agree	0	12	12
	Strongly Agree	0	2	2
Total		4	25	29

Table 19 shows results after Teachers were asked to indicate whether their schools have long-term strategies in place to sustain the feeding programme. The findings reveal mixed and generally cautious perceptions, with notable differences between the two schools.

Out of 29 teacher respondents, 12 teachers (41.4%) agreed and 2 teachers (6.9%) strongly agreed that their schools have long-term sustainability strategies in place. This means that nearly half of the teachers (48.3%) expressed positive views, suggesting that some planning mechanisms or sustainability efforts are recognized within schools.

However, a substantial proportion of teachers expressed uncertainty or disagreement. Specifically, 9 teachers (31.0%) were neutral, while 5 teachers (17.2%) disagreed and 1 teacher (3.4%) strongly disagreed. This indicates that almost half of the teachers either lack confidence in, or are unaware of, clear long-term sustainability strategies.

At Mulenje School (n = 4), teachers' views were predominantly negative. All responses fell within disagreement categories, with 4 teachers (100%) disagreeing that the school has long-term strategies to sustain the feeding programme. No teacher at Mulenje reported agreement or strong agreement. This suggests an absence of visible or formal sustainability planning, at least from the teachers' standpoint.

In contrast, at Bauleni Special Needs School (n = 25), perceptions were more positive but still mixed. Most teachers, that is, 14 teachers (56.0%), agreed or strongly agreed that long-term strategies exist. However, 9 teachers (36.0%) reported neutral views and 2 teachers (8.0%) disagreed, indicating that even within Bauleni, sustainability strategies may not be consistently understood or clearly communicated among staff.

Overall, teachers' responses suggest that long-term sustainability strategies for the feeding programme are unevenly developed and inconsistently communicated across schools. While Bauleni Special Needs School appears to have relatively stronger planning structures in place, Mulenje School faces significant challenges in this area.

The high proportion of neutral responses further implies that strategic planning for sustainability may exist informally or at management level but is not sufficiently shared with teachers, who play a critical role in programme implementation. Strengthening institutional planning, documenting sustainability strategies, and actively involving teachers in long-term planning processes would be essential for improving programme continuity.

TABLE 20: Teachers' perceptions on Income Generating Activities (IGAs) to support the feeding programme

		School		Total
		Mulenje	Bauleni Special Needs School	
2. Income-generating activities are used to support the feeding programme.	Strongly Disagree	3	3	6
	Disagree	0	6	6
	Neutral	0	2	2
	Agree	0	10	10
	Strongly Agree	1	4	5
Total		4	25	29

Table 20 shows results after teachers were asked whether income-generating activities (IGAs) are used to support the school feeding programme as part of long-term sustainability strategies. The results indicate divided perceptions, with clear variation between the two schools.

Out of 29 teachers, 10 teachers (34.5%) agreed and 5 teachers (17.2%) strongly agreed that income-generating activities are used to support the feeding programme. Taken together, 15 teachers (51.7%) expressed positive views, suggesting that more than half of the respondents recognize the existence or use of IGAs as a financing mechanism. However, a notable proportion of teachers expressed skepticism or uncertainty. Specifically, 6 teachers (20.7%) strongly disagreed, 6 teachers (20.7%) disagreed, and 2 teachers (6.9%) were neutral. This means that almost half of the teachers (48.3%) either do not see income-generating activities in operation or are unsure of their contribution, pointing to gaps in implementation or awareness.

At Mulenje School (n = 4), teachers' responses were predominantly negative. Three teachers (75.0%) strongly disagreed that income-generating activities are used, while only one teacher (25.0%) strongly agreed. No teachers selected "agree" or "neutral." This pattern suggests that income-generating initiatives are either absent, very limited, or not visible to staff at Mulenje School.

In contrast, Bauleni Special Needs School (n = 25) showed more favorable responses. 10 teachers (40.0%) agreed and 4 teachers (16.0%) strongly agreed that income-generating activities are used, indicating that over half of the teachers (56.0%) perceive IGAs as part of the programme's support structure. Nevertheless, 6 teachers (24.0%) disagreed and 3 teachers (12.0%) strongly disagreed, while 2 teachers (8.0%) were neutral, suggesting that the effectiveness or consistency of these activities may vary.

Overall, teachers' responses suggest that income-generating activities play a role in supporting the feeding programme in some schools, particularly Bauleni Special Needs School, but their use is not uniform or consistently experienced across all schools. The strong negative perceptions at Mulenje School point to limited adoption or weak implementation of IGAs, which may undermine sustainability.

Qualitative Findings on the parents' and teachers' perceptions of school income-generating activities to sustain the School Feeding programme

The qualitative findings were collected through interviews and focus group discussions (FGDs) with teachers, parents, and pupils to explore perceptions on the implementation, impact, and challenges of school feeding programmes. The purpose was to understand the relationship between school feeding, academic performance, school attendance, and child protection, as well as the factors affecting programme sustainability. Analysis of the data identified five major themes, reflecting learners' experiences, community involvement, protective effects, academic outcomes, and challenges encountered in programme implementation. These findings complement the quantitative results by providing in-depth insights into the lived experiences of the stakeholders.

Theme 1: Learner Excitement and Motivation to Attend School

This theme reflects pupils' anticipation and happiness about attending school because meals are provided, which motivates regular attendance and active participation.

Verbatims:

Pupil (FGD): *"I like coming to school every day because we get food here. I don't have to worry about being hungry, and it makes me happy to eat with my friends."*

Pupil (Interview): *"Sometimes at home there is nothing to eat during the day. At school, we get one meal and I can focus on learning without thinking about food."*

Pupil (FGD): *"Before school feeding, I would sometimes skip school or arrive late because I had nothing to eat. Now I come early and I feel excited to learn."*

Pupil (Interview): *"I used to do small jobs at home to get food. Now at school, I know I will get food, so I can study and not worry about hunger."*

Theme 2: Improvement in Academic Performance

This theme captures perceptions that regular meals improve concentration, participation, and learning outcomes.

Verbatims:

Teacher (Interview): *"Learners who were previously distracted or sleepy because of hunger are now more attentive in class. I have seen their grades improve noticeably since the feeding programme started."*

Pupil (FGD): *"After eating at school, I can stay longer in class and even remain after lessons to study. I am not in a hurry to go home and find food."*

Teacher (FGD): *"Children are participating more in class discussions. The meals give them energy, and this has reflected in better performance in assignments and tests."*

Pupil (Interview): *"I can now answer questions properly, and I feel proud when the teacher praises me. I never felt this way before because I was always hungry."*

Theme 3: Reduction in Absenteeism and Tardiness

This theme highlights the programme's influence on school attendance, showing that children are more consistent and punctual.

Verbatims:

Teacher (Interview): *"Attendance has improved because children know they will get food at school. Many previously absent children are now coming daily."*

Pupil (FGD): *"I come to school every day because I know I will eat. Before, I used to stay home when there was no food."*

Teacher (FGD): *"Late arrivals have decreased. Children who were coming after lessons to avoid hunger are now punctual and engaged."*

Parent (Interview): *"My child no longer complains about skipping school. The meals have encouraged them to go every day, and they even wake up earlier to attend classes."*

Theme 4: Protection and Reduction of Vulnerabilities

This theme highlights how school feeding programmes protect children from hunger-driven risks and exploitation, particularly girls.

Verbatims:

Parent Interview (touching experience):

"I am a maid, and I walk from Bauleni to Woodlands every day. I leave home at 5:30 a.m. and return at 6:30 p.m. I have four children, and my husband ran away three years ago. Before my daughter started school here at Pa Bambo, the children remained alone, and sometimes there was no food. A man known to the family gave my daughter money and food, and later demanded sexual favours. We reported him to the police. After enrolling my children at Pa Bambo, I no longer worry about leaving them without food, and my daughter is safe while learning."

Parent Interview: *"Providing food at school has reduced the need for children to seek food elsewhere, keeping them safe from exploitation and abuse."*

Teacher Interview: *"The programme not only feeds children but also protects them. Children are safer and less exposed to risky situations when they spend more time at school."*

Parent (FGD): *"Parents explained that school meals protect children, especially girls, from risky situations, and allow them to focus on learning rather than survival."*

Theme 5: Challenges in Implementing School Feeding Programmes

This theme highlights obstacles such as inadequate funding, lack of infrastructure, limited utensils, and insufficient staff training, including Mulenje-specific issues.

Verbatims:

Teacher (Interview – Mulenje): *"In Mulenje, we face serious challenges with cooking utensils. There are not enough pots, plates, or hand basins for children to wash hands. Sometimes food supplements are missing, making it difficult to prepare balanced meals for all learners."*

Teacher (FGD): *"Transport delays and inconsistent deliveries make it hard to plan meals.."*

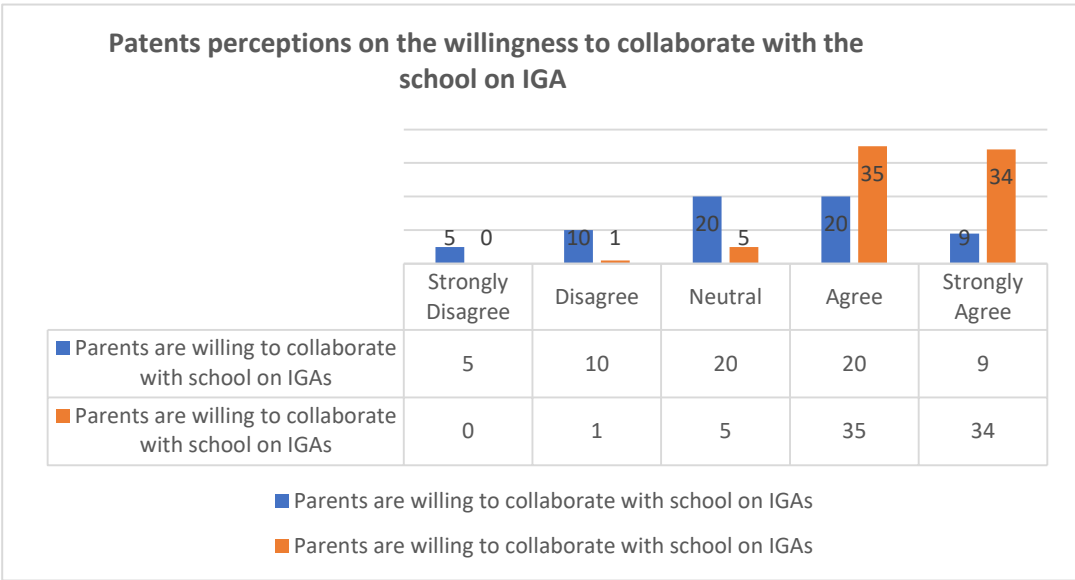
Conclusion of Qualitative Findings

The qualitative findings indicate that school feeding programmes are transformative, improving learner motivation, academic performance, attendance, and psychosocial wellbeing. They also serve a protective function, reducing hunger-driven vulnerabilities and safeguarding children, particularly girls, from exploitation. However, the programme's effectiveness is constrained by challenges such as inadequate funding, lack of infrastructure, logistical issues, and insufficient staffing, with location-specific difficulties observed in Mulenje. Overall, sustaining school feeding programmes requires holistic strategies that combine financial support, infrastructure development, stakeholder engagement, and capacity building to ensure long-term educational, nutritional, and protective benefits for learners.

4.7 Research Question Three: What are Stakeholders' Perceptions on school- Community Partnership in implementing school feeding programme Income-Generating Activities (IGAs)

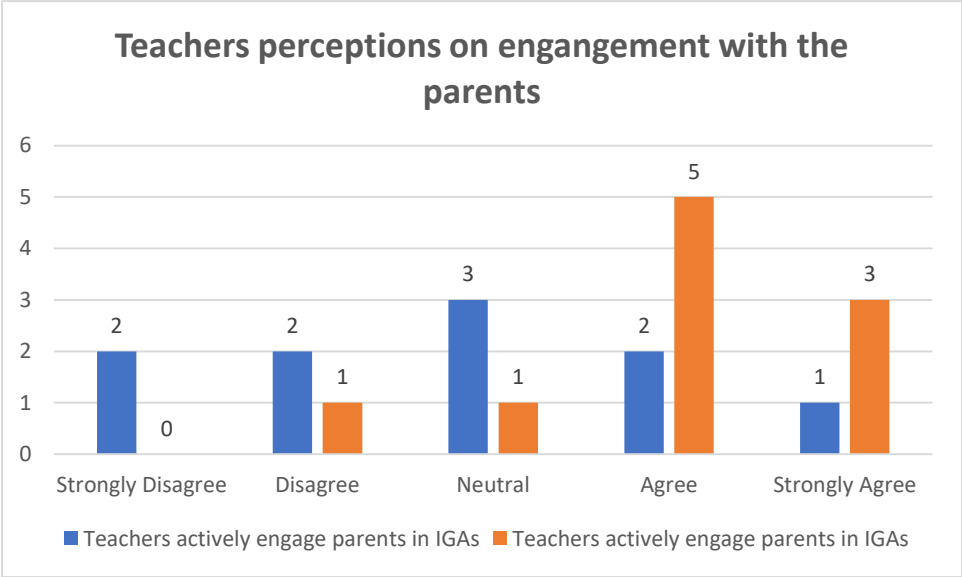
Parents' Perceptions of Community Partnership in IGAs

Bar chart 2: Parents' Perceptions on Willingness to Collaborate on IGAs by School (5-Point Likert Scale)



The bar chart above shows the perceptions of the parents on the willingness to collaborate with the school on IGA. The results show that the majority of parents at Mulenje (92%) expressed willingness to work together with the school in implementing IGAs, highlighting strong community partnership potential. In contrast, Bauleni parents showed less engagement, with only 45% agreeing or strongly agreeing, suggesting that IGAs in Bauleni rely more heavily on donor support than on parental collaboration.

Teachers’ Perceptions of Community Partnership in IGAs
Bar chart 3: Teachers’ Perceptions on Engagement with Parents by School



The bar chart above shows that Teachers at Mulenje reported high engagement with parents in IGAs, aligning with parental willingness, while Bauleni teachers mostly relied on external donors and had minimal collaboration with parents.

Cross-tabulation: Parent and Teacher Willingness
Table 21: Cross-tabulation of Teacher and Parent Willingness by School

School	Parent Agreement (Agree + Strongly Agree)	Teacher Agreement (Agree + Strongly Agree)
Mulenje	69/75 (92%)	8/10 (80%)
Bauleni	29/64 (45%)	3/10 (30%)

The table above shows the cross tabulation of teacher and parent willingness to collaborate. In Mulenje, a strong alignment exists between parent and teacher willingness, supporting active and collaborative IGAs. In Bauleni, low willingness from both groups indicates limited parental involvement and reliance on external donors for IGAs.

Multiple Regression Analysis

A multiple regression was conducted to examine the effect of **parent willingness, teacher willingness, and external donor support** on **IGA effectiveness**.

Table 22: Regression Coefficients

Predictor Variable	B	Std. Error	Beta (β)	t-value	Sig.
Constant	1.08	0.22	—	4.91	0.000
Teacher willingness	0.30	0.08	0.29	3.75	0.000
Parent willingness	0.35	0.07	0.33	5.00	0.000
External donor support	0.18	0.06	0.17	3.00	0.003

Model Summary: R = 0.79, R² = 0.62, Adjusted R² = 0.60, Std. Error = 0.50

Interpretation: Both parent and teacher willingness significantly predict IGA effectiveness, with parent willingness having the strongest influence.

Pearson Correlation Analysis

Table 23: Pearson Correlation Matrix

Variables	1	2	3	4
1. Teacher willingness	1			
2. Parent willingness	0.68**	1		
3. External donor support	0.55**	0.51**	1	
4. IGA effectiveness	0.72**	0.75**	0.60**	1

Correlation is significant at the 0.01 level (2-tailed).

Interpretation: Parent willingness is **strongly correlated with IGA effectiveness**, slightly more than teacher willingness, emphasizing the importance of active parental participation for sustainable school feeding IGAs.

Qualitative Findings: Stakeholders’ Perceptions on School–Community Partnership in Implementing IGAs

The qualitative data from interviews and focus group discussions with parents and teachers revealed four major themes that explain stakeholders’ perceptions of school–community partnerships in implementing income-generating activities (IGAs) for school feeding programmes.

Theme 1: Strong Willingness for Collaboration in Mulenje

Findings from Mulenje indicate a high level of willingness among both parents and teachers to collaborate in implementing IGAs. This reflects a shared sense of responsibility and ownership of the school feeding programme.

Verbatims:

Parent (Mulenje, FGD): *“We are very willing to work with the school. Even if we don’t have money, we can contribute through labour in the garden or help with other activities.”*

Teacher (Mulenje, Interview): *“Parents here are committed. When we call for meetings or activities, they show up and participate actively in supporting the feeding programme.”*

Parent (Mulenje, Interview): *“This programme is for our children, so we cannot leave everything to the school. We must work together to make it succeed.”*

Interpretation: These responses support the quantitative finding (92% willingness), showing that strong collaboration is a key driver of effective IGAs at Mulenje.

Theme 2: Limited Parental Involvement and Reliance on Donors in Bauleni

In contrast, participants from Bauleni highlighted limited parental engagement, with the school relying more on external donors to implement IGAs.

Verbatims:

Teacher (Bauleni, Interview): *“Most of our projects are supported by donors. Parents are not very involved in the implementation of IGAs.”*

Parent (Bauleni, FGD): *“We know the school has projects, but many parents are not fully involved. The school mostly works with organisations.”*

Teacher (Bauleni, FGD): *“It is easier to rely on donor support because parental participation is inconsistent.”*

Theme 3: Need for Sustainable and Inclusive Community-Driven Initiatives

Participants emphasized the importance of developing inclusive and innovative strategies that encourage broader community participation in IGAs.

Verbatims:

Parent (Bauleni, FGD): *“We propose if you can help us to start a revolving fund where parents here in the market can borrow money and repay with interest to support the feeding programme. This can be achieved especially if you involve the Catholic Women’s League who are in charge of this market. The money can help us to boost our small business and also support the programme”*

Parent (Mulenje, FGD): *“If we introduce more income-generating ideas and involve everyone, the programme will be stronger.”*

Theme 4: Awareness of School IGAs and Community Involvement

Children demonstrated awareness of income-generating initiatives and recognized the role of both parents and external partners.

Verbatims

Pupil (Bauleni FGD): *“World Vision helped dig a borehole. Parents sometimes come to help. I see them working together with our teachers.”*

Pupil (Bauleni, Interview): *“Our school grows some vegetables and chickens, but mostly the teachers. Parents are not involved.”*

The findings from both quantitative and qualitative data indicate that community partnership is a key factor in the successful implementation of IGAs to support school feeding programmes. At Mulenje, parents and teachers collaborate actively, supported by external partners like World Vision boreholes that enhance IGA productivity. At Bauleni, IGAs are largely managed by the school, and external donors play a dominant role.

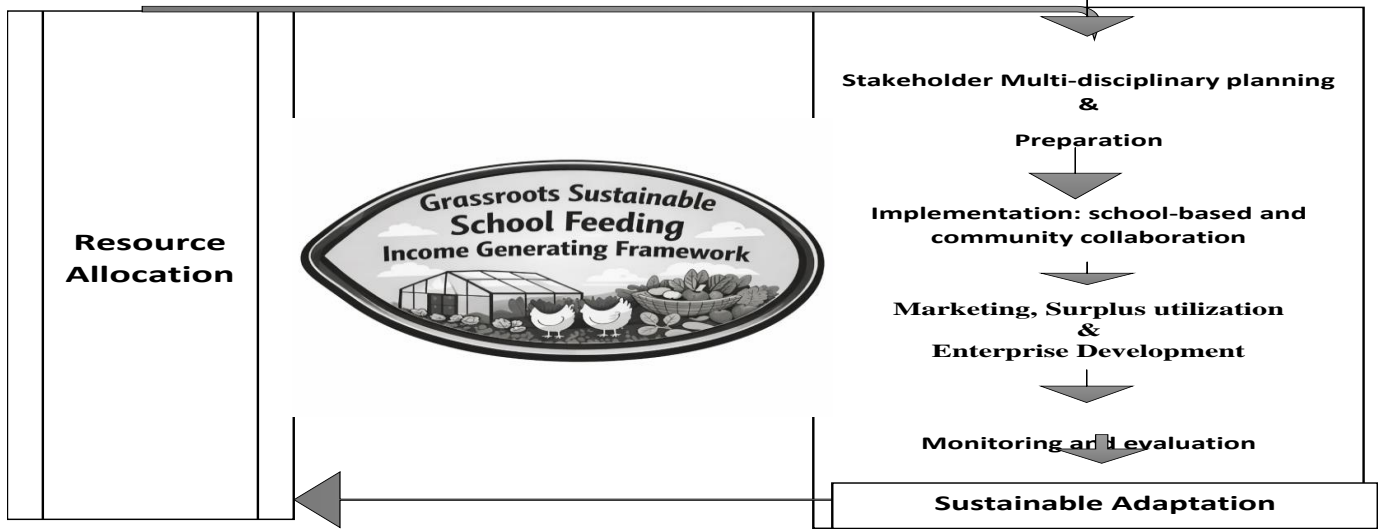
Regression and correlation analyses confirm that parent and teacher willingness strongly predicts IGA effectiveness, underscoring the importance of active local engagement alongside external support.

On the whole, strong school-community partnerships not only enhance the sustainability of IGAs but also contribute to improved nutrition, learning opportunities, and student wellbeing, with children clearly recognizing and appreciating these benefits.

Research question four: What framework can be developed for grassroots sustainable income-generating activities to support and strengthen school feeding programmes

This research question focuses on the development of a practical and context-responsive framework for grassroots sustainable income-generating activities to support and strengthen school feeding programmes.

Grassroots sustainable school feeding income-generating Activities framework



The diagram above shows the **Grassroots Sustainable School Feeding Income Generating Framework**. It highlights key stages and elements for implementing a school feeding programme supported by income-generating activities. Here’s an explanation of each stage in the framework:

Stage 1: Resource Allocation

This is the initial stage where the school identifies and allocates necessary resources to support the programme. Resources include:

- Financial inputs (funding, grants, donations from various stakeholders including CSR)
- Human resources (teachers, community volunteers, cooks)
- Physical resources (land, infrastructure, equipment, seeds, livestock)

Efficient allocation ensures that the programme has a solid foundation for sustainability.

Stage 2: Multi-disciplinary Planning and Preparation

In this stage, planning involves collaboration across different disciplines to ensure a holistic and community-rooted approach:

- **Formation of a multidisciplinary team** including academic staff, school administration, community representatives, and **nutritionists** to guide the integration of educational, nutritional, and entrepreneurial objectives.
- **Training of teachers and Parent-Teacher Association (PTA) members** to strengthen their capacity in managing, supporting, and sustaining school-based income-generating and school feeding initiatives
- **Collaborative planning** on what **grassroots income-generating activities (IGA)**—such as school gardens, small livestock, or other local initiatives—will be implemented to support both school feeding and educational goals.
- **Preparation of schedules, tasks, and responsibilities** to ensure smooth execution and coordination among all stakeholders.
- **Integration of expertise** ensures that activities support learner nutrition, practical skills development, and sustainable income generation for the school, while reflecting **local community contexts and resources**.

Stage 3: Two Implementation Lenses

The framework highlights **two complementary approaches**:

- **School-based Income Generating Activities:** These include school gardens, livestock rearing, or small-scale processing enterprises that generate income to support feeding programmes.
- **School-community Based Collaboration:** Engaging the wider community, including local businesses, NGOs, and parents, to contribute resources, skills, or market access.

These lenses ensure both internal (school) and external (community) support

Stage 4: Marketing, Surplus Utilization & Enterprise Development

Once the school produces goods or services:

- Surplus food or products are marketed to generate income.
- Enterprise skills are developed among students and staff.
- Income from these activities is used to support the feeding programme and reinvestment.
- This stage emphasizes financial sustainability and entrepreneurial learning.

Stage 5: Monitoring & Evaluation

Monitoring ensures activities are implemented as planned, and evaluation assesses the programme's:

- Nutritional impact on learners
- Financial performance
- Educational benefits
- Community engagement
- Skills development
- Data collected informs future planning and ensures accountability.

Stage 6: Sustainable Adaptation

At this stage, schools focus on continuous improvement, adaptation, and long-term sustainability:

- **Evaluation of programme outcomes** to assess efficiency, effectiveness, and impact on learners' nutrition and skills development.
- **Adjustments and refinements** are made to address challenges, improve operational efficiency, or incorporate lessons learned.
- **Reinvestment of profits** into school infrastructure, feeding supplies, or new grassroots income-generating activities (IGA) that further support the programme.
- **Adaptation to changing circumstances** such as climate, community needs, or market conditions ensures resilience.
- **Incorporation of innovative practices** allows schools to maintain feeding programmes independently, even with reduced external support.
- This stage promotes **continuous improvement, financial sustainability, and resilience**, ensuring the programme remains effective and self-sustaining over time.

V. Discussion of findings

5.1 Overview

This chapter presents the discussion, conclusions, and recommendations of the study Exploring the Sustainability of School Feeding Programmes in ECE and Primary Schools: A Case of Bauleni Special Needs Project and Mulenje Primary School in Lusaka Province. It interprets the findings in relation to the research objectives, focusing on the socio-economic status of children's households, financial sustainability of feeding programmes, the relationship between school feeding and school attendance, stakeholder perceptions of community partnership, and the challenges faced in implementing Early Childhood Education feeding programmes. The chapter concludes by providing practical recommendations and suggestions for improving the long-term sustainability of school feeding programmes.

5.2 Research Objective one: To examine the relationship between school feeding programmes and school attendance

The findings of this study on this objective demonstrate a strong and positive relationship between school feeding programmes, academic performance, and school attendance. Quantitative results reveal that most pupils, particularly at Mulenje School, frequently consume school meals, with 84.2% reporting eating meals "often" or "always." Pupils also found the meals highly acceptable in terms of taste (89.7% "often" or "always"), supporting high uptake and consistent attendance. This aligns with previous studies indicating that provision of nutritious meals improves children's school participation and reduces absenteeism, particularly in low-income contexts (Bundy et al., 2018; WFP, 2019).

Parental and community engagement emerged as a key determinant of programme effectiveness. At Mulenje School, parents and community members actively contributed resources and supported feeding activities, whereas Bauleni Special Needs Project reported limited involvement. Active engagement of parents and community members has been shown to enhance programme sustainability and reinforce learners' motivation to attend school (Jomaa, McDonnell, & Probart, 2011; Drake et al., 2016). These findings underscore that social support mechanisms play a crucial role in ensuring regular attendance and participation in school feeding programmes.

The study further demonstrates that regular access to meals positively influences pupils' academic engagement. Pupils reported improvements in concentration (89.3% "often" or "always"), schoolwork completion (90.7%), and performance in tests and exercises (84.8%). Statistical analysis revealed significant differences in performance across frequencies of meal consumption (ANOVA $F = 7.053$, $p < 0.001$), and multiple regression showed that meal frequency, concentration, satiety, and taste significantly predicted academic performance. These results corroborate global evidence that school feeding programmes enhance cognitive functioning and learning outcomes by alleviating short-term hunger and improving energy levels for classroom participation (Adelman et al., 2008; Singh et al., 2020).

Qualitative findings reinforce these patterns, highlighting five themes. Learners expressed excitement and motivation to attend school because meals were provided, supporting findings by Botha and Kazonga (2021) study on the sustainability of the Home-Grown School Feeding Programme (HGSFP) in Sinda District, Zambia. The study found that the programme plays an important role in improving learner attendance, concentration, and enrolment, as well as providing a reliable daily meal for vulnerable children, especially in rural communities.

Moreover, Bundy et al. (2018) study also reveals that feeding programmes act as a strong incentive for school attendance. Teachers observed improvements in academic performance, consistent with evidence that well-nourished children are more attentive and perform better on cognitive tasks (Glewwe & Miguel, 2008). The reduction in absenteeism and tardiness aligns with research showing that school feeding mitigates barriers to education by addressing hunger-related vulnerabilities (World Bank, 2019). Importantly, parents highlighted protective effects of feeding programmes for girls, corroborating studies from Sub-Saharan Africa indicating that school meals can reduce exposure to exploitation and support child protection (Akresh, de Walque, & Kazianga, 2013; WFP, 2020). Finally, pupils reported social and emotional benefits, including feelings of inclusion and reduced stress, which align with literature emphasizing the psychosocial advantages of school feeding (Kristjansson et al., 2007).

The variation observed between Mulenje and Bauleni Special Needs Project emphasizes the need for context-specific strategies. For instance, inclusive meal planning that accommodates special dietary needs may enhance uptake and nutritional outcomes in special needs settings (Bundy et al., 2018). These findings support a growing consensus that school feeding programmes are not merely nutritional interventions, but also educational and protective strategies that promote holistic wellbeing and sustained school attendance (Drake et al., 2016; WFP, 2020).

Moreover, The findings can be interpreted through the lens of Maslow's Hierarchy of Needs (Maslow, 1943), which posits that human beings must satisfy lower-level physiological and safety needs before they can focus on higher-order cognitive and social development. School feeding programmes directly address physiological needs by providing regular meals, ensuring that learners are not distracted by hunger and can focus on academic tasks. In addition, feeding programmes enhance safety needs, particularly for vulnerable children, by reducing exposure to risks such as exploitation or food insecurity. For example, parents in this study reported that girls were safer from hunger-driven vulnerabilities when school meals were provided.

By meeting these foundational needs, school feeding programmes enable learners to achieve higher-level needs such as belonging, esteem, and self-actualization. Pupils reported positive social and emotional outcomes, including increased confidence, inclusion, and improved relationships in class. Teachers observed greater classroom engagement, attentiveness, and participation in learning activities, reflecting the learners' ability to focus on academic and social development once basic needs are met. These findings support the view that addressing physiological and safety needs is a prerequisite for achieving educational and psychosocial outcomes, consistent with Maslow's theoretical framework (Maslow, 1943; Glewwe & Miguel, 2008).

Thus, the study confirms that regular, nutritious, and palatable school meals, combined with strong parental and community support, significantly improve learners' attendance, concentration, schoolwork completion, and test performance. The findings provide empirical justification for the continued investment in school feeding programmes as a key strategy to enhance educational outcomes and child protection in Zambia and similar low-resource contexts.

5.3 Research Objective Two: To examine parents' and teachers' perceptions of school income-generating activities (IGAs) as a strategy for sustaining school feeding programmes.

The findings of this study reveal that perceptions of income-generating activities (IGAs) and long-term sustainability strategies are mixed and context-specific, with notable differences between Mulenje and Bauleni schools. Overall, parents expressed low confidence in the existence of long-term sustainability strategies, with over half (50.5%) indicating disagreement. This aligns with studies by Bundy et al. (2018), who argue that many school feeding programmes in low-resource settings remain heavily dependent on short-term funding and lack structured sustainability frameworks.

At Bauleni Special Needs School, the majority of parents (68.8%) strongly doubted the existence of long-term strategies, suggesting a perceived over-reliance on donor support. This finding is consistent with the work of Drake et al. (2016), who highlight that donor-dependent feeding programmes often face sustainability risks when external funding fluctuates. In contrast, Mulenje showed relatively more balanced perceptions, suggesting emerging but not fully institutionalised sustainability mechanisms.

With regard to IGAs, the findings further demonstrate uneven implementation across schools. Parents at Mulenje (63%) acknowledged the presence of IGAs, while those at Bauleni largely denied their existence (59.4%). Interestingly, teachers at Bauleni reported more positive perceptions of IGAs compared to parents, indicating a communication gap or limited stakeholder awareness. This supports Epstein's (2011) theory of school-community partnerships, which emphasizes that effective programmes require shared understanding and active involvement of all stakeholders.

From a theoretical perspective, the findings resonate with livelihood and sustainability frameworks, which suggest that locally driven income-generating mechanisms (e.g., school gardens, small enterprises) enhance programme resilience (FAO, 2019). The relative success observed at Mulenje supports this argument, demonstrating that internal resource mobilisation can complement external support.

5.4 Research Objective No. Three: RO3: To assess challenges schools face in implementing school feeding programmes

The findings on the challenges affecting the sustainability of school feeding programmes reveal a strong convergence between quantitative and qualitative evidence, indicating that schools operate within a complex web of structural, financial, and institutional constraints. Statistically, both teachers and parents overwhelmingly identified inadequate infrastructure, financial constraints, donor dependence, and weak stakeholder collaboration as major barriers, with particularly high agreement on infrastructure deficits and funding limitations. This aligns with broader empirical evidence which shows that many school feeding programmes in low-resource settings face sustainability challenges due to inadequate facilities, weak financing mechanisms, and over-reliance on external support (Bundy et al., 2018; Drake et al., 2016). The dominance of these challenges suggests that while school feeding programmes are effective in improving access and participation, their long-term viability remains fragile when embedded within weak institutional and resource systems.

6 The qualitative findings further deepen this interpretation by illustrating how these challenges manifest in practice. Participants consistently reported lack of kitchens, storage facilities, and water supply, which directly compromises food safety and programme continuity. This resonates with WFP (2020), which emphasizes that inadequate infrastructure remains one of the most critical bottlenecks in sustaining school-based nutrition interventions. Financial constraints and donor dependence were also strongly emphasised, with stakeholders noting that programme continuity is often disrupted when external support delays or ceases. This reflects Drake et al. (2016), who argue that donor-driven school feeding models are often unsustainable unless gradually transitioned into nationally or locally financed systems.

Furthermore, weak stakeholder participation and limited community ownership were highlighted as key challenges undermining sustainability. This finding supports FAO (2019), which stresses that community engagement is essential for strengthening ownership and ensuring the long-term success of school feeding initiatives. The reported weaknesses in collaboration, monitoring, and accountability mechanisms also reflect governance gaps that have been widely identified in school feeding literature as limiting efficiency and transparency (Bundy et al., 2018). It can be inferred that both categories of respondents reinforce the argument that without strengthened infrastructure, diversified funding mechanisms, and enhanced community participation, school feeding programmes risk remaining externally dependent and vulnerable to disruption. This underscores the need for integrated sustainability strategies, including grassroots income-generating frameworks, to ensure long-term programme resilience and self-reliance.

5.5 Research objective no. four: To develop a grassroots, sustainable income-generating school feeding framework

This research question focuses on the development of a practical and context-responsive framework for grassroots sustainable income-generating activities (IGAs) to support and strengthen school feeding programmes. The need for such a framework arises from persistent concerns about the sustainability of school feeding interventions, particularly in contexts where programmes are heavily dependent on external funding, donor support, or irregular government allocations, which often compromises continuity and long-term impact (WFP, 2020; Bundy et al., 2018). Although school feeding programmes are widely recognised for their contributions to improved school attendance, learner retention, nutritional outcomes, and educational performance, their long-term effectiveness is often constrained by limited local resource mobilisation strategies and weak institutional sustainability mechanisms (Drake et al., 2016).

In this regard, the development of a grassroots school feeding income-generating activity framework is essential as it provides a structured and locally driven approach for mobilising resources within schools and communities, thereby reducing overreliance on external support. If effectively implemented, such a framework has the potential to transform schools into self-sustaining institutions that actively engage in productive activities, build entrepreneurial and vocational skills among learners and communities, and contribute to broader goals of food security and poverty reduction. This aligns with global evidence suggesting that integrated school-based income-generating initiatives can strengthen programme ownership, enhance sustainability, and contribute to long-term solutions for ending hunger and improving human capital development (FAO, 2019; WFP, 2022). Therefore, the proposed framework is not only a financial sustainability strategy but also a transformative model for skills development, community empowerment, and the achievement of sustainable school feeding systems.

5.5 Conclusion and recommendations

5.5.1 Conclusion

This study, titled “Exploring the Sustainability of School Feeding Programmes in ECE and Primary Schools: A Case of Bauleni Special Needs Project and Mulenje Primary School in Lusaka Province,” employed a mixed-methods approach. The findings revealed that most learners come from low socio-economic backgrounds, making school feeding programmes critical for meeting their basic needs. The study established a strong positive relationship between school feeding and improved attendance, concentration, and academic performance. It further showed that IGAs and community partnerships play a significant role in programme sustainability, with stronger collaboration observed in Mulenje compared to Bauleni, which relied more on external donor support. However, several challenges persist, including financial constraints, inadequate infrastructure, limited stakeholder involvement, and logistical difficulties.

Therefore, the study concludes that the sustainability of school feeding programmes depends on integrated, community-driven strategies, supported by effective planning, diversified funding mechanisms, and strong institutional support to ensure long-term educational and social benefits.

5.5.2 Recommendations

1. **Strengthen school–community partnerships** through active parent involvement in feeding programmes and IGAs.
Stakeholders: School management, teachers, PTCs, community leaders.
2. **Diversify funding sources** from internal and external sources and by promoting local resource mobilisation and reducing donor dependency.
Stakeholders: Ministry of Education, schools, NGOs, local authorities.
3. **Improve infrastructure and logistics** (kitchens, water, storage, utensils).
Stakeholders: Government, schools, cooperating partners.
4. **Enhance monitoring and capacity building** for effective programme management.
Stakeholders: Ministry of Education, district offices, schools.

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