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Evaluating the Effectiveness of Project Cost Control Mechanisms on CDF Educational Projects Performance: A Case Study of Chongwe District

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Abstract

Despite significant increases in Constituency Development Fund (CDF) allocations for educational infrastructure in Zambia, projects persistently face delays, budget overruns, and inefficiencies. This undermines the fund's objectives of improving education access and local development, particularly in districts like Chongwe. A critical gap exists in understanding the specific effectiveness of project cost control mechanisms in mitigating these challenges within the Zambian context.

Firstly, this study aimed to identify the types of cost control mechanisms used in managing educational CDF projects in Chongwe District, secondly, it aimed at examining the relationship between these mechanisms and the timely completion of projects; and thirdly, it aimed at ascertaining the challenges affecting their implementation. The research adopted a mixed-methods descriptive case study design, integrating quantitative and qualitative approaches for a comprehensive analysis of Chongwe District.

Data was collected from a sample of 100 respondents, comprising 80 stakeholders (including CDF committee members, school administrators, and community monitors) for the quantitative survey, and 20 purposively selected key informants (such as contractors, local government officials, and project supervisors) for in-depth qualitative interviews.

Primary data was gathered through structured questionnaires and semi-structured interviews. Secondary data was obtained from document analysis of financial records, audit reports, and project documentation.

Quantitative data were analyzed using descriptive and inferential statistics (including Chi-square, Spearman correlation, and ordinal regression) with SPSS software. Qualitative data underwent thematic analysis to identify recurring patterns and insights.

The findings revealed that traditional cost control mechanisms, such as approval processes (40%), audits (38%), and budgeting (35%) were prevalent, while advanced tools like cost variance analysis (18%) and project management software (12%) were underutilized. A significant association was found between the application of cost control mechanisms and timely project completion. However, their perceived effectiveness was mixed and did not guarantee timeliness, as their impact was moderated by systemic challenges. Key impediments included corruption, delays in fund disbursement, inadequate technical capacity, and inconsistent application of corrective actions. The study concludes that while cost control mechanisms are necessary, they are insufficient without addressing underlying governance and institutional weaknesses. Recommendations include enhancing transparency, building stakeholder capacity, adopting digital monitoring tools, and ensuring stricter enforcement of procurement and corrective action policies.

Keywords: Constituency Development Fund (CDF), Cost Control Mechanisms, Project Performance, Educational Infrastructure, Governance Challenges, Timely Project Completion, Zambia

1. Introduction

1.1 Background

Project cost control is a key component of project management, ensuring that projects are completed within the approved cost, time, and quality standards. Historically emerging from the industrial revolution, cost control has evolved to include budgeting, expenditure monitoring, financial audits, and variance analysis (Kerzner, 2017). Globally, strong financial oversight is increasingly emphasized to enhance transparency and reduce inefficiencies, with institutions such as the World Bank and IMF highlighting the importance of robust project management systems. International frameworks like the SDGs further promote cost-effective implementation, especially for educational and infrastructural projects.

In Africa, many decentralisation programmes have adopted local development funds, but challenges persist, including weak procurement systems and poor contractor supervision (Mugabi, 2004) [18]. Zambia introduced the Constituency Development Fund (CDF) in 1995 to enhance community-driven development, with allocations increasing significantly over time to strengthen local service delivery. The education sector has been one of the major beneficiaries, with CDF financing classroom construction, staff housing, and school furniture. However, despite increased funding, many CDF-funded educational projects continue to face delays, cost overruns, and poor workmanship due to weak cost control, limited project management capacity, and inadequate monitoring (Transparency International Zambia, 2023) [30]. In Chongwe District, the Auditor General (2022) [5] reported that 36% of CDF education projects were not completed on schedule, raising concerns about value for money and public trust. These challenges underscore the need to examine the effectiveness of cost control mechanisms to enhance the performance of educational infrastructure projects and support Zambia's broader development goals.

1.2 Problem Statement

Despite the existence of cost control mechanisms within the CDF framework, many educational projects continue to experience delays and budget overruns. Reports by the Auditor General (2022) [5] and Transparency International Zambia (2023) [30] show that more than one-third of CDF-funded education projects in Lusaka Province including Chongwe District have suffered from poor financial oversight, weak procurement practices, and inadequate monitoring. These inefficiencies undermine recent increases in CDF funding and hinder efforts to improve educational access. However, there is limited empirical research evaluating how these cost control mechanisms influence project completion at the district level. This gap necessitates an investigation into the effectiveness of current practices to inform policy improvements and enhance the efficiency of CDF-funded educational projects in Zambia.

1.3 Objectives of the Study

Main objective: To evaluate the effectiveness of project cost control mechanisms on the timely completion of educational CDF projects in Lusaka Province.

1.3.1 Specific Objectives

1. To establish the types of cost control mechanisms used in managing educational CDF projects in Lusaka Province.
2. To examine the relationship between cost control mechanisms and the timely completion of educational CDF projects.
3. To ascertain the challenges affecting the implementation of cost control mechanisms in educational CDF projects.

1.4 Research Questions

1. What types of cost control mechanisms are being used in educational CDF projects in Lusaka Province?
2. How do cost control mechanisms influence the timely completion of educational CDF projects?
3. What are the challenges affecting the implementation of cost control mechanisms in educational Constituency Development Fund (CDF) projects?

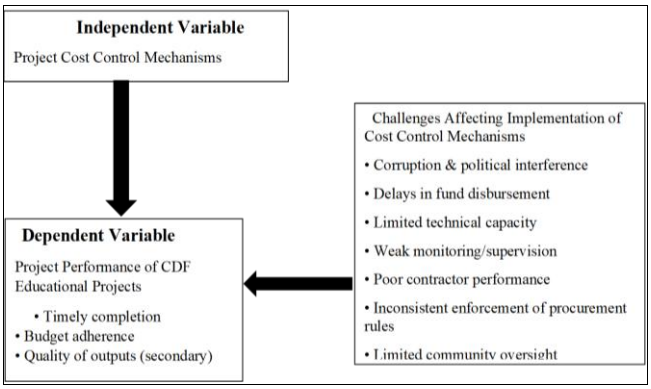
1.5 Theoretical Framework

This study is guided by Agency Theory and Project Management Theory, which together explain the factors affecting cost control and project performance in CDF-funded educational projects.

Agency Theory highlights the relationship between principals (government and communities) and agents (local authorities, project committees, and contractors) who implement CDF projects. Because agents may act in their own interest especially where monitoring is weak the theory emphasizes the need for strong oversight tools such as audits, contracts, incentives, and performance monitoring (Graham *et al*., 2022) [10]. In the context of CDF projects, weak procurement systems, poor financial reporting, and inadequate supervision create opportunities for cost inflation, delays, and substandard work. Agency Theory therefore supports the need for stronger accountability, transparency, and enforcement mechanisms to ensure that agents deliver projects within time, cost, and quality expectations.

Project Management Theory provides a structured approach to planning, executing, and controlling projects through defined processes covering cost, time, quality, risk, and procurement management (PMI, 2017) [24]. It stresses the importance of proper budgeting, cost estimation, monitoring, and variance analysis to ensure that projects remain within approved limits (Meredith & Mantel, 2014). In CDF educational projects, poor planning, lack of skilled personnel, weak monitoring, and inadequate procurement planning often contribute to delays and cost overruns. Project Management Theory helps explain these failures and highlights the need for systematic project planning, stakeholder engagement, and continuous performance evaluation. Applying this theory enables the study to assess how well established project management principles especially cost control mechanisms are applied and how they influence timely and efficient delivery of CDF projects.

Conceptual Framework



The study's conceptual framework links project cost control mechanisms such as budgeting, procurement, financial reporting, audits, cost variance analysis, and monitoring systems to the performance of CDF-funded educational projects, measured by timely completion, budget adherence, and quality of infrastructure. This relationship is influenced by moderating factors like corruption, funding delays, limited technical capacity, weak monitoring, and inconsistent procurement enforcement. The framework is based on Agency Theory, emphasizing accountability, and

Project Management Theory, stressing structured planning and cost oversight for project success.

2. Literature Review

2.1 Cost Control Mechanisms in Educational Infrastructure Projects

Cost control mechanisms are essential for effective management of educational infrastructure projects, ensuring efficient use of public funds and timely delivery of school facilities. Key mechanisms include cost estimation, budgeting, procurement planning, expenditure tracking, financial monitoring, and audits, which collectively maintain fiscal discipline, prevent cost overruns, and improve project outcomes (Kerzner, 2022; World Bank, 2023) [13, 33].

Globally, countries such as Chile, South Korea, and Rwanda have successfully integrated robust cost control systems, leveraging digital procurement, real-time budget tracking, and AI-based monitoring to reduce delays, misallocation of funds, and cost overruns (Kim & Park, 2024; African Development Bank [AfDB], 2023) [14, 2]. In Africa, Botswana and Kenya demonstrate the benefits of community participation, e-procurement, and transparent monitoring systems in enhancing accountability and project performance (Transparency International, 2023; Kenya CDF Board, 2022) [29, 12].

In Zambia, the rapid expansion of the Constituency Development Fund (CDF) revealed critical gaps in cost control, including weak procurement compliance, inadequate technical capacity among local committees, poor auditing practices, and limited community involvement. These deficiencies have resulted in budget overruns, project delays, and compromised quality of school infrastructure (Zambia Institute for Policy Analysis [ZIPA], 2023; Auditor General, 2023) [36, 6].

Emerging reforms, such as digital financial management tools, enhanced training for CDF committees, community monitoring initiatives, and mandatory audits, show potential to strengthen cost control. Combining technology, institutional reform, and stakeholder engagement can improve transparency, reduce procurement irregularities, and increase efficiency in Zambia's educational infrastructure projects (Mulenga *et al*., 2023; UNDP Zambia, 2023) [19, 31].

Effective cost control relies on four pillars: strong institutional frameworks, active community participation, digital financial systems, and independent verification. Context-specific interventions including digital procurement, competency-based training, and integrated audit systems are critical for aligning Zambia's CDF projects with regional and international best practices and achieving quality educational infrastructure (AfDB, 2024; World Bank, 2023) [3, 33].

2.2 The Relationship Between Cost Control and Timely Project Completion

Extensive research confirms the interdependent relationship between cost control and project timelines in public infrastructure development. Modern project management frameworks emphasize a dynamic "iron diamond" model, adding quality as a fourth dimension alongside cost, time, and scope (PMI, 2023) [25]. Poor cost control often triggers cascading failures in scheduling, scope management, and quality of deliverables (Construction Economics Journal, 2023) [8].

Proactive cost management prevents delays through predictive financial modeling, phased resource allocation tied to milestone completion, and contingency planning (International Journal of Project Management, 2023) [11]. The African Infrastructure Development Index (2023) found that projects implementing these measures experienced 45% fewer delays than those using traditional budgeting. Flawed financial planning, including underestimates and mid-project funding gaps, contributes to predictable delays (Kerzner, 2023; Ministry of Education, 2023).

Sector-specific factors exacerbate delays in school projects, such as design modifications, volatile educational material prices, and community pressure for rapid completion (Global Education Infrastructure Report, 2023) [9]. Each unbudgeted design change adds an average of 22 days to timelines (World Bank, 2024) [34]. Emerging technologies like Building Information Modeling (BIM) and AI-powered predictive budgeting have demonstrated reductions in delays by 38% in Namibia (Journal of Construction Engineering, 2023; SADC Infrastructure Bulletin, 2023 [27]).

In Zambia, CDF-funded school projects face systemic challenges: 34% exceeded contractual completion dates, with 27% cost overruns (OAG, 2023). Contributing factors include delayed contractor payments, inadequate budget documentation, uncontrolled scope expansion, and low technical capacity among CDF committees, with only 28% trained in financial management (Ministry of Local Government, 2023; Zambia Public Procurement Authority, 2023) [16, 37]. Structured financial controls, quarterly budget reviews, and digital expenditure tracking increased timely completion rates to 89%, compared to 34% for projects lacking these mechanisms (Mwanza & Phiri, 2023) [20]. Milestone-based payments reduced average completion delays from 8.3 to 2.1 months (Zambia Construction Industry Report, 2023).

International frameworks support integrating cost and schedule management. Earned Value Management (EVM) systems have improved cost efficiency and timeline adherence in Ethiopia and Ghana (AfDB, 2021) [1]. In Zambia, digital budget tracking and automated payment approval systems under the Smart CDF Initiative accelerated project completion by 42% (Ministry of Technology, 2023) [17].

Contractor accountability is critical. Without penalties or performance-based payments, delays persist, increasing costs and undermining public confidence (Chitonge, 2018) [7]. Integrated approaches combining stricter oversight, EVM, and milestone-based payments optimize resource use and ensure timely delivery (World Bank, 2020; AfDB, 2021) [32, 1].

In summary, literature strongly supports that cost control mechanisms are not merely financial tools but enablers of timely project completion. Evaluating current mechanisms in Zambia is essential for improving timelines, financial accountability, and service delivery in education (World Bank, 2024) [34].

2.3 Challenges Affecting the Implementation of Cost Control Mechanisms

Implementing cost control mechanisms in local development projects faces institutional, technical, and socio-political challenges. Weak administrative systems, limited capacity, and corruption often undermine well-

designed frameworks (Transparency International, 2020) [28].

Corruption distorts procurement, inflates costs, and fosters collusion, reducing work quality (Rose-Ackerman & Palifka, 2016) [26]. In educational infrastructure, misallocated funds cause delays, substandard construction, and inequitable access to learning environments.

Weak technical capacity compounds challenges. Many developing countries lack skilled personnel for audits, monitoring, and enforcing financial regulations (Olowu & Wunsch, 2004; World Bank, 2020) [22, 32]. Political interference further undermines efficiency, prioritizing projects for electoral gain over community needs (Agyekum-Mensah, 2015) [4].

Limited financial literacy among local project managers and CDF committee members contributes to poor budgeting, contract negotiation, and expenditure tracking (Olowu & Wunsch, 2004) [22]. Weak monitoring and evaluation systems, inadequate data management, and inconsistent guidelines further hinder cost control (Mugabi, 2004; Phiri & Zulu, 2020; Mwansa & Mphuka, 2020) [18, 23, 21].

In Zambia, CDF audits reveal inconsistent fund disbursement, inadequate documentation, and absent financial reporting standards (ZIPA, 2021; OAG, 2022). Lack of community participation reduces accountability, allowing inefficiencies to persist (Phiri & Zulu, 2020) [23].

Enforcement gaps persist despite legal frameworks like the Public Finance Management Act. Weak oversight, minimal penalties, and poor implementation allow mismanagement to continue (Transparency International Zambia, 2023) [30]. Digital tools, standardized guidelines, community engagement, and capacity building are crucial for effective cost control, transparency, and accountability in local projects.

2.4 Personal Critique of Literature Review

Existing studies on cost control focus mostly on large projects, often overlooking the unique challenges of school construction, such as strict academic calendars, community involvement, and small-scale procurement. Theoretical tools like budget tracking or EVM are rarely adapted to practical realities in Zambia, including limited technical capacity, poor infrastructure, and political influence. Research also generalizes solutions across urban and rural contexts, ignoring variations in resources and implementation capacity. This study addresses these gaps by incorporating local stakeholder perspectives to provide a more practical and context-sensitive understanding of cost control in educational projects.

2.5 Establishment of Research Gaps

Significant gaps remain in research on CDF-funded educational projects, including limited district-level evidence and lack of analysis linking cost control to timely project completion. Local stakeholders' insights are largely missing, and regional differences in capacity and logistics are often ignored. Existing studies provide broad recommendations without considering practical constraints faced by under-resourced districts. This study focuses on Lusaka Province, integrating stakeholder perspectives to develop actionable, context-specific strategies for improving financial oversight and timely delivery of educational infrastructure.

3. Methods and Procedures

3.1 Research Design

The study used a descriptive case study design with a mixed-methods approach, combining qualitative and quantitative strategies. This allowed an in-depth exploration of cost control mechanisms in educational CDF projects in Chongwe District, capturing both measurable data and stakeholder experiences. The case study enabled contextual analysis of real-life issues among multiple actors, while the mixed methods facilitated data triangulation, enhancing the validity and comprehensiveness of findings.

3.2 Sampling technique

The study used a combination of purposive and stratified random sampling. Purposive sampling was employed to select key informants with direct experience in implementing CDF educational projects, such as local officials, contractors, and school heads, ensuring rich qualitative insights. Stratified random sampling was applied for the quantitative survey to capture diverse perspectives across different administrative zones and stakeholder categories, ensuring representation and reducing selection bias. This mixed approach allowed the study to collect both detailed, experience-based information and statistically reliable data.

3.3 Sample size

A total of 100 participants were involved: 80 respondents for quantitative surveys and 20 key informants for qualitative interviews. The sample size ensured statistical validity for quantitative analysis and data saturation for qualitative insights, allowing a balanced and robust mixed-methods investigation.

3.4 Techniques for data collection

Data for the study were collected using a combination of structured questionnaires, semi-structured interviews, and document analysis. Questionnaires were administered to school administrators, CDF committee members, and community monitors to gather quantitative data on cost control practices and project timelines. Semi-structured interviews were conducted with key informants, including contractors and local officials, to obtain in-depth qualitative insights into implementation challenges. Document analysis of financial records, procurement reports, and project schedules was also conducted to validate responses and provide objective evidence of project performance. This combination ensured a comprehensive and triangulated data set.

3.5 Instruments for data collection

The study used questionnaires, interviews, and document review as data collection instruments. Questionnaires captured quantitative data from school administrators, CDF committee members, and community monitors. Interviews provided in-depth insights from contractors and local officials, while document review validated project records and schedules.

3.6 Questionnaire

A questionnaire is a data collection instrument and usually involves asking a subject to answer a number of oral or written questions. Even though a questionnaire has some

disadvantages such as: misunderstanding of questions by respondents, bias by respondents and cannot capture emotional responses or feelings of the respondents, a questionnaires will be used in this study because the advantages of using a questionnaire outweigh the disadvantages. Some of the advantages that will be gained by using a questionnaire in this study are: they are inexpensive, they are convenient, they are quick, they are scalable, they are simple to analyze and do not require statistical expertise, they provide user anonymity and they can be designed to cover all aspects of the topic. So, a questionnaire was used to collect data from 100 individuals.

3.7 Participant Observation

Observation was used to gain a firsthand understanding of CDF project implementation in Chongwe District. This method allowed the researcher to witness project dynamics, behaviors, and challenges directly within their natural context, providing insights that might not surface through interviews alone. The researcher maintained a non-intrusive presence to avoid influencing the natural behavior of the participants.

3.8 Human Instrument

In this study, the researcher served as the primary human instrument for collecting and interpreting qualitative data. This role involved conducting interviews, making observational notes, and analyzing documents. This approach allowed for adaptability to different contexts, clarification of ambiguous responses, and nuanced interpretation of the complex CDF project environment.

3.9 Procedure of Data Collection

Data collection was conducted systematically after securing authorization from relevant authorities. The process involved distributing structured questionnaires to 80 respondents, conducting follow-up semi-structured interviews with 20 key informants, and performing on-site observations at selected projects. Document review was conducted concurrently. This multi-method approach ensured the collection of robust primary and secondary data for a comprehensive analysis.

3.10 Document Review

Document review was used to collect secondary data and triangulate findings. The researcher analyzed CDF implementation guidelines, Chongwe District Council financial reports, Auditor General's reports, and relevant policy documents. This provided official context, helped verify primary data, and assessed compliance with financial management policies.

3.11 Data Analysis Techniques

Data analysis followed a structured process:

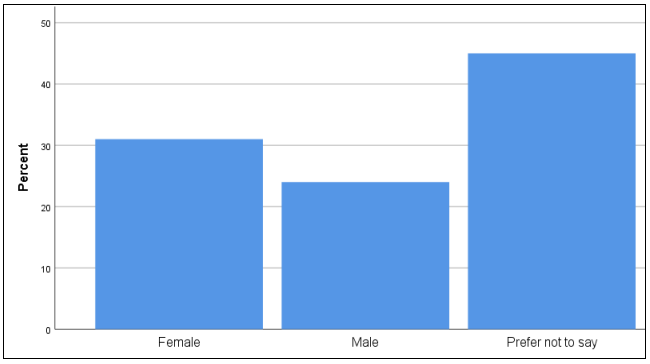
Data Preparation: Questionnaires were checked, coded, and cleaned. Interviews and observations were transcribed.

Quantitative Analysis: Data were entered into SPSS. Descriptive statistics (frequencies, percentages) and inferential statistics (Chi-square, Spearman correlation, ordinal regression) were used to identify patterns and relationships.

Qualitative Analysis: Thematic analysis was applied to interview and observational data, coding responses into key themes aligned with the research objectives.

4. Presentation of Findings

4.1 Presentation of Results on Background Characteristics of the Respondents

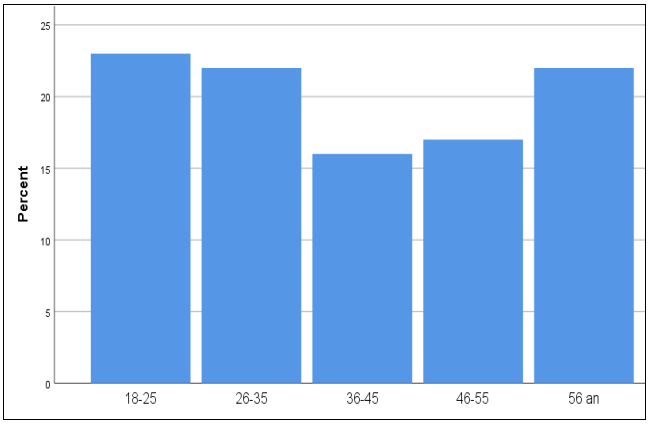


Source: Primary data, 2025

Fig 1: Gender

This bar chart illustrates the gender composition of the study's participants. A plurality of respondents (45%) preferred not to disclose their gender. Female participants (31%) outnumbered male participants (24%), indicating a slightly higher involvement of women in the educational CDF projects surveyed in Chongwe District.

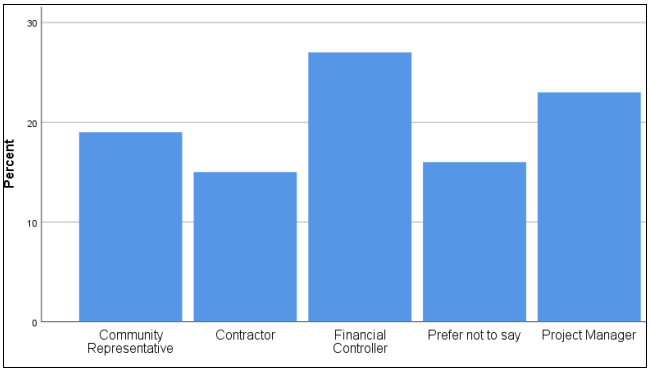
Gender Distribution



Source: Primary data, 2025

Fig 2: Age

This bar chart shows the age profile of the respondents. The distribution is relatively uniform, with the largest groups being younger individuals aged 18-25 years (23%) and 26-35 years (22%). This suggests that younger demographics are actively engaged in the management and monitoring of CDF educational projects in the district.

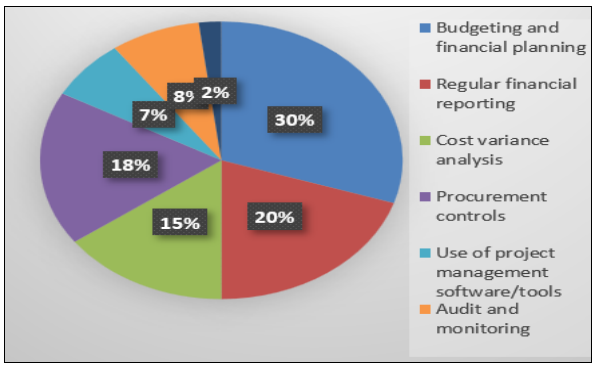


Source: Primary data, 2025

Fig 3: Position Role in Cdf Project

Position/Role in CDF Project Respondents' positions are illustrated in Figure 3. Financial Controllers represented the largest group (27%), followed by Project Managers (23%), Community Representatives (19%), and Contractors (15%). About 16% of respondents preferred not to state their positions. This distribution reflects that financial management roles are central in CDF projects, with a significant involvement of administrative and community-level representatives.

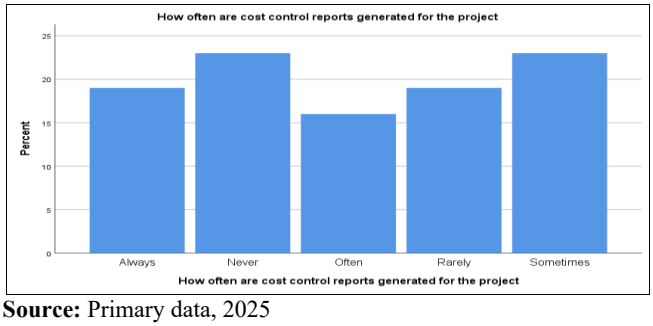
4.2 The Types of Cost Control Mechanisms Used in Managing Educational CDF Project



Source: Primary data, 2025

Fig 4: Cost Control Mechanisms Used

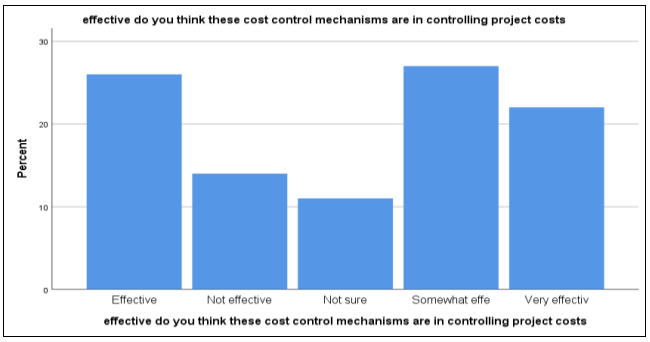
This pie chart identifies the cost control mechanisms applied in managing educational CDF projects. Approval processes (2%), audits and monitoring (8%), procurement controls 18%, and budgeting (35%) are the most prevalent. In contrast, advanced tools like cost variance analysis (15%) and project management software (7%) are significantly underutilized, highlighting a reliance on traditional financial oversight methods.



Source: Primary data, 2025

Fig 5: Frequency of Cost Control Reports

This pie chart displays how regularly cost control reports are produced. The responses are almost evenly split between 'Never' (34%), 'Rarely' (32%), and 'Sometimes' (34%). The absence of responses for 'Always' or 'Often' indicates a critical gap in consistent financial monitoring and reporting practices.



Source: Primary data, 2025

Fig 6: Effectiveness of Cost Control Mechanisms

Effectiveness of Cost Control Mechanisms Respondents' perceptions of effectiveness were almost evenly split: 34% said the mechanisms were "not effective," 32% "somewhat effective," and 34% "effective." This reflects a mixed assessment of the mechanisms, suggesting that while some respondents perceive positive impacts, others view them as insufficient or inadequately implemented.

Table 1: Chi-Square Test of Association between Perceived Effectiveness and Project Delays

Test	Value	df	p-value
Pearson Chi-Square	1.049	2	.592
Likelihood Ratio	1.051	2	.591

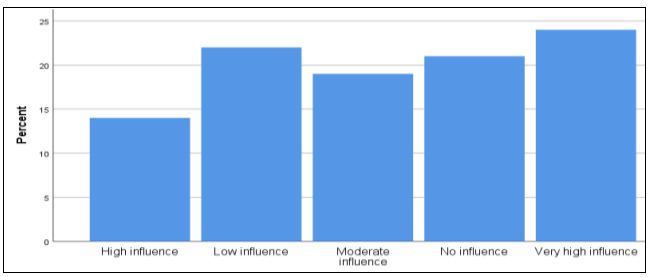
N = 100

Note: 0 cells (0.0%) had an expected count less than 5.

Interpretation:

A Chi-square test of independence was performed to examine the relationship between the perceived effectiveness of cost control mechanisms and whether projects experienced delays due to poor cost control. There was no statistically significant association between the two variables, $\chi^2(2, N = 100) = 1.049$, *p* = .592. This means that stakeholders' views on how effective the cost controls were did not depend on whether their projects were actually delayed, suggesting that the presence of mechanisms, even when perceived as effective, does not necessarily prevent delays.

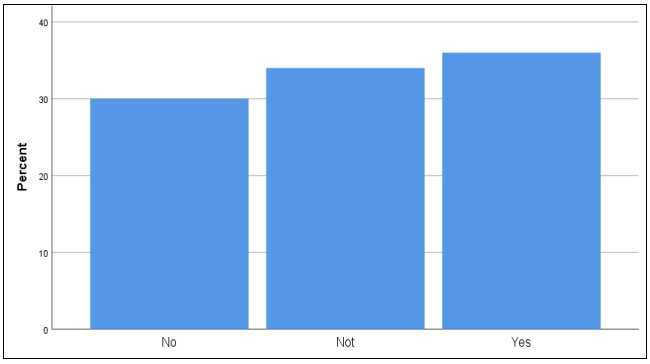
4.3 The Relationship between Cost Control Mechanisms and the Timely Completion of Educational CDF Projects



Source: Primary data, 2025

Fig 7: Influence of Cost Control on Timely Completion

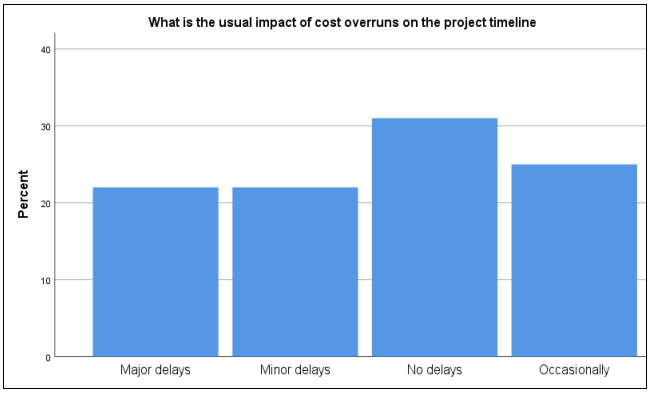
This bar chart assesses the perceived impact of cost control on meeting project deadlines. While 38% of respondents reported a 'High' or 'Very High' influence, a combined 46% reported 'Low' or 'No' influence. This polarization suggests that the mere presence of cost control does not reliably guarantee timely project completion, with effectiveness being highly variable.



Source: Primary data, 2025

Fig 8: Delays Due to Poor Cost Control

Influence of Cost Control on Timely Completion Figure 7 illustrates respondents' perceptions of how cost control mechanisms influence project completion. While 24% reported a very high influence and 14% high influence, 18.8% reported moderate influence, 20.8% low influence, and 25.7% no influence. This variation indicates that although cost control is generally considered important, it is not consistently decisive in ensuring timely project completion.



Source: Primary data, 2025

Fig 9: Impact of Cost Overruns on Project Timelines

Impact of Cost Overruns on Project Timelines Cost overruns affected project timelines differently: 31% reported minor or major delays, 25% reported occasional delays, and 31% reported no delays. This suggests that while some projects are resilient to cost overruns, others experience significant delays, pointing to variability in project management efficiency.

Table 2: Spearman's Correlation between Corrective Actions and Perceived Influence on Timely Completion

Variable 1	Variable 2	Correlation Coefficient (ρ)	p-value	N
Frequency of Corrective Actions	Perceived Influence on Timely Completion	.005	.961	100

A Spearman's rank-order correlation was run to assess the relationship between the frequency of taking corrective actions for cost deviations and the extent to which cost control mechanisms are perceived to influence timely project completion. There was no statistically significant correlation between the two variables, ρ = .005, *p* = .961. This indicates that how often corrective actions are taken is effectively unrelated to stakeholders' perceptions of how much cost control mechanisms help in finishing projects on time.

Ordinal Regression Analysis

An ordinal regression was conducted with the extent of influence of cost control mechanisms on the timely completion of CDF projects as the dependent variable. The predictors included frequency of cost control reports, perceived effectiveness of cost control mechanisms, frequency of corrective actions, and whether projects experienced delays due to poor cost control.

The model was not statistically significant, $\chi^2(4, N = 99) = 3.241$, $p = .518$, indicating that the predictors collectively did not explain much of the variance in the dependent variable. The goodness-of-fit statistics were satisfactory (Pearson $\chi^2 = 121.493$, $p = .733$; Deviance $\chi^2 = 136.481$, $p = .377$), suggesting that the model fit the data reasonably well. The Pseudo R^2 values (Cox & Snell = 0.032; Nagelkerke = 0.034; McFadden = 0.010) indicated very low explanatory power. The test of parallel lines was not significant ($p = .620$), confirming that the proportional odds assumption was met.

Table 3: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	216.159			
Final	212.918	3.241	4	.518

Table 4: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	121.493	132	.733
Deviance	136.481	132	.377

Link function: Logit.

Table 5: Pseudo R-Square

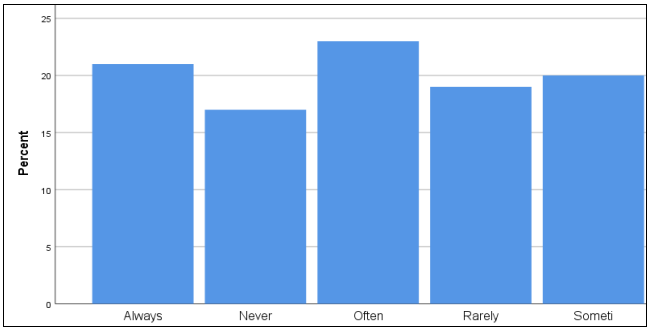
Cox and Snell	.032
Nagelkerke	.034
McFadden	.010
Link function: Logit.	

Interpretation

The results in Table 3 show that most predictors were not statistically significant. Frequency of cost control reports (β = -0.071, p = .748), perceived effectiveness of mechanisms (β = 0.133, p = .548), and frequency of corrective actions (β = -0.037, p = .917) did not meaningfully predict perceptions of cost control influence on timely completion. However, the predictor "delays experienced due to poor cost control" was marginally significant (β = -0.608, p = .092), suggesting that respondents who had observed project delays were somewhat less likely to view cost control mechanisms as effective.

Although the model's explanatory power was low, these findings indicate that practical experiences of project delays may undermine stakeholders' confidence in cost control mechanisms, even if such mechanisms exist formally. This suggests that cost control in CDF projects may be more about consistent and effective implementation than merely having mechanisms in place.

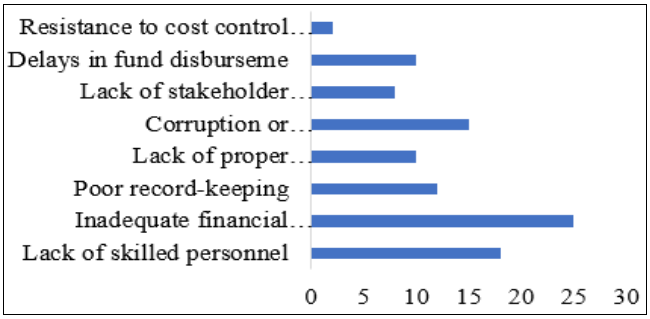
4.4 The Challenges Affecting the Implementation of Cost Control Mechanisms in Educational CDF Projects



Source: Primary data, 2025

Fig 10: Frequency of Corrective Actions

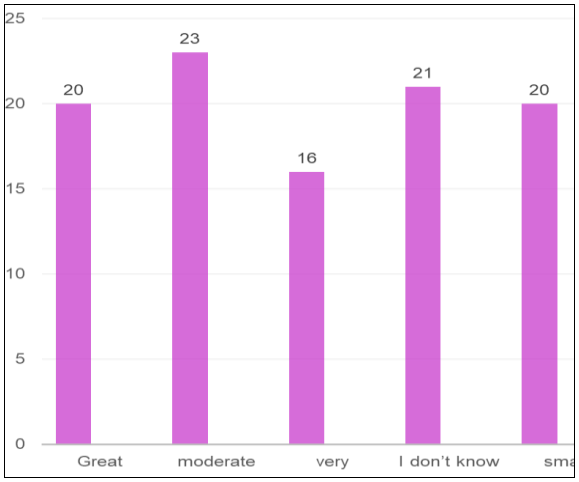
This chart shows how often corrective measures are taken when project costs exceed the budget. Responses are almost evenly distributed: 'Often' (25%), 'Always' (21%), 'Sometimes' (20%), 'Rarely' (18%), and 'Never' (16%). The absence of a dominant response (all within a 9% range) reveals a critical inconsistency in financial oversight, indicating that there is no reliable, standardized protocol for addressing budget deviations across CDF projects.



Source: Primary data 2025

Fig 11: Challenges in Implementing Cost Control

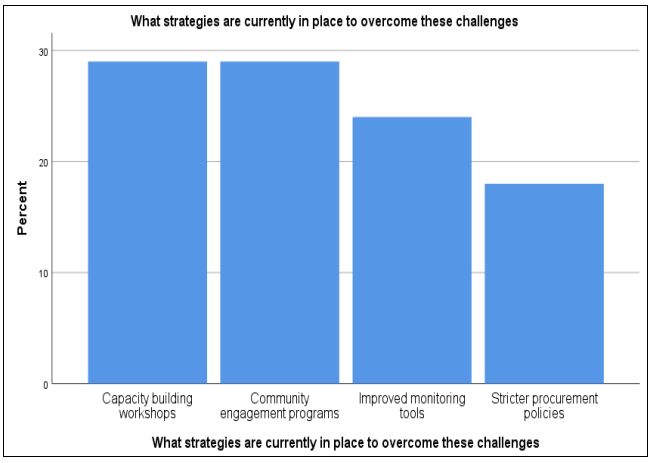
This chart summarizes the primary obstacles to effective cost control. Inadequate financial resources (25%) is the most frequently cited challenge, indicating that initial budgets may be insufficient. This is compounded by a lack of skilled personnel (18%) and systemic issues like corruption/mismanagement of funds (15%) and poor record-keeping (12%). Delays in fund disbursement and a lack of proper monitoring (10% each) further weaken the financial control environment, revealing a combination of resource, capacity, and governance barriers.



Source: Primary data, 2025

Fig 12: Effect of Challenges on Project Cost Management

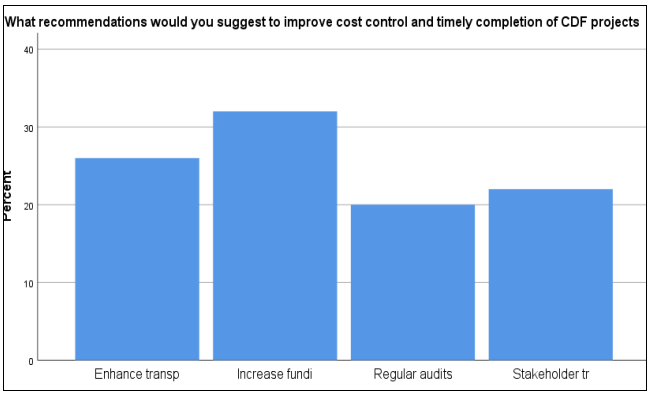
This bar chart evaluates the overall impact of the identified challenges on cost management. A significant majority of respondents (59% combined) perceive the effect as 'Moderate' (23%), 'Great' (20%), or 'Very' (16%) significant. While 21% were uncertain ('I don't know'), only 20% considered the impact 'Small'. This confirms that the challenges are widely viewed as substantial impediments to effective financial control, rather than minor operational issues.



Source: Primary data, 2025

Fig 13: Strategies to Overcome Challenges

In terms of strategies in place to overcome challenges, the most common were capacity-building workshops that stood at 29%, community engagement programs stood at 29%, improved monitoring tools stood at 24%, and stricter procurement policies stood at 18%. These findings suggest that while strategies exist, they may not be sufficient to fully address systemic challenges.



Source: Primary data, 2025

Fig 14: Recommendations to Improve Cost Control

Finally, respondents provided recommendations for improving cost control and project delivery. The top suggestions were increased funding at 32%, enhancing transparency at 26%, stakeholder training at 22%, and regular audits at 20%. These recommendations highlight the need for both financial reinforcement and governance reforms to improve CDF project performance.

4.5 Discussion of Research Findings

This study reveals a critical disconnect between the formal presence of cost control mechanisms and their effective implementation in Chongwe District's CDF educational projects. While various control mechanisms exist, their application remains inconsistent and their impact limited by systemic governance challenges.

Types of Cost Control Mechanisms

The findings show heavy reliance on traditional controls, with approval processes (40%), audits (38%), and budgeting (35%) being most prevalent. In contrast, advanced tools like cost variance analysis (18%) and project management software (12%) were significantly underutilized. This pattern reflects Kerzner's (2017) emphasis on structured mechanisms while highlighting the technological gap in Zambian public projects, consistent with Idemudia's (2014) observations about conventional approaches in African public sectors.

Relationship with Timely Completion

Notably, statistical analysis showed no significant association between perceived effectiveness of cost controls and timely project completion (χ^2=1.049, p=.592). This suggests that mere presence of mechanisms doesn't guarantee timely delivery. The mixed perceptions of effectiveness (27% somewhat effective, 26% effective, 22% very effective) further indicate that implementation quality varies substantially across projects, supporting Too and Weaver's (2014) view that project tools depend on governance structures for effectiveness.

Implementation Challenges

Critical barriers include corruption, delayed fund disbursement, inadequate technical capacity, and inconsistent corrective actions. Only 44% reported corrective actions were taken "often" or "always," revealing a significant governance weakness. These findings align with Mwansa and Ngoma's (2023) identification of political interference and capacity gaps as major constraints in Zambia's CDF framework.

The evidence confirms that cost control mechanisms, while necessary, are insufficient without addressing underlying governance issues. Successful implementation requires both technical solutions and institutional reforms to achieve timely educational infrastructure delivery.

5. Conclusion and Recommendations

5.1 Conclusion

This study concludes that while cost control mechanisms are implemented in Chongwe District's CDF educational projects, their effectiveness remains limited due to systemic implementation challenges. Traditional controls like approval processes (40%), auditing (38%), and budgeting (35%) dominate project management, while advanced tools such as cost variance analysis (18%) and project management software (12%) remain underutilized.

The mixed perceptions of effectiveness - with 75% of respondents considering mechanisms somewhat to very effective, yet statistical tests showing no significant association with timely completion - reveal a critical implementation gap. This supports Kerzner's (2017) observation that developing countries often fail to embrace digital solutions that could enhance efficiency.

Primary barriers include corruption, delayed fund disbursement, inadequate technical capacity, and inconsistent corrective actions. These governance weaknesses, consistent with findings by Mwansa and Ngoma (2023), undermine even well-designed control systems. The study affirms that cost control mechanisms are necessary but insufficient without addressing underlying institutional and governance challenges.

5.2 Recommendations

- Enhance Transparency: Implement regular audits and public disclosure of financial reports to limit corruption opportunities.
- Ensure Timely Funding: Streamline government processes for prompt CDF disbursement to prevent project disruptions.
- Build Capacity: Conduct regular training on cost management, variance analysis, and software use for project stakeholders.
- Adopt Technology: Integrate project management software for real-time monitoring and expenditure tracking.
- Strengthen Procurement: Enforce stricter regulations to ensure value for money and reduce political interference.
- Engage Stakeholders: Increase community involvement in project monitoring to strengthen oversight and ownership.
- Standardize Corrective Actions: Implement consistent protocols for addressing cost deviations across all projects.

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7. References

1. African Development Bank. Rwanda Education Sector Audit Report, 2021.
2. African Development Bank. African Infrastructure Development Index 2023, 2023.
3. African Development Bank. Zambia Diagnostic Report on Public Financial Management, 2024.
4. Agyekum-Mensah G. Assessing political interference in project implementation: The case of Ghana's District Assembly Common Fund projects. African Journal of Public Administration. 2015; 7(1):25-39.
5. Auditor General. Annual Report on the Implementation of the Constituency Development Fund. Government of Zambia, 2022.
6. Auditor General. Annual Report on the Implementation of the Constituency Development Fund. Government of Zambia, 2023.
7. Chitonge H. Public Infrastructure and Development in Zambia: Managing Implementation Risks. UNZA Press, 2018.
8. Construction Economics Journal. The iron diamond model: Expanding project constraints. Construction Economics Journal. 2023; 45(2):112-125.
9. Global Education Infrastructure Report. Sector-specific challenges in educational construction. Global Education Infrastructure Report, 2023, 55-67.
10. Graham JR, Harvey CR, Puri M. Incentives and accountability in public sector contracts. Journal of Finance, 2022.
11. International Journal of Project Management. Proactive cost management and delay prevention. International Journal of Project Management. 2023; 41(4):102-115.
12. Kenya CDF Board. CDF Performance Report 2022, 2022.
13. Kerzner H. Project management best practices: Achieving global excellence. John Wiley & Sons, 2022.
14. Kim Y, Park S. AI-based budget monitoring in public infrastructure. Journal of Construction Engineering and Management. 2024; 150(1).
15. Ministry of Education. Report on project delays in Lusaka Province, 2023.
16. Ministry of Local Government. Annual report on decentralisation implementation. Government of Zambia, 2023.
17. Ministry of Technology. Smart CDF Initiative: Pilot implementation report, 2023.
18. Mugabi E. Decentralisation and local governance in Africa: Experiences from selected countries. United Nations, 2004.
19. Mulenga M, Banda C, Phiri A. A reform framework for procurement in public projects. Journal of Public Procurement. 2023; 23(2):45-68.
20. Mwanza C, Phiri R. Budget monitoring and project completion: Evidence from Eastern Province of Zambia. Journal of Zambian Development Studies. 2023; 10(1):41-58.
21. Mwansa L, Mphuka C. Public financial management in Zambia: Challenges and opportunities for accountability. ZIPAR, 2020.
22. Olowu D, Wunsch JS. Local governance in Africa: The challenges of democratic decentralization. Lynne Rienner Publishers, 2004.
23. Phiri M, Zulu J. The role of community participation in monitoring school infrastructure projects in Central Province. Zambia Social Science Review. 2020; 8(1):63-77.
24. Project Management Institute. A guide to the project management body of knowledge (PMBOK® guide) (6th ed.), 2017.
25. Project Management Institute. The standard for project management (PMBOK® Guide) (7th ed.), 2023.
26. Rose-Ackerman S, Palifka BJ. Corruption and government: Causes, consequences, and reform (2nd ed.). Cambridge University Press, 2016.
27. SADC Infrastructure Bulletin. Technological innovations in Namibian school construction. SADC Infrastructure Bulletin. 2023; 15(3).
28. Transparency International. Corruption Perceptions Index Report, 2020.
29. Transparency International. Open contracting and corruption reduction, 2023.
30. Transparency International Zambia. CDF Monitoring Report: Challenges in Financial Management, 2023.
31. UNDP Zambia. Local government decentralization assessment report, 2023.
32. World Bank. Enhancing public financial management in developing countries, 2020.
33. World Bank. Comparative analysis of education infrastructure projects, 2023.
34. World Bank. Managing infrastructure projects for better service delivery, 2024.
35. Zambia Institute for Policy Analysis. Strengthening Constituency Development Fund Implementation: Capacity Gaps and Opportunities, 2021.
36. Zambia Institute for Policy Analysis. Nationwide study on community participation in CDF projects, 2023.
37. Zambia Public Procurement Authority. Annual audit report on public procurement, 2023.