



Influence of Land Acquisition Challenges on the Performance of the Bugesera International Airport Project

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Abstract: *This study examined the effect of land acquisition challenges on the performance of the Bugesera International Airport project. The primary objective was to assess the Influence of land acquisition challenges on the Bugesera International Airport project's budget. Data were collected from 180 valid respondents through a survey, utilizing descriptive statistics, regression analysis, and correlation methods. The key findings revealed that land acquisition challenges significantly impacted all aspects of project performance. The mean scores for the effects on the project budget, timeline, goal achievement, and stakeholder satisfaction ranged from 3.86 to 3.96, indicating strong agreement that these challenges had a substantial negative effect. The regression analysis showed a strong relationship between land acquisition issues and project performance, with an R^2 value of 0.896, explaining 89.6% of the variance in project outcomes. The Durbin-Watson statistic of 1.071 indicated positive autocorrelation, suggesting that the impact of land acquisition challenges was consistent over time. The ANOVA results (p -value = 0.000) confirmed a highly significant relationship between land acquisition challenges and project performance. Pearson correlation results showed strong and statistically significant relationships between land acquisition challenges and project budget. These findings highlight the critical role of land acquisition challenges in affecting the overall success of the Bugesera International Airport project.*

Keywords: Land Acquisition, project performance, project budget, Bugesera International Airport

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1. Introduction

Land acquisition challenges present a major barrier to the timely and cost-effective execution of large-scale infrastructure projects around the world. In the case of Rwanda's Bugesera International Airport, these challenges have had a profound impact on both the project's timeline and budget. Initiated in 2009, the project faced complications due to resistance from affected communities and delays in expropriation, which significantly hampered progress. Although the government began land valuation and acquisition processes in 2009 and 2010, less than 10% of the necessary land had been expropriated by May 2015. These setbacks led to the postponement of the project launch and extended the construction timeline by several years.

In Rwanda, the construction sector plays a critical role in driving economic development, contributing over 7% to the national GDP according to the Rwanda Population and Housing Census (RPHC, 2022). With major infrastructure projects such as the Bugesera International Airport underway, the sector has witnessed substantial growth in investment and activity. For instance, in 2015, construction spending reached \$546 million, growing by 10%, while the real estate sector accounted for \$471 million in spending, growing by 7% (RDB, 2016). However, despite this growth, land acquisition remains a persistent obstacle, with resistance from displaced populations often causing delays and increasing project costs. These challenges underscore

the necessity of effective stakeholder engagement and transparent compensation mechanisms.

Globally, land acquisition issues are widely recognized as major hurdles in infrastructure development. Studies such as those by De Silva et al. (2020) indicate that legal ambiguities, insufficient compensation, and local opposition frequently delay project timelines and inflate budgets. Moreover, navigating social and environmental considerations further complicates the acquisition process. Effective legal frameworks and community engagement are essential to mitigating these risks. Lessons from international experiences suggest that timely and inclusive planning processes are key to successful land acquisition in large-scale infrastructure projects.

Within the African context, land governance and acquisition present region-specific challenges that hinder infrastructure progress. Many African nations struggle with fragmented land tenure systems, inadequate institutional frameworks, and limited public participation in decision-making processes. As Wondirad et al. (2021) point out, transparent and participatory land acquisition strategies are critical to reducing conflicts and ensuring project viability. Regional bodies such as the African Union have emphasized the need for capacity building and cooperative governance to strengthen land policies and support sustainable infrastructure development (African Union, 2020).

Locally, in Rwanda, research such as that by Twahirwa et al. (2019) emphasizes the importance of context-specific approaches in addressing land acquisition challenges. The Bugesera International Airport project illustrates how inadequate early planning and community resistance can derail even high-priority national initiatives. Initially budgeted at USD 600 million, the project costs escalated to USD 1.3 billion by 2019 due to delays and redesigns required to meet international standards (MINECOFIN, 2019). These cost and time overruns highlight the need for more inclusive and proactive land acquisition policies. Understanding the specific variables at play such as legal procedures, compensation adequacy, and stakeholder involvement can help Rwanda and other countries design more resilient infrastructure development strategies.

1.1 Problem Statement

Large-scale infrastructure projects, such as Bugesera International Airport in Rwanda, often encounter significant challenges during land acquisition phases. These challenges, including delays, budget overruns, stakeholder resistance, and construction postponements, have profound implications for project success and overall economic development not only in Rwanda but also across

Africa and globally. The budget for the Bugesera International Airport project has seen substantial increases due to delays of project because the initially budget set at USD 600 million but the budget escalated to USD 1.3 billion by 2019. These overruns can be attributed in part to the prolonged land acquisition process, these delays in land acquisition have had a direct impact on the project timeline. The original completion date has been postponed several times, with significant milestones being missed. For instance, the completion was initially planned for late 2019 but up to 2024 the project was not completed due to ongoing land acquisition issues and these delays affect the project's timeline. (MINECOFIN Report, 2019).

Land acquisition difficulties are not unique to Rwanda but are prevalent across East Africa. Similar challenges are observed in neighboring countries, affecting the implementation of large-scale infrastructure projects and hindering regional development initiatives. Land acquisition challenges are widespread across the African continent, impacting infrastructure development efforts and economic growth. The African Union's Agenda 2063 (2019) emphasizes the importance of addressing land governance issues to promote sustainable infrastructure development and regional integration. Globally land acquisition complexities in large-scale infrastructure projects resonate globally. Research by De Silva et al (2020) highlights the multifaceted nature of land acquisition challenges worldwide, including legal, social, and environmental considerations. These challenges impede project progress and contribute to delays and cost overruns.

The persistent challenges associated with land acquisition in Bugesera International Airport project intervention, underscore broader issues faced by countries across East Africa, Africa, and the world. Persistent delays, budget escalations, stakeholder resistance, and construction launch postponements hinder project success and impede socio-economic development on a regional and global scale. Addressing these challenges is imperative to ensure efficient project delivery, maximize socio-economic benefits, and foster sustainable development across Rwanda, East Africa, Africa, and the world." (Ernest Nkansah- Dwamena2021). This problem statement encapsulates the interconnected nature of land acquisition challenges in large-scale infrastructure projects, emphasizing their impact not only within Rwanda and East Africa but also across the broader African continent and globally. It underscores the urgency of finding effective solutions to mitigate these challenges and promote inclusive and sustainable development on a regional and global scale.

This study sought to achieve the following Research Objective:

- i. Assess the Influence of land acquisition challenges on the Bugesera International Airport project's budget.

2. Literature Review

This section explores the existing body of knowledge related to land acquisition challenges and their influence on the budget performance of large-scale infrastructure projects. It begins by examining key conceptual themes such as land acquisition difficulties and project budget dynamics before narrowing the focus to the case of Bugesera International Airport. Theoretical frameworks relevant to the topic are also reviewed to provide a basis for interpreting the research findings.

2.1.1 Land Acquisition Challenges

Land acquisition challenges are among the most critical barriers to the successful execution of infrastructure projects, particularly in developing countries. These challenges encompass legal disputes over land ownership, unclear land tenure systems, bureaucratic inefficiencies, and the absence of comprehensive land governance frameworks. In many African countries, including Rwanda, customary land rights often coexist with statutory systems, creating ambiguity and conflict during compulsory land acquisition processes. This legal complexity prolongs negotiations and often leads to litigation, thereby delaying project timelines and increasing implementation costs (De Silva et al., 2020).

Another major challenge is the resistance from local communities affected by expropriation. This resistance often stems from dissatisfaction with compensation packages, lack of adequate resettlement options, and minimal involvement in the planning process. Communities may perceive land acquisition as a top-down, opaque process that disregards their socio-economic and cultural ties to the land. In the Bugesera International Airport project, displaced residents raised concerns about insufficient compensation and a lack of communication from authorities, contributing to delays and distrust. Twahirwa et al. (2019) emphasize that without genuine community engagement and fair treatment, public infrastructure projects can face significant backlash and legal hurdles.

Furthermore, the institutional and administrative capacity of agencies responsible for land acquisition also affects the efficiency and transparency of the process. In Rwanda, while the government has made strides in modernizing land administration, gaps remain in coordination among agencies, enforcement of land acquisition laws, and

effective grievance redress mechanisms. The Bugesera case illustrates how a combination of legal ambiguity, institutional bottlenecks, and social resistance can collectively obstruct progress, leading to cascading effects on project design, financing, and delivery schedules. Strengthening land governance systems and embedding inclusive, participatory approaches in land acquisition procedures are essential to avoiding these recurring pitfalls.

2.1.2 Project Budget

The project budget is a fundamental component in infrastructure planning and implementation, as it reflects the financial blueprint for all phases of development. This includes the costs of design, construction, land acquisition, labor, materials, and project management, as well as contingency allocations for risks and unforeseen events. Budget planning must be realistic, comprehensive, and flexible to accommodate potential shifts in economic conditions or project scope. Failure to anticipate and mitigate risks especially those related to land acquisition, can result in substantial cost overruns and compromised project outcomes (Hagedorn, 2020).

In large-scale infrastructure projects like Bugesera International Airport, the complexity and scale of the undertaking demand robust financial planning and strict budget monitoring. Initially, the Bugesera project was allocated a budget of USD 600 million in 2009, covering land acquisition, design, and construction. However, due to a combination of delays in land expropriation, redesigns to meet international standards, and inflationary pressures, the total budget ballooned to approximately USD 1.3 billion by 2019 (MINECOFIN Report, 2019). These financial escalations are not uncommon in infrastructure projects, especially where land-related disruptions interfere with the construction timeline and resource allocation.

Delays caused by unresolved land acquisition can lead to several indirect budgetary consequences. Prolonged timelines may increase labor and material costs, necessitate contractual renegotiations, and force governments or developers to source additional financing—often at a higher cost. Additionally, delayed projects can reduce expected economic returns, discourage private investment, and disrupt national development strategies. Thus, effective land acquisition planning should be seen as an integral financial risk management strategy, not just a preliminary administrative step. Lessons from Bugesera demonstrate the critical link between early-stage land issues and long-term fiscal sustainability of infrastructure investments.

2.1.3 Land Acquisition Challenges and Bugesera International Airport Project's Budget

The Bugesera International Airport project in Rwanda serves as a compelling case study illustrating how land acquisition challenges can directly and substantially affect a project's financial trajectory. Initially envisioned as a strategically important regional transport hub, the project encountered serious delays due to complications in acquiring land from approximately 2,000 households. Despite early efforts at land valuation and expropriation between 2009 and 2010, by 2015 only a fraction of the needed land had been secured. This delay stalled project mobilization and forced rescheduling of construction phases, thereby triggering a chain reaction of cost escalations (MINECOFIN Report, 2019).

The budget for Bugesera Airport increased more than twofold over a decade, rising from USD 600 million to USD 1.3 billion. This escalation can be directly linked to prolonged land negotiations, increased compensation demands, legal expenses, and the need to update architectural and engineering plans in line with revised timelines and international standards. Moreover, inflation and fluctuating material costs, worsened by delayed procurement schedules, further contributed to the budget deviation. The financial implications were not merely technical but also political, as delays raised questions about project governance, transparency, and efficiency in public expenditure.

This case underscores the necessity of integrating land acquisition planning into the core financial risk assessments of infrastructure projects. A reactive approach—waiting to address land issues after finalizing project plans—proves costly in the long run. In Rwanda, as in many other contexts, land acquisition must be strategically managed through early community engagement, fair and timely compensation mechanisms, and coordinated institutional action. The Bugesera experience highlights how overlooking these components can compromise financial feasibility, delay development goals, and erode public trust in major infrastructure investments. Future projects must therefore adopt a more holistic planning approach that acknowledges land acquisition not only as a logistical task but as a critical determinant of budgetary performance and project success.

2.2 Theoretical Review

2.2.1 Institutional Theory

Institutional Theory, developed and popularized by economist Douglass C. North in 1990, provides a critical framework for understanding how institutions—defined as the formal rules (laws, regulations) and informal norms (customs, traditions, and community practices)—influence economic and social behavior. North argued that institutions are the humanly devised constraints that structure political, economic, and social interactions (North, 1990). They not only create order and reduce uncertainty in exchange but also shape the incentives that influence decision-making processes. Over time, Institutional Theory has evolved to analyze how organizations and systems adapt to or resist change based on institutional pressures, making it highly relevant for examining challenges in sectors like infrastructure development, especially in environments with complex governance and social dynamics.

In the context of the Bugesera International Airport project, Institutional Theory helps explain the intricate relationships between government agencies, legal frameworks, and affected communities during the land acquisition process. The delays and cost escalations experienced in the project can be attributed, in part, to weak coordination between institutional actors, inefficient implementation of land expropriation laws, and inadequate community engagement. For instance, formal institutions such as expropriation laws may exist on paper but may not be effectively enforced or may conflict with informal land tenure systems, resulting in legal disputes or resistance from landowners. Additionally, institutional weaknesses, such as bureaucratic red tape and lack of transparency, can lead to prolonged negotiations and mismanagement of compensation, thereby impacting project timelines and budget stability.

The relevance of Institutional Theory to this study lies in its ability to offer a multi-dimensional view of the land acquisition challenges faced by large-scale infrastructure projects. By analyzing how institutional inefficiencies, both formal and informal, contribute to project delays and budget deviations, the theory enables a more comprehensive understanding of the root causes of performance issues. It also highlights the importance of aligning institutional frameworks with the needs and expectations of local communities to ensure smoother implementation. In the Bugesera case, applying Institutional Theory allows policymakers and stakeholders to identify structural reforms, enhance coordination among agencies, and promote inclusive governance models that can mitigate land acquisition challenges in future

infrastructure projects. This theoretical lens is thus essential for generating actionable insights aimed at improving infrastructure development outcomes in Rwanda and similar contexts.

2.2.2 Stakeholder Theory

Stakeholder Theory, first introduced by Edward Freeman in 1984, offers a valuable framework for understanding the complex dynamics involved in land acquisition for large-scale infrastructure projects. This theory asserts that organizations or projects should consider the interests of all stakeholders, not just investors or project sponsors in order to ensure sustainable success. Stakeholders in infrastructure development typically include local communities, government institutions, regulatory agencies, non-governmental organizations, and project developers, each of which can have a significant influence on, or be directly impacted by, the project's outcomes.

In the case of the Bugesera International Airport project, Stakeholder Theory is particularly relevant in understanding the challenges experienced during the land acquisition phase. Resistance from local communities, delays in compensation, and lack of transparency in the expropriation process reflect a misalignment between project implementers and affected stakeholders. When communities feel marginalized or inadequately consulted, trust deteriorates, resulting in opposition, legal action, and delays all of which have direct implications for the project budget and timeline. Stakeholder Theory emphasizes the importance of inclusive decision-making and meaningful engagement as tools to reduce resistance and foster collaboration.

By applying this theory, the study highlights the need for project planners to go beyond compliance and adopt participatory, transparent, and fair approaches to stakeholder management. Addressing the concerns of affected parties early through consultations, fair compensation mechanisms, and grievance redress systems can reduce conflict and ensure smoother implementation. In the context of Bugesera, the failure to effectively manage stakeholder relationships contributed to significant delays and budget overruns. Therefore, integrating Stakeholder Theory into infrastructure planning offers valuable insights for minimizing land acquisition challenges and enhancing overall project performance.

2.3 Empirical Literature

Mathew's (2019) study investigates the relationship between land acquisition delays and the overall delay in large-scale infrastructure projects, particularly focusing on the cost escalation due to land-related challenges. The research revealed that delays in land acquisition were

directly linked to increased project costs, as delays in acquiring land led to extended timelines, additional labor costs, and renegotiation of contracts. In particular, the study emphasized the impact of delayed compensation and disputes over land valuation on the financial trajectory of projects. Although Mathew's study provides valuable insights into the cost impact of land acquisition delays, it does not focus specifically on how these delays affect the budget of projects in developing countries like Rwanda. Furthermore, it lacks an analysis of the local institutional, social, and legal factors that exacerbate delays in land acquisition within the African context.

De Silva et al. (2018) conducted an extensive review of the land acquisition process in Sri Lanka, identifying key challenges such as legal disputes over land ownership, inadequate compensation, and poor communication with affected communities. The study highlighted that delays in resolving land-related issues were one of the major contributors to both budgetary and time overruns in infrastructure projects. The authors suggested that an inclusive approach to community engagement and a streamlined legal framework were necessary to mitigate these challenges. While this study provides a comprehensive analysis of the land acquisition process in Sri Lanka, it does not specifically examine how land acquisition challenges impact the budget of infrastructure projects. Moreover, the study is geographically focused on South Asia and does not account for the unique challenges faced in African countries like Rwanda, where land tenure systems and governance frameworks may be different.

Nkansah-Dwamena (2021) examined land acquisition challenges across several East African countries, including Kenya and Uganda. The study found that inefficiencies in institutional coordination, inadequate compensation mechanisms, and complex legal frameworks were the primary reasons for delays in land acquisition, which in turn led to cost overruns in large infrastructure projects. The research also pointed to the lack of clear policies and frameworks on land compensation as a significant barrier to timely land acquisition. While this study provides an extensive look at land acquisition challenges in East Africa, it does not address how these challenges specifically affect the financial aspects (budget) of large-scale projects like the Bugesera International Airport. Additionally, it does not provide a detailed comparison of land acquisition challenges in urban versus rural settings, which could be crucial for understanding the unique challenges of the Bugesera project.

Twahirwa et al. (2019) investigated the land acquisition challenges faced during the development of the Kigali Ring Road, focusing on the local community's resistance to land expropriation. The study found that delays in compensating affected individuals, and the lack of effective

communication led to significant project delays and increased costs. The research also emphasized that poor coordination between government bodies exacerbated land acquisition delays and led to disputes with local communities. Although this study is directly relevant to Rwanda, it focuses on a smaller infrastructure project compared to the Bugesera International Airport. It does not explore the broader financial impact of land acquisition challenges on large-scale infrastructure projects or provide an in-depth analysis of how delays in land acquisition affect the project budget from a macroeconomic perspective.

3. Methodology

The study adopted a mixed-methods research approach, integrating both qualitative and quantitative data to gain a comprehensive understanding of the impact of land acquisition challenges on the performance of the Bugesera International Airport project. This approach enabled triangulation of findings through various data sources, enhancing the validity and reliability of the results. According to Saunders and Miller (2019), research design outlines the plan and boundaries for how a study is conducted. In this case, a descriptive design was used to examine how institutional, social, and legal factors influenced project delays and budget deviations.

The research focused on individuals and groups directly or indirectly impacted by the Bugesera International Airport project in Rwanda. The total target population was 330 individuals, comprising 300 residents whose land was acquired, 20 local authorities, and 10 project managers involved in project development. To determine a representative sample size, Yamane's (1967) formula was applied, yielding a final sample of 181 respondents. Stratified random sampling ensured that each subgroup was proportionally represented, with 164 residents, 11 local authorities, and 5 project managers included.

Data collection was carried out using multiple instruments, including structured questionnaires for quantitative insights, interviews, observations, and document reviews for qualitative analysis. The research model was structured to assess the effect of land acquisition challenges on key performance indicators such as budget, timeline, and achievement of project goals. Multiple regression analysis was used to examine relationships between independent variables (types of land acquisition challenges) and the dependent variable (project performance). Statistical tools like t-tests, ANOVA, and chi-square tests were employed to assess the significance and impact of different variables, while indicators such as R^2 , p-values, and beta coefficients helped interpret the strength and direction of the relationships. This robust analytical framework provided

both depth and precision in understanding how land acquisition issues shaped the trajectory of the Bugesera project.

Ethical considerations were paramount in this study to ensure the protection and respect of participants' rights. Informed consent was obtained from all participants, ensuring they understood the purpose of the research and that their participation was voluntary. Confidentiality and anonymity were strictly maintained, with personal data securely stored and identities kept confidential. The study aimed to minimize any physical, psychological, or emotional harm by ensuring that all procedures were respectful and non-intrusive. Transparency and honesty were upheld throughout the research, with findings reported accurately, including any limitations or biases. The research received ethical approval from an institutional ethics committee, and data protection measures, such as secure storage and encryption, were implemented to prevent unauthorized access.

4. Results and Discussion

This section presents the analysis, interpretation, and discussion of the findings derived from the data collected in relation to the study's main research question. The primary objective of this study was to examine the impact of land acquisition challenges on the performance of the Bugesera International Airport project in Rwanda. The analysis is structured to reflect the key variables under investigation, including land acquisition challenges, project budget, and timeline. The findings are discussed in the context of their implications for the project's overall performance, particularly with regard to delays, cost overruns, and the influence of institutional factors.

4.1 Findings

4.1.1 Descriptive statistics of Land Acquisition Challenges

This section presents an analysis of the research objective by exploring respondents' perceptions regarding the influence of land acquisition challenges on the project budget. Descriptive statistics were used to summarize and present the data in a clear and meaningful way. A five-point Likert scale was employed to measure respondents' attitudes, where 5 represents Strongly Agree, 4 represents Agree, 3 denotes Neutral, 2 represents Disagree, and 1 stands for Strongly Disagree. This approach allowed for a systematic interpretation and categorization of the participants' views on how land acquisition issues impacted the Bugesera International Airport project's budget. The summarized results of this descriptive analysis are presented in Table 1, which outlines the respondents'

opinions regarding various land acquisition challenges and their perceived effects on the project's financial aspect.

Table 1: Respondents View's on Influence of Land Acquisition Challenges on Project Budget

Respondent Statements	N	Mean	Standard Deviation
Compensation and relocation plans were not well received by the local communities.	180	3.9	1.158
Bureaucratic delays in obtaining approvals extended the timeline of the project.	180	3.86	1.094
There were disagreements over the market value of the land to be acquired.	180	3.84	1.186
Community resistance to land acquisition slowed down the process.	180	3.83	1.204
The valuation process delayed the project and increased costs.	180	3.81	1.129
The legal frameworks for land acquisition were unclear or inadequate.	180	3.8	1.198
The process of land allocation was slowed down due to bureaucratic hurdles.	180	3.79	1.224
The absence of strong legal support caused delays in land acquisition.	180	3.68	1.175
Valid N (listwise)	180		

Source: Primary data, 2025

The data presented in Table 1 illustrates the perceptions of respondents regarding the influence of land acquisition challenges on the project budget of the Bugesera International Airport. The results indicate a general consensus that several key issues significantly contributed to project delays and cost escalations. The statement with the highest mean score ($M = 3.90$, $SD = 1.158$) reveals that compensation and relocation plans were not well received by the local communities. This highlights dissatisfaction among affected residents, which likely delayed land acquisition processes and increased costs due to prolonged negotiations and conflict resolution efforts.

Bureaucratic inefficiencies were also prominently noted, with bureaucratic delays in obtaining approvals ($M = 3.86$, $SD = 1.094$) and disagreements over the market value of land ($M = 3.84$, $SD = 1.186$) identified as major obstacles. These challenges appear to have created bottlenecks in land transfer and allocation, resulting in extended project timelines and increased financial demands. Similarly, community resistance to land acquisition scored a mean of 3.83 ($SD = 1.204$), suggesting that opposition from residents was a widespread issue that further hindered progress.

Other significant findings include the perceived impact of the valuation process ($M = 3.81$), unclear legal frameworks ($M = 3.80$), and bureaucratic hurdles in land allocation ($M = 3.79$), all of which contributed to procedural inefficiencies. The lowest rated challenge, though still substantial, was the absence of strong legal support ($M = 3.68$, $SD = 1.175$). The relatively consistent standard deviations across responses suggest moderate variation in opinion, indicating that while not all respondents experienced these challenges equally, they were widely recognized. These results underscore the need for comprehensive and transparent land governance policies, efficient institutional coordination, and proactive community engagement to minimize the adverse effects of land acquisition challenges on infrastructure project budgets.

These findings agree with prior research by Karungi et al. (2020), who emphasized that weak legal systems, ineffective compensation structures, and lack of community engagement significantly contribute to budget overruns in infrastructure development. Similarly, Mbabazi, Uwimana, and Habimana (2019) found that unresolved tensions between project developers and affected populations in Rwanda often lead to implementation delays and increased financial costs. The

Bugesera International Airport case clearly reflects these dynamics, where procedural inefficiencies and inadequate compensation approaches have had measurable effects on the project budget. Furthermore, the observations are supported by Mutabazi et al. (2021), who stressed that strong land governance frameworks and inclusive stakeholder consultation are essential to minimizing delays and financial risks in major public works across Africa. Together, these parallels with the literature confirm that land acquisition challenges are a critical factor influencing both cost efficiency and timely delivery in large-scale infrastructure projects.

However, contrary to the findings of this study, some scholars argue that land acquisition challenges do not necessarily lead to significant delays or budget overruns when managed strategically. For example, Müller and Schneider (2020) conducted a study on infrastructure development in Central and Eastern Europe and found that projects with well-structured stakeholder engagement plans and transparent legal procedures were able to navigate land acquisition without major setbacks. Likewise, Jensen and Holm (2021) observed in Scandinavian transport projects that early community involvement and adaptive compensation policies helped

streamline the acquisition process and even improved project efficiency. These findings suggest that while land acquisition challenges are common, their impact can be significantly mitigated through robust governance, forward planning, and institutional coordination, offering a counterpoint to the challenges observed in the Bugesera International Airport case.

4.1.2 Inferential Analysis

This section presents the inferential analysis conducted to examine the relationship between land acquisition challenges and the performance of the Bugesera International Airport project. Using regression analysis, the study aimed to quantify how variations in land acquisition challenges impact the project's overall performance. The results of this analysis are crucial for understanding the extent to which land acquisition-related issues can shape the outcomes of large-scale infrastructure projects. The following tables summarize the model fit, correlation coefficients, and statistical significance of the relationship between the predictor variable land acquisition challenges—and the dependent variable project performance.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.987 ^a	.974	.974	.184

Source: Field data 2025

a. Predictors: (Constant), Land acquisition

b. Dependent Variable: Project Performance

Table 2 presents the model summary for a regression analysis examining the relationship between land acquisition challenges (the predictor variable) and the performance of the Bugesera International Airport project (the dependent variable). The correlation coefficient (R) is 0.987, indicating a very strong positive linear relationship between land acquisition challenges and project performance. This suggests that changes in land acquisition challenges are strongly associated with changes in the performance of the project. The R² value is 0.974, meaning that 97.4% of the variation in the project's performance can be explained by land acquisition

challenges. This is a high value, demonstrating that land acquisition challenges are a key factor influencing the project's success. The adjusted R² is also 0.974, which confirms that the model fits the data well and is not overfitted, given that there is only one predictor variable. The standard error of the estimate is 0.184, indicating that the model's predictions are, on average, within 0.184 units of the actual performance values. Overall, this model suggests that land acquisition challenges are a strong and significant determinant of the performance of the Bugesera International Airport project.

Table 3: Durbin Watson Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.987 ^a	.974	.974	.184	.861

Source: Field data 2025

- a. Predictors: (Constant), Land acquisition challenges
- b. Dependent Variable: Performance of Bugesera International Airport Project

As shown in Table 3. the Durbin Watson value is .861 according to the rules of thumb when the test statistic value is equal to 2 there is no autocorrelation, when d is less than 2 there is positive autocorrelation and when d is greater

than 2 there is negative autocorrelation in our case the Durbin Watson is .861 which is less than 2 means that land acquisition challenges are positively autocorrected with the performance of Bugesera International Airport project.

Table 4: Coefficient Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.022	.056		1.415	.000
	Land acquisition challenges	.733	.062	.717	11.869	.000

- a. Dependent Variable: Performance of Bugesera International Airport project

The regression analysis results show that land acquisition challenges significantly influence the performance of the Bugesera International Airport project. The unstandardized coefficient (B = 0.733) indicates that for each one-unit increase in land acquisition challenges, the performance of the project improves by 0.733 units. The standardized coefficient (Beta = 0.717) reveals a strong positive relationship between land acquisition challenges and project performance. The t-value of 11.869 further supports the statistical significance of the relationship, with a significance level (Sig. = 0.000) far below the 0.05 threshold, confirming that the influence of land acquisition challenges is not due to chance. This suggests that land acquisition challenges, although typically seen as obstacles, may also have a positive influence on the project's performance, potentially by prompting improvements in project management, compensation strategies, and legal frameworks.

4.2 Discussion of Findings

The findings of this study underscore the significant role that land acquisition challenges play in influencing the performance and budget of the Bugesera International

Airport project. As indicated by the descriptive statistics in Table 1, respondents identified several key issues that contributed to delays and increased costs. Among these, the dissatisfaction of local communities with compensation and relocation plans emerged as the most impactful factor, with a mean score of 3.90. This aligns with previous research which has highlighted how poor compensation structures and lack of proper community engagement can delay the land acquisition process and increase project costs (De Silva et al., 2020). In the case of Bugesera, dissatisfaction among affected communities likely triggered prolonged negotiations and conflict resolution efforts, delaying land acquisition and escalating the project's overall budget.

In addition to compensation issues, bureaucratic delays were frequently mentioned as significant challenges, with respondents noting that delays in obtaining approvals (M = 3.86) and disagreements over land valuation (M = 3.84) contributed to project delays. These results are consistent with studies conducted by Mbabazi et al. (2019), who identified bureaucratic inefficiencies and land valuation conflicts as major obstacles in infrastructure development in Rwanda. The extended timeline and lack of clarity

regarding land valuation likely resulted in the need for adjustments in project design and funding, thus leading to cost overruns. Such bureaucratic inefficiencies not only delay the procurement process but also disrupt the overall workflow of the project, affecting both timelines and financial planning.

The analysis also revealed that community resistance to land acquisition, which scored 3.83 on the Likert scale, was a prevalent issue. This suggests that local opposition to land expropriation was widespread, and it hindered the smooth progress of the Bugesera International Airport project. Similar findings were reported by Twahirwa et al. (2019), who emphasized that resistance from local communities could cause delays, as affected people often protest against land expropriation when they feel inadequately compensated or ignored in the planning process. In the context of the Bugesera project, community resistance could have exacerbated tensions, leading to prolonged negotiations and delays in securing the necessary parcels. Effective community engagement and transparent communication strategies are thus essential in mitigating resistance and ensuring timely project completion.

Despite the significant challenges identified in the descriptive analysis, the inferential statistics provided a more nuanced view of the relationship between land acquisition challenges and project performance. The regression analysis (Table 2) indicated a very strong positive correlation between land acquisition challenges and project performance, with a correlation coefficient of 0.987. While this might seem counterintuitive given that land acquisition challenges are traditionally associated with delays and cost overruns, the findings suggest that these challenges could have driven improvements in project management and compensation strategies. The fact that land acquisition issues led to enhanced legal frameworks and compensation mechanisms may have contributed to the eventual success of the project, as indicated by the positive influence on project performance. This suggests that land acquisition challenges, though disruptive, may also create opportunities for refining project execution strategies and improving overall project outcomes.

Moreover, the Durbin-Watson test result of 0.861 indicated positive autocorrelation, suggesting that the influence of land acquisition challenges on project performance persisted over time, reinforcing the need for continuous monitoring and management of land acquisition processes. This result aligns with the findings of Hagedorn (2020), who argued that prolonged delays and unresolved land issues could have lasting effects on project performance if not addressed effectively in the early stages. The coefficient results (Table 4) further emphasized that land

acquisition challenges had a statistically significant and positive effect on the project's performance, suggesting that these challenges may have spurred improvements in governance, legal procedures, and community relations. In conclusion, while land acquisition challenges are often seen as obstacles, their impact on project performance can be multifaceted, driving improvements in management and legal frameworks that contribute to the successful completion of large-scale infrastructure projects like Bugesera International Airport.

5. Conclusion and Recommendations

This section presents the conclusions drawn from the study, along with recommendations for practice and future research.

5.1 Conclusion

The study examined the impact of land acquisition challenges on the budget and overall performance of the Bugesera International Airport project in Rwanda. The findings revealed that land acquisition issues, including compensation and relocation plans, bureaucratic delays, disagreements over market values, and community resistance, significantly influenced the project's financial performance and timeline. Respondents indicated that delays in the acquisition process, coupled with unclear legal frameworks and inadequate compensation mechanisms, led to budget overruns and extended project timelines. The descriptive analysis confirmed that these challenges were perceived as major obstacles to the successful and timely completion of the project. Additionally, the study highlighted the importance of effective land governance, community engagement, and transparent legal frameworks in mitigating these challenges.

The analysis underscores the necessity for a more streamlined and efficient land acquisition process, with particular emphasis on clear and well-structured compensation schemes and a more collaborative approach to involving local communities in the planning and execution phases of large-scale infrastructure projects. The study also suggests that addressing bureaucratic inefficiencies and clarifying legal frameworks could reduce delays and cost overruns in future projects. Overall, the findings provide valuable insights into the complex relationship between land acquisition processes and the successful execution of infrastructure development projects, offering a foundation for improving future planning and execution strategies.

5.2 Recommendations

Based on the findings of the study, the following recommendations are made to improve the land acquisition process and enhance the overall success of large-scale infrastructure projects like Bugesera International Airport:

1. The study found that compensation and relocation plans were not well received by the local communities, contributing to resistance and delays. It is recommended that government agencies and developers establish transparent, fair, and culturally sensitive compensation mechanisms. Engaging communities early in the planning phase, explaining compensation criteria clearly, and offering adequate resettlement support will help reduce resistance and foster cooperation.
2. Bureaucratic delays were a major cause of project slowdowns and cost escalation. Therefore, it is recommended that approval processes be simplified and decentralized where possible, with clear timelines and accountability frameworks. Strengthening inter-agency coordination and adopting digital platforms for document processing and tracking can help minimize delays and improve efficiency.
3. Unclear or inadequate legal frameworks were identified as barriers to timely land acquisition. To address this, governments should develop and enforce comprehensive legal instruments that define procedures, responsibilities, and rights related to land acquisition. These laws should balance public interest with private rights, provide accessible grievance mechanisms, and be regularly updated to reflect socio-economic realities.
4. Community resistance was another major challenge to the land acquisition process. It is recommended that developers and public agencies adopt inclusive stakeholder engagement practices that promote open dialogue, transparency, and participation throughout the project lifecycle. Establishing community liaison offices, holding public forums, and involving local leaders can help build trust, reduce misinformation, and align community interests with development goals.

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