



Research Article

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The Impact of Contracts Administration on the Performance of Road Construction Projects in Uganda: A Literature Gap

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Abstract

Uganda's road construction industry has experienced growth over time because of increased budget allocations. Although the industry has dramatically improved, projects are still experiencing challenges, including but not limited to cost overruns, time overruns, incompetent staff, poor designs, site-related challenges, inadequate resources, low innovation and shoddy work. These are the factors affecting the performance of road projects in Uganda. Therefore, as a way to address the mentioned issues and improve the road construction industry, this paper, through the literature review, looked at the concept of construction contract administration and its context on project implementation. A scoping review of the most relevant work in the field of road construction with emphasis on contract administration and the performance of road construction projects in Uganda presented a salient gap in the area of contract administration. The purpose of this study is to review the literature on the impact of contracts administration on road construction projects which is forming the basis of ongoing research to develop a contract administration strategy that will be used on road construction projects with the aim of improving the performance of road construction projects in Uganda.

Keywords: Construction, Contracts Administration, Performance, Projects, Roads

1. Introduction

The road network is a fundamental impetus for economic development in Africa. Evidence shows that sustained access to roads positively influences standards of living (Benamghar and Limi, 2011). Arrows (2010) posits that society's output, safety and wellbeing are hinged on the echelon of the country's road network (Arrows, 2010).

On an international scale, governments are placing a lot of emphasis on infrastructure development, with a future expenditure on roads estimated between \$40 trillion and \$50 trillion (Byaruhanga and Basheka, 2017). The journey of infrastructure development is ongoing. The European Union notes that to achieve the much-needed goal of infrastructure development, approximately \$2.7 trillion is needed to finance new infrastructure expenditures (Deutsche Bank, 2012).

On a regional scale, there is notable progress in the state of infrastructure development in Africa. Africa has continued to register progress in the roads sector, although the road network still remains underdeveloped compared to developed economies. It has been established that road transport is the most predominant form of transport in most countries in Africa, providing a means of transport to more than 80% of passengers and cargo (PIARC, 2014). The extent of the influence of road transport on Africa's economy cannot be overlooked as the World Bank estimates that an equivalent of US\$ 200 billion worth of trade is transported on the extensive road network in Africa, which is composed of strategic trading corridors linking deep sea-ports to economic hinterlands. Most rural areas of Africa fully depend on roads for connectivity. However, despite the significance of roads to the growth and development of Africa, the road network density per person and per square kilometre of land area is much lower in relation to other continents (Exim Bank, 2018).

The situation is further characterized by road construction project performance problems appearing in many developing countries. A growing body of evidence shows that many road projects in African countries fall short in performance indicators such as time and cost. The poor performance has widely been attributed to unforeseen obstacles such as material shortages, road closures, additional scope of works, delays in key services' delivery and amendments to designs, drawings and bills of quantities (Wambui, Ombui and Kagiri, 2015). This has made the current state of the existing roads in Africa lugubrious by global standards.

Uganda seems to be following this trajectory, with reports indicating a trend of unsatisfactory performance of road construction projects in recent years (Banyenzaki 2015:4). Reports published on the performance of Uganda's road sector in 2012 disclosed that shoddy works and services were costing the government billions of shillings (Inspectorate of Government, 2012). Road construction projects in the country were also associated with untimely project completion and shoddy works resulting in the loss of government funds (Bogere, 2013). This finding was not different from that of Alinaitwe, Apolot and Tindiwensi (2013), who noted the problem of delays in the implementation of projects pertaining to road works, thus costing taxpayers Ugx 2.5 billion monthly. The study indicated many road works projects faced cost overruns and shoddiness (Alinaitwe, Apolot, and Tindiwensi, 2013). In recent years, scholars assert that several road construction projects have experienced delays, such as the Kampala-Jinja Expressway, Mukono-Katosi road and Kiryandongo-Kamudini road (Daily Monitor, 2019; Muzaale and Auriacombe, 2018).

A considerable number of researchers have addressed the causes of the poor performance of road construction projects through their studies. Several studies have observed the effect of contractors' safety, variation order, contractor monitoring, contract management practices, risk management strategies, delays in land acquisition, procurement strategies, teamwork approach, stakeholder analysis, stakeholder involvement, and contractor's financial capacity on the performance of road construction projects (Matu, Gatotoh and Mushori, 2021; Chalchissa, 2021; Byaruhanga and Basheka, 2017; Banyenzaki, 2015; Kirira, 2019; Elong, Muhwezi and Acai, 2019; Dagba and Dagba, 2019; Waweru, 2018; Mandala, 2018; Akali, Sakaja and Shitsukane, 2018). However, the impact of contract administration on the performance of road construction projects has been given little attention.

As early as 1974, in his study, Scott (1974:1) opined that the application of contracts administration requires "identifying the needed function, establishing the level of effort required for each function, determining which organizational entity should provide services required for each function and developing contractual relationships between the participating entities to allow efficient and effective functioning for the entire project implementation team". In 1987, holding the notion

that contracts and their administration were vital focus areas for research, the Construction Industry Institution established a contracts task force (Ibbs and Ashley, 1987). Furthermore, research was conducted on trends in contracting and the role of contract administration and claims in reducing the overall cost of engineering projects and minimizing conflicts between parties on a given project (Al-Tubayyeb, 1989). Additionally, the recent past has registered more studies focused on the various aspects of contract administration. In their research, Muzaale, Auriacombe and Byaruhanga (2018) operationalized the dimensions of performance of road construction projects as "time, cost and quality". Similarly, facets were earlier recommended for measuring the performance of road infrastructure projects by Byaruhanga, and Basheka (2017). Onyait (2018) also operationalized construction project performance indicators in terms of "time, cost and quality expectations". In this study's context, the performance of road construction projects will be measured based on timelines, cost-effectiveness and quality as per the recommendations of earlier studies (Muzaale and Auriacombe, 2018; Onyait, 2018; Byaruhanga and Basheka, 2017).

In that regard, this study seeks to identify available literature on contract administration and how it links to the performance of road construction projects in Uganda through a scoping review. This is part of ongoing research aimed at assessing the impact of contract administration on the performance of road construction projects in Uganda. It is hoped that the findings will facilitate the improvement of road construction project delivery and the construction industry at large.

2. Research Problem

The majority of road projects in Uganda have experienced cost overruns, delayed completion, quality issues and disputes (Mwelu et al., 2019). This is a colossal problem given the fact that the country largely depends on road infrastructure for transportation of both goods and the population. Delays in the completion of projects directly impact the economic livelihoods of citizens. The Government, through its enactment of the Uganda National Roads Authority (UNRA) Act 2006 gave the UNRA the mandate of developing, supervising and managing the national road network and providing advisory services related to national roads (Muzaale and Auriacombe, 2018). This is aimed at improving the road sector's performance and providing value for taxpayers' money. However, this has not provided the much-expected change as many projects are still experiencing delays, collapsing or exhibiting defects prematurely and others have high-cost overruns. Completion of construction projects has substantially been delayed for some roads that include areas such as the "Kampala Northern Bypass, Kampala-Jinja Expressway, Kampala Flyover Project, Kiryandongo-Kamudini road, Kyenjojo-Kabwoya-Hoima-Bulima Road, Mubende-Kakumiro road, Kyenjojo road, Mukono-Katosi road and Kisoga-Nyenga road" (Daily monitor, 2019; Muzaale and Auriacombe, 2018).

These challenges are undermining the performance of the road sector and affecting UNRA from achieving its defined mandate. Generally, a large amount of money is set aside for road construction, and if the work is substandard or shoddy, then the cost for reconstruction, which could have been avoidable, is borne by the government and taxpayers. There is thus a need to review available literature, summarize it and make possible suggestions to improve the performance of road construction projects.

3. Literature Review Method

The scoping review method was used. This method is widely used for the review of literature for fast comparison of variables and critical terms of the review and the key literature sources (Dijkers, 2015). Scoping studies or reviews "is a method used to comprehensively map evidence across a range of study designs in an area, with the aim of informing future research practice, programs and policy" (O'Brien. K et al., 2016).

The purpose of the review was to identify the available major themes across the construction administration body of literature. The identified information was processed for the provision of themes

from which findings were derived. Reviewed papers were acquired from Google Scholar in the English language. The search was restructured to the use of the keywords or terms and by the use of the conjunction "AND" in the identification of information published between 2015 – 2020. The search was limited or narrowed to Uganda's context. Some of the material was not considered because it did not fall in the current years' bracket selected, while some were rejected on the basis of irrelevancy in terms of context and content. A total of 13 documents were reviewed as indicated in Appendix 1. The review was conducted using the steps of the scoping review approach as shown in Table 1.

Table 1: Scoping Review Process

Activity	Results
1. Identify the research question	What is the relationship between contract administration and road project performance in Uganda?
2. Identify key terms and use them to find pertinent studies	The following terms were used for primary search data. 1. contract administration 2. construction contract administration 3. contract administration on road projects in Uganda 4. performance of road construction projects in Uganda 5. contract administration and performance of projects in Uganda
3. Select related studies	Literature review was conducted from 13 documents on road construction projects in Uganda including
4. Extract main themes	Major themes were extracted from the literature in step 3 above.
5. Consolidate, summarise and report findings	The study consolidated and summarised findings from step 4 and presented them in this paper as below.

4. Results and Discussion

This section presents the literature findings and the themes relating to contract administration.

4.1 Construction Contracts

It is indisputable that the construction industry is a complex one which also requires a lot of resources, and yet it is exposed to a lot of uncertainty. In a bid to handle all the complexities involved in developing a construction project, construction contracts are often drafted (Larasati et al., 2021). A construction contract, therefore, provides a framework for how work will be conducted or delivered on a given project. It is thus vital in the implementation of any construction project and can influence its chances of progress (Larasati et al., 2021). However, a key feature is to recognise that each construction project is unique, and thus a one size fits all contract does not work. Contracts are drafted to capture all the distinguishing factors of each construction project (Gunduz and Elsherbey, 2020). According to Khekale and Futane (2013:1), "construction project contracts are agreements made by construction project owners (contract issuing parties) and construction enterprises (contractors) according to basic construction procedures in order to complete specific construction and installation projects and to define the rights and obligations of both parties". This signifies that construction project contracts are not about laying guidelines for competitors but associates of a project; in other words, those that have a role to play in the execution of the construction project. The role that contracts play in the construction industry cannot be downplayed because a vast majority of construction projects are executed with contracts in force (Bajeerao and Kanade, 2018). The contract, in this case, is more of an agreement stipulating the obligations or responsibilities of all party's privy to the contract. The governing rule is that the contractor ought to perform their duties as expected, while the contract issuing party has to remunerate the contractor as agreed upon in the contract (Bajeerao and Kanade, 2018). They are vital for the successful execution and completion of construction projects.

4.2 Construction Contract Administration

Construction contract administration means performing a series of coordinated activities to achieve project goals and objectives as stipulated under the contracts in force (Gunduz and Elsherbeny, 2020). However, construction projects are often faced with several challenges despite being executed with contracts. The contract administration process is thus complex and, if poorly administered, can result in poor project performance (Gunduz and Elsherbeny, 2020). Proper contract administration is necessary to address the potential loopholes that may jeopardize the performance of construction projects and also ensure that all contracting parties meet their contractual commitments (Gunduz and Elsherbeny, 2020). This implies that the failure of parties to a contract to meet their contractual commitments is a sign of poor contract administration. On the other hand, poor construction administration results in inefficiencies in construction processes (Gunduz and Elsherbeny, 2020). Therefore, in terms of assessing the rate of return from capital invested in construction projects whose contracts are poorly administered, it is deemed to be low. Gunduz and Elsherbeny (2020) provide a number of domains that constitute poor construction contract administration. According to their study, poor construction contract administration may refer to: "poor planning; poor communication and coordination; lack of systems; misunderstanding of processes; lack of skilled personnel; unclear roles; lack of training; and lack of performance measurement metrics". Thus, good construction contract administration calls for addressing the domains above. Finally, all daily activities and operational decisions are important in ensuring that contracts are properly administered.

4.3 The Approaches of Contract Administration

In the construction industry, projects are fundamental, and each project is expected to have a contract that provides a framework for its execution. The successful execution of projects does not depend on how good a contract is but on how the contract is administered. Therefore, the administration of contracts is a fundamental part in the overall management of projects in the construction industry. Ntiyakunze (2011) notes that the relevance of contracts administration in the execution of projects in the construction industry is gaining wide attention due to the increase in large volumes of contracts across borders which is attributed to globalization. However, despite the increase in the volume of contracts, existing literature exposes many loopholes in the construction industry, thus portraying that there are existing shortfalls in the administration of contracts. This calls for addressing the shortfalls in contract administration to boost the performance of projects in the construction industry.

From existing literature, "construction contracts administration" is perceived as a third-party contractual relationship related to a construction project. Construction contract administration is expected to commence as soon as a contract is signed until the project is completed. In this setting, the contract administrator is the third party and usually, the contract administrator is identified by titles such as "Engineer, Supervisor Representative or Project Manager" as required in a given setting (Elawawy, 2020). The role of the contract administrator includes implementing the contract, monitoring and evaluating daily activities, handling claims and grievances, ensuring performance measures and standards are adhered to, collaborating and communicating with all parties involved, fulfilling and following up on payments, variations and change orders, rectifying any defects, commissioning and handing over the project (Ofori, 2014). While the contract administrator has a lot of authority in the execution of a given project, the overall success of the project depends on teamwork and therefore, project activities are expected to be executed as a team, with each team member having a defined role. For example, the project quantity surveyor manages claims and payment applications, the project planner assesses time extensions, the field inspector examines the physical work which has been executed, and the senior technical engineer manages information requests as well as requests for drawings and submittals. To attempt to control the conflicting

loyalties or unintended outcomes in other areas due to activities carried out, supervision and monitoring are needed. In addition to being benchmarks for other projects, well-managed contracts can act as risk management tools for the parties involved (Joyce, 2014). It is thus imperative to evaluate how administering contracts affects the performance of road construction projects.

As earlier established, there is existing knowledge on contract administration focused on different aspects of construction projects. However, there is hardly any scientific research investigating how contract administration influences the performance of road construction projects based on the available literature reviewed. Thus, previous researchers have not been able to empirically correlate the two variables. Reviewed literature has discussed aspects related to barriers to effective contract administration and hindrances to sustained consistent performance but left out the influence of contract administration practices on project performance. However, there are available studies that have established the relationship between other practices to project performance, such as procurement, risk management and monitoring and evaluation. Other studies that have attempted to delve into contract administration have focused on the interaction of processes, language and grievance management with project performance. The limited reference to contracts administration and the absence of research correlating contracts administration and project performance presents a knowledge gap in the road construction industry and particularly in project implementation.

4.4 Performance of Uganda's road sector:

Performance refers to achieving a task based on the approved parameters set to measure performance or in other words, performance standards (Muzaale and Auriacombe, 2018). Different indicators are used to measure project performance but in the road construction sector, time, cost and quality are the main parameters. Other projects consider client satisfaction, and investment return, among other factors. From the perspective of the road construction sector, performance measurement is looked at from the angle of the contractor, project owner and road user (Seninde, Muhwezi and Acai, 2021). This means that performance indicators may differ based on the actors involved. For example, the contractor's performance indicator may be investment return while for the project owner, minimizing costs. On the other hand, road users will care about the quality of the road. This implies that balanced parameters have to be considered for measuring performance to fill the needs of all parties involved.

4.5 Factors affecting the performance of the road construction sector in Uganda

There is a large body of knowledge reporting the different challenges faced in Uganda's road sector. Seninde, Muhwezi and Acai (2021) summarize these challenges into shortages or inadequacies of resources and supplies. Other challenges they highlight include poor budget allocations, time constraints, poor designs, incompetent staff and site-related challenges. Management is also considered a key issue which hampers the successful execution of road construction projects (Seninde, Muhwezi and Acai, 2021). Abarinda, Kibwami and Tutesigensi (2019) observe that the challenges faced in the roads sector in Uganda are not any different from those faced elsewhere. These challenges include high production costs, delays, shoddy work and low innovation. In some instances, there is wastage or underutilization of resources, all of which negatively affect project performance. The study also reports that UNRA still faces inefficiencies in procurement and construction management which have resulted in spikes in time overruns and project costs. Quality, cost and time overruns are considered the biggest hindrances to successful construction projects in Uganda (Abarinda, Kibwami and Tutesigensi, 2019).

In terms of project financing, Muzaale and Auriacombe (2018) reported that delays in payment affect the performance of road construction projects because they minimize the likelihood of having them completed within the designed timeframe and that they also have an implication on cost and

quality parameters. Some roads in Uganda have been suspended due to a shortage of funds while others have been delayed. Other issues that interfere with road construction projects include delays in procurement and land acquisition which create gaps that prolong the commencement of road construction projects. Another big concern is the failure to adhere to construction schedules. This is prevalent in Uganda's construction industry and results in time overruns due to changes in project scopes.

4.6 Contract Administration of Road Construction Projects in Uganda

A couple of researchers have gained interest in the administration of contracts of road construction projects in Uganda. A study by Aluonzi, Oluka and Nduhura (2016) deduced that there was a positive relationship between contract management and the performance of road construction projects in Uganda. This study looked at contract management in different dimensions paying attention to relationship management, grievance handling, payment mechanisms, communication channels and contract variations. The study concluded that resources were essential for contract administration of road construction projects in Uganda and thus contract administrators or managers needed to be supported to be in position to execute their works accordingly. However, in the study, it was also noted that despite the progress in road construction projects in Uganda, the performance remained poor showing constraints in contracts administration. Some of the reported highlights included project delays, shoddy works, lack of records and inadequate management of funds. In fact, it was recognised that less than a quarter of road construction projects in Uganda were completed on time (Aluonzi, Oluka and Nduhura, 2016). Much as the study mentioned aspects of Contract Administration, the general objective was to establish a relationship between contract management and the performance of maintenance projects. It indicated that there were gaps in contract administration that were limiting the performance of road maintenance projects.

It is stated that successful contract administration activities have an impact on the progress of road construction projects (Byaruhanga and Basheka, 2017). This is because contractors are able to meet the needs of their clients or key stakeholders and execute the projects awarded to them under the expected boundaries. Therefore, as individuals, contractors play a significant role in the progress of road construction projects and thus hiring competent contract administrators is important for the success of any given road construction project. Byaruhanga and Basheka (2017) have reported that some of the challenges faced in contract administration are procurement challenges where contracts are awarded to incompetent contractors. The implication of this is that incompetent contractors fail to monitor and evaluate projects and face challenges in the administration of contracts. In this case, constraints are faced with appraisal systems, payments are delayed and inexperienced professionals are left to handle the projects (Byaruhanga and Basheka, 2017). The study of Byaruhanga and Basheka (2017) recommends the adoption of systems that can appraise contractors and their supervisors and strict compliance mechanisms.

Another study by Seninde, Muhwezi and Acai (2021) emphasizes that project financing factors are some of the hindrances to good contract administration. In the study, the constraints to good contract administration are classified into challenges of inadequacies, poor relationships with clients and consultants and incompetence of contractors. The study further highlights those incompetent contractors are often challenged with estimation issues and design challenges and use improper techniques and tools for site supervision and project works. Therefore, if the contract administrator lacks the capacity to mobilize, manage funds and conduct due diligence, then there will be probable challenges with the progress of road construction projects (Seninde, Muhwezi and Acai, 2021).

Muzaale and Auriacombe (2018) note that the complexity of road infrastructure projects has an influence on contract administration. Some of the challenges are poor workmanship and in particular, road construction projects are also affected by procurement and supervision. In their study, Muzaale and Auriacombe (2018) stress how poor planning, site management, supervision and inadequacies in experience, finance, raw materials and labour can negatively influence road

construction projects. It is in fact noted that entities like the Uganda National Roads Authority have been dealing with challenges such as this for a long time and are most likely to keep dealing with them unless interventions are proposed and followed through. Additionally, it is documented that delays in road construction works are in most cases associated with how contracts are administered (Muzaale and Auriacombe, 2018). This means that delays are a result of the contractor's actions. When contractors poorly do their work, the results will be reflected in poor workmanship. Against this background it was recommended that contractors should be highly qualified, professional and uphold the integrity and ethical code that is expected of them because their actions largely influence project outcomes (Mwelu, Davis, Ke and Watundu, 2018).

Another challenge faced in contract administration is that of many projects happening at the same time (Ayebare, 2019). When multiple projects are undertaken simultaneously, supervision becomes a challenge and thus results in inefficiencies. However, on the contrary, having colliding projects is also a sign of poor planning from the onset because if the planning is good initially, future projects would be provided for in their own time (Ayebare, 2019).

In addition, Waiswa (2018) examined CA and the performance of road works projects. He specifically examined the effect of contract implementation procedures on the performance of road works projects and established the effects of contract monitoring and control on the performance of road works. The case study was done on Kampala Capital City Authority's Mud Dust Program in Kololo and Industrial Area. A review of his study reveals that contract administration was limited to only aspects of contract implementation procedures and contract monitoring and control. This study covers procurement management, risk management and project supervision and control under contract administration. Secondly, the study area covered by the case study projects is far too narrow to represent Kampala District later on Uganda at large. This study will cover projects within the central region of Uganda.

However, this study seeks to identify the contract administration practices (considering the definitions provided in the earlier section) and establish a scientific relationship between the two variables in an ongoing research study from which a contract administration strategy will be developed.

Appendix 1 presents the trend of research topics that have formed the basis of studies within the area of performance of road construction projects in Uganda over the past eight years.

5. Conclusion and Further Research

Several studies have been conducted on the performance of road construction projects; few have been done on Contracts Administration. However, even the few that have been done in the area of Contracts Administration, none has picked keen interest in correlating Contracts Administration and performance of road construction projects in absolute terms. This paper through the literature review has identified a knowledge gap which needs to be filled in the author's ongoing research.

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Appendix 1: Summary literature review of contracts administration and road projects

	Author	Road Projects	Contract Administration	Performance	Results
1	ALUONZI, G., N. OLUKA, P. AND NDUHURA, A. 2016	✓	x	✓	Contract Management and Performance of Road Maintenance Projects: The Case of Arua Municipality
2	AYEBARE, A. 2019	✓	x	✓	Monitoring And Evaluation Practices And Performance Of Road Infrastructure Projects In Uganda: A Case Of Uganda National Roads Authority-Unra.
3	BANYENZAKI, M. 2015	✓	x	✓	Contract Management Practices And Performance Of The Road Construction Projects In Wakiso District -Uganda.
4	BYARUHANGA, A. & BASHEKA, B. C. 2017	✓	x	✓	Contractor Monitoring and Performance of Road Infrastructure Projects in Uganda: A Management Model
5	ELONG, S., MUHWEZI, L. & ACAI, J. 2019.	✓	x	✓	Assessment of the Challenges and Effects of Delays in Compulsory Land Acquisition on the Performance of Road Construction Projects in Uganda
6	MUHWEZI, L., MUSHIME, F. T. AND ONYUTHA, C. 2020	x	x	✓	Assessment of the Effects of Procurement Planning Processes on Performance of Construction Contracts in Local Governments in Uganda.
7	MUZAALE, T., AURIACOMBE, C. & BYARUHANGA, A. 2018	✓	x	✓	Performance of Road Infrastructure Projects in Uganda: A Procurement Approach.
8	MWELU, N., DAVIS, P., KE, Y. AND WATUNDU, S. 2018	✓	x	x	Compliance within a Regulatory Framework in Implementing Public Road Construction Projects
9	MWELU, N. & DAVIS, P. 2019	✓	x	x	Success factors for implementing Uganda's public road construction projects
10	NUWATUHAIRE, B & TIBIHIKIRRA, P. 2020	✓	x	✓	Establishing Whether Stakeholder Participation In Planning Influences Road Transport Sector Performance Of Bushenyi District Local Government In Uganda
11	ONYAITI, J. S. 2018.	✓	x	✓	Contract management and road construction project performance under the municipal infrastructure development program: a case study of Soroti Municipal Council.
12	SENINDE, S., MUHWEZI, L. AND ACAI, J. 2021	✓	x	✓	Assessment of the Factors Influencing Performance of Road Construction Projects in Uganda: A Case Study of Ministry of Works and Transport.
13	LABAN, F. 2018.	✓	✓	✓	Contract Administration and Performance of Kampala Capital City Authority's Road Works: A case of Mud and Dust Program.