EVALUATING THE KEY ROLES OF CONTRACT ADMINISTRATORS IN THE ZAMBIAN CONSTRUCTION INDUSTRY

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ABSTRACT

The nature of the construction contract administrator's role from project commencement to completion is multifaceted and complex. Additionally, successfully performing the role, requires various skills. Different perspectives exist on what contract administrators do and what competencies are necessary for the day-to-day administration of a construction contract. The aim of the study was to determine contract administrators' key roles in the Zambian construction industry. This study provides literature that gives an understanding of what role contract administrators should fulfil. Having this knowledge will enable them to carry out their functions effectively and this will foster completion of construction projects within the stipulated conditions of the contracts. This research shows the key roles of a contract administrator at the various stages of construction that are categorised depending on a particular stage of construction. These roles include risk-related, cost, schedule, procurement, integration and resource-related roles.

Keywords: Contract administrator role, construction industry, construction projects, conditions of contracts

INTRODUCTION

Construction is the execution of work as required by contract documents. It is a coordinated effort of all those activities necessary to effect and determine the fulfilment of contract requirements. The construction team is made up of various stakeholders, including contractors, subcontractor's, architects, engineers, suppliers, product representatives and contract administrators. The team members commitment to communication, coordination and corporation can greatly affect the attitude of project team members as they achieve a successful project constructed within a stipulated budget and time (William, 2019).

The principle of 'a contract' is that two or more parties, all of whom have the necessary legal capacity to contract, reach consensus about certain commitments that must be performed (Mwanaumo, *et al.* 2017). This basic principle is also relevant within the construction industry, where a contract is created between a client and a building contractor. A substantial amount of contractual administrative work takes place from the inception of the construction contract until all commitments have been fulfilled and the contract is concluded. This process is known as contract administration (*Ibid*).

The basic concept of contract administrator is that he or she is an independent person who should have extensive contract knowledge and function as an unbiased

mediator dedicated to managing the contractual relationship between the client and the contractor (Yarbrough, 2021). The contract administrator is expected to assist the client and the contractor in completing the construction fairly, within the agreed budget, expected quality and time-frame (Klee, 2018).

Client satisfaction is of the utmost importance to ensure future development prospect and sustainability within the construction industry. Considering the importance of client satisfaction. Klee (2018) argues that the contract administrator's position is of utmost importance. Based on the premise that the contract administrator is a key independent role-player in the construction contract, it could also be expected that there would be clarity with regard to the roles and responsibilities of the contract administrator. However, Gunduz (2020) opines, that the misunderstanding of roles and responsibilities is one of the reasons for poor, construction contract administration.

The nature of the contract administrators role in administering a construction contract from project commencement to completion is multifaceted and complex. Various skills are needed to perform the role of a contract administrator successfully. Relative attention has been paid to understanding what contract administrators do when engaged in the business of contract administration (Gunduz *et al.,* 2020). There is no comprehensive research that has been conducted to ascertain the roles and functions of contract administrators, to inform, and provide empirical knowledge on specific competencies to perform roles efficiently (Klee, 2019). The aim of the study was to determine contract administrators' key role in the Zambian construction industry. The research question adopted was, what are the key roles of contract administrator's in the Zambian construction industry?

Contract Administration

The duration of contract administration is largely dependent on the project life cycle. If there are any changes made to the initial contract, it could increase or reduce the contract period, which then either prolongs or reduces the process of contract administration (Yarbrough, 2021). Poor contract administration procedures will undoubtedly result in increased costs, cause delays in the contract execution and expose the contracting parties to unanticipated legal risks.

The Contract Administrator

The person who administers the construction contract between the client and the contractor is known as the contract administrator (Waters, 2020). This person is to carry out or oversee the tasks necessary for the running of an organisation and manage the affairs of an institution or organisation. Besides that, Putliz (cited in Construction World, 2018) continues to note that the contract administrator must be a registered professional with a bachelor's degree in the built environment.

Klee (2018), argues that the great significance of the contract administrator is to assist in completing a project successfully and fairly, and in compliance with the

contract, all while attaining the desired quality standard within the contractual time frame and doing so at the specified cost. To clarify the contract administrator's setting within a construction project, Klee (2018) identified the following arrangements: (1) the 'employers' agent' (the contract administrator, or referred to as 'The Engineer'), (2) the 'employer's representative' (usually in the case of smaller projects), and (3) the 'construction manager' (usually without the responsibility for design and works). In fact, according to Hughes *et al.,* (2015) the principal function of the contract administrator is to deliver professional skills and experience to the client by fulfilling the dual roles of providing effective design and ensuring that the design is followed during the construction phase.

According to Richards (2017), the different construction built environment professions' definitions of the contract administrator (principal agent) gave rise to the premise that the term 'principal agent' is misunderstood. The principal agent is the person identified in terms of various documents but not limited to the contract (such as the JBCC) and letter of appointment who acts as the principal agent of the department and has delegated powers (with restrictions) to act on behalf of the director general of the client. The Procurement of Consulting Engineering Services in the Construction Industry Guide for Consulting Engineering Firms ambiguously describes the principal agent as 'the professional service provider appointed as such' (CESA, 2009).

The Key Roles of Contract Administrator's

The two distinct 'key roles' of the contract administrator as submitted by McMullan (2019) are: (1) To perform a variety of duties to represent the principal, either explicitly or implicitly; (2) the superintendent must carry out specific evaluation and certifier duties. The second role is agreed upon between the client (Principal) and the contractor when entering the contract.

Furthermore, Waters (2020) noted that the contract administrator's range of responsibilities are guided by the construction contract in place and the Client/ Consultant Agreement under which the contract administrator is appointed. It is further pointed out that the project size and type will also determine the range of responsibilities; for example, the responsibilities for a small residential project will be different from that of a large commercial project.

In addition, Hughes *et al.,* (2015) echoes this viewpoint that the contract administrator's duties usually depend on the type of construction project and the construction contract. The RICS, identifies the contract administrator's responsibility as encompassing a wide range of potential services and projects and depending on the type of construction agreement and the authority under which the contract administrator is appointed. Cunningham (2016) maintains that the contract administrator's employment is, likely, the most important appointment by the client and observes how wide-ranging and challenging the contract administrator's tasks are. This claim stands to be true considering the consequence of poor contract

administration. Disputes in the construction industry are regular, occurring for various reasons. One such reason is poor, contract administration, such as neglecting to maintain schedules of information required and issued (Mwanaumo, 2017). The contract administrator is responsible for convening meetings regularly and distributing accurately recorded meeting minutes timeously. Furthermore, the contract administrator must ensure that the contractual stipulations are complied with.

Moreover, when assessing the role of the contract administrator (Principal Agent) across the Zambian Construction Built Environment professions, the function of the contract administrator in terms of the legal relationship between the client and the contractor under the building agreement, as well as how the role of the contract administrator is unclear. Furthermore, in the *Role of the Engineer in the FIDIC 2017 Edition* (Elliott, 2021), lists contract administrator's roles which are largely project management related. As King (2021) pointed out, the engineer's (Contract Administrator's) role is more akin to the project manager position in NEC contracts. That said, the roles include:

(i) Notifying the contractor of commencement date, not less than 14 days before that date;
(ii) Reviewing programmes;
(iii) Measuring the works;
(iv) Issuing payment certificates;
(v) Issuing instructions (including for variations);
(vi) Ensuring that the personnel of the contractor act professionally and safely and removing them from the site if they do not;
(vii) Inspection and testing of the works;
(viii) Issuing notices to correct failures;
(ix) Issuing Taking-Over Certificate(s);
(x) Issuing the Performance Certificate; and
(xi) Assessing and making a neutral determination.

Key Findings of Literature Review

(i) The position of contract administrator is likely the most important appointment by a client.
(ii) The contract administrator's tasks are wide ranging and challenging.
(iii) The contractor's roles and responsibilities are often misunderstood.
(iv) The contract administrator is expected to deliver professional skills and experience to the client.
(v) The contract administrator is expected to be adequately educated to manage and administer the construction contract.
(vi) The Zambian Built Environment professions are confused regarding the contract administrator definition and how the role of contract administrator is derived.

METHODOLOGY

According to Kothari (2004), research methods are the techniques available to the researcher to conduct the research. The quantitative approach is ideally suited for the researcher who first wants to collect data to understand, which variables to study, where after the variables will be studied with a sample of individuals (Creswell, 2003). Therefore, the current study adopted a quantitative approach to obtain quantitative data.

However, a research strategy is the approach to answering the research question, explaining the research objectives, planning how the data will be collected, and considering the research constraints (Al-Ababneh, 2020). The survey strategy encompasses various procedures that involve asking questions from a selected group of participants and then analysing the answers collected. Survey strategies can be effective for cross-sectional and longitudinal research projects. A questionnaire, belonging to the survey strategy group, was considered the most suitable data collection technique for the current study.

The questionnaire for this study comprised multi-choice questions, Likert-type questions, closed questions, and open-ended questions. Multi-choice questions allow the researcher to have reasonable control over the answers, however, it does require careful planning (Wilkinson and Birmingham, 2003). As Saunders *et al.* (2007) point out, Likert-style questions provide rating scale answers to choose from; the answers will usually vary from negative to positive. Closed-ended questions are often used in questionnaires and usually restricts the answers to a simple yes or no. Open-ended questions are often used for qualitative research because it allows the participant to view their opinion (Creswell, 2003).

Development of Research Instrument

Onwuegbuzie and Frels (2016: 60) point out that instruments are 'tools used for facilitating the fulfilment of one or more of the following research objectives: explore, describe, explain, predict, influence'. Instrumentation could threaten the validity of the data collected; therefore, careful consideration must be given to developing the research instruments. By making use of a questionnaire as a survey strategy, the collected data is usually easily compared, easy to explain and easy to understand (Saunders *et al.,* 2007). It was, therefore, important that the questionnaire was well-planned to provide reliable and valid data. To maximise the quality of the responses and to avoid participants abandoning the questionnaire at an advanced stage, the questionnaire duration was planned to be no longer than twenty minutes.

Population and Sampling

Probability sampling is not recommended for a sample size of less than 50. For this study, the most suitable sampling method was non-probability sampling. However, due to anticipated difficulty in identifying these individuals and aiming to target specific professionals with contract administration experience, two techniques were used. Purposive sampling when working with small samples and focusing on characteristics of the target population; and Snowball sampling, is

used when it is difficult for the researcher to identify the individuals within the target population (Saunders *et al.,* 2007). Furthermore, the target population were registered professionals aged between 25 and 65 years in the fields of architecture, quantity surveying, engineering and project management who have been appointed as contract administrators within the last five years.

Data Analysis

The aim of any research is to collect and analyse data that will ultimately answer the research question. A broad explanation of 'analysis' is that it is a process whereby collected data is unpacked into smaller parts with the intention to obtain a greater and more in-depth understanding of the premise that the data represents (Onwuegbuzie and Frels, 2016).

The quantitative data for this study will be analysed by means of the descriptive statistic method. This is 'the kind of information presented in just a few words to describe the basic features of the data in a study such as the mean and standard deviation'. Diagrams are often used with exploratory data analysis and with descriptive statistics and then the data is described and compared numerically.

FINDINGS

Question 01 required the participants to confirm that they have acted as contract administrators within the last five year. A negative response to this question prevented the participant from partaking in the survey. The restriction was a countermeasure to potential misunderstanding from the professionals and/or contractors who provided the names of contract administrators they have worked with. Two participants answered 'No' to this question, representing 5 per cent of the 40 participants. Three participants (7.5%) did not complete the questionnaire in full and these questionnaires were not included in the analysis. Five participants (12.5%) did not respond on the invitation to participate.

Table 1: Summary of Questionnaires Administered to Consultants who Acted as Contract Administrators and Responses Received

Companies	Questionnaires Administered		Questionnaires Completed	
	Number	%	**Number**	%
RDA Lusaka	5	12.5	3	10
RDA Kabwe	5	12.5	3	10
Neer Construction Ltd	10	25	9	30
Simwi Construction Ltd	10	25	7	23.3
Unik Construction Engineering Ltd	10	25	8	26.7
Total	**40**	**100%**	**30**	**75%**

These questions addressed the participant's professional fields registrations as well as project and contract administrator experience. Twenty-seven per cent of

the participants 'current professional field of operation is Construction Project Management of which 20 per cent were male, followed 27 per cent of the participants in the field of Electrical and Mechanical split into 6 per cent male and 6 per cent female (Figure 1).

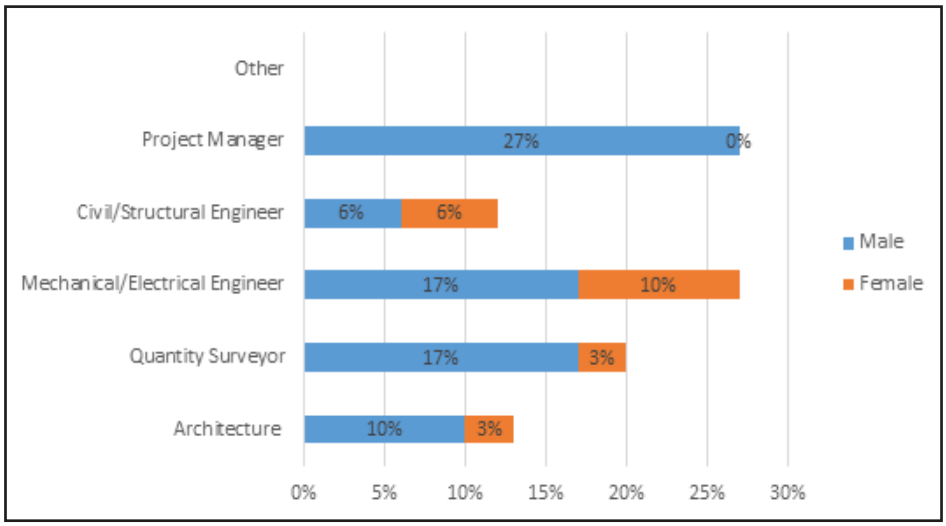

Figure 1: Participant's Field of Operation

Thirty-seven per cent of the participants were registered as professional project manager, 30 per cent male and 7 per cent female. Only two participants held more than one professional registration (Figure 2).

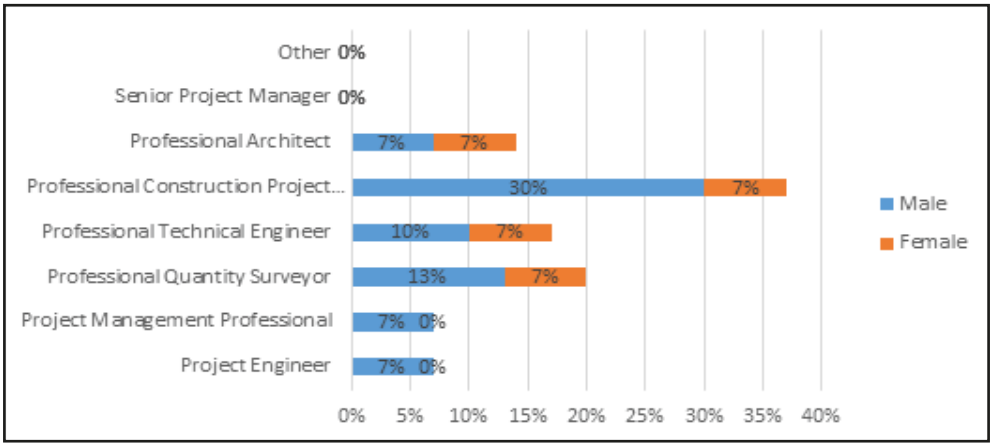

Figure 2: Participants' Professional Registrations

Forty-six per cent of the participants had more than 20 years' experience as consultants, and 30 per cent had more than 20 years as contract administrators (Figure 3).

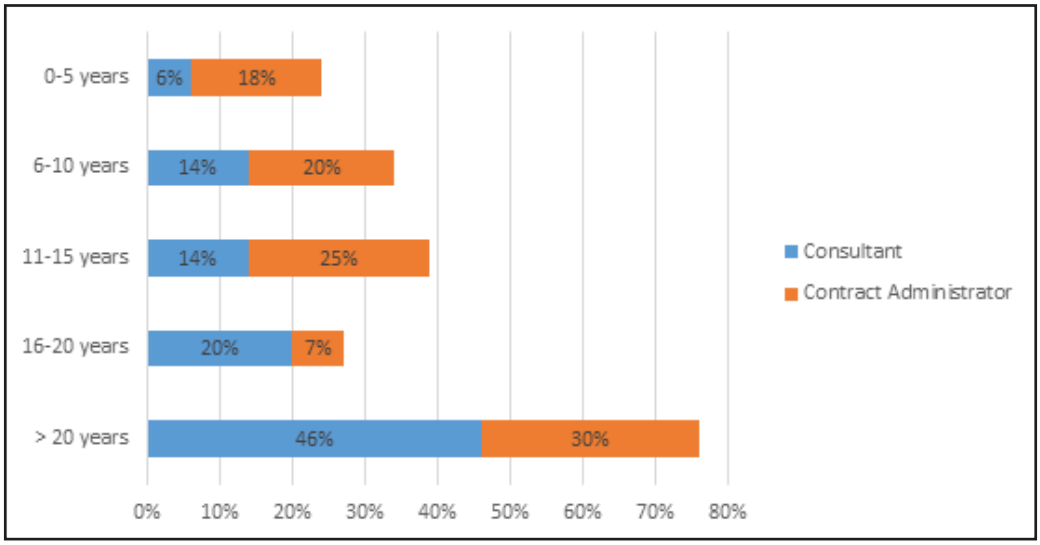

Figure 3: Participants' Years' Experience as Consultants and as Contract Administrator

Most participant's organisational setting was private limited companies (86%) and 14 per cent of the participants were in public limited companies only (Figure 4).

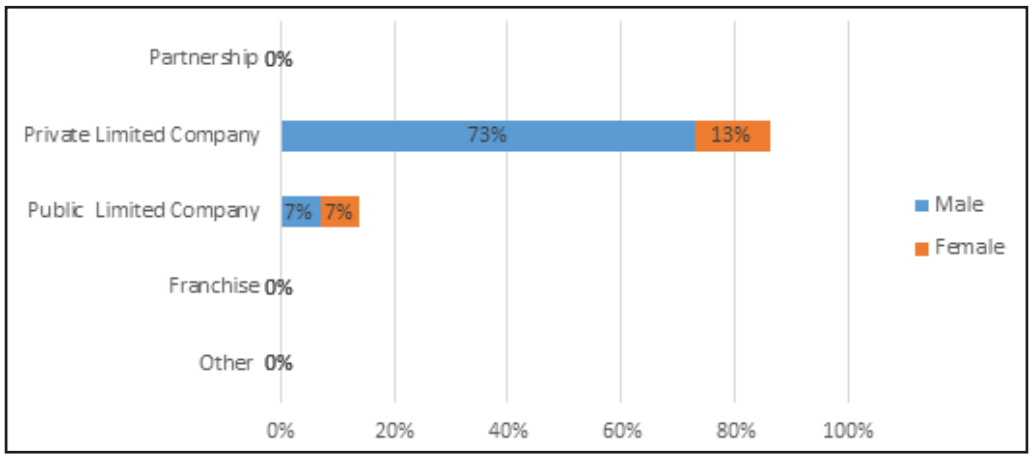

Figure 4: Participants' Organisational Environment

Most participants (72%) held senior or executive positions, three participants in the position of chief executive officer's, four were managing directors, six were senior project managers, four were senior associates and four were assistant engineers. The remainder fulfilled positions ranging from general manager (one), senior manager (two), director (two) (Figure 5).

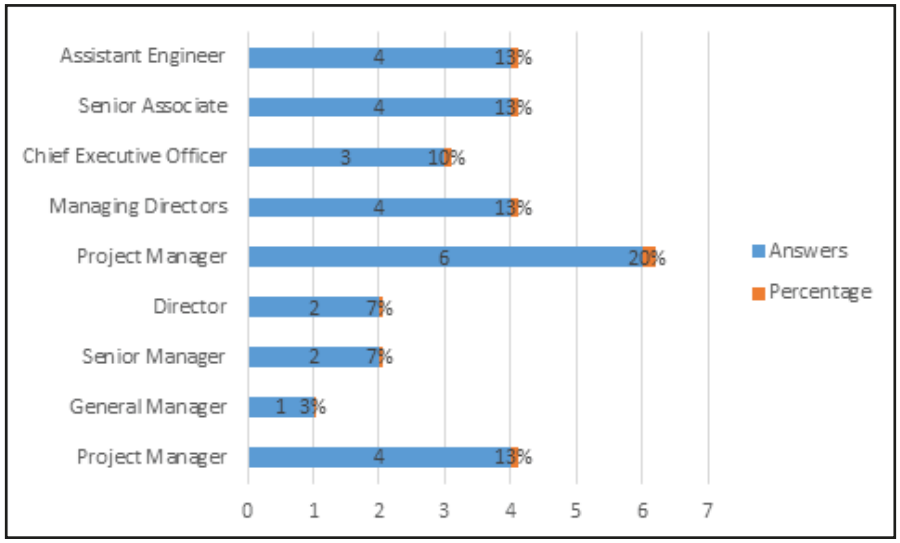

Figure 5: Participants' Positions in their Organisations

In terms of organisation existence, 13 per cent of the organisations had existed for more than 20 years, and a further 10 per cent of the organisations had existed for 16 to 20 years. Only 3 per cent of the organisations were in their infancy, existing for less than five years (Figure 6). Most participants had been employed by their current organisations between six and ten years (30%), 3 per cent between zero and five years and 13 per cent between 11 and 15 years. Only 10 per cent of the participants were employed with their current organisations for 16 to 20 years, and 7 per cent for more than 20 years (Figure 6).

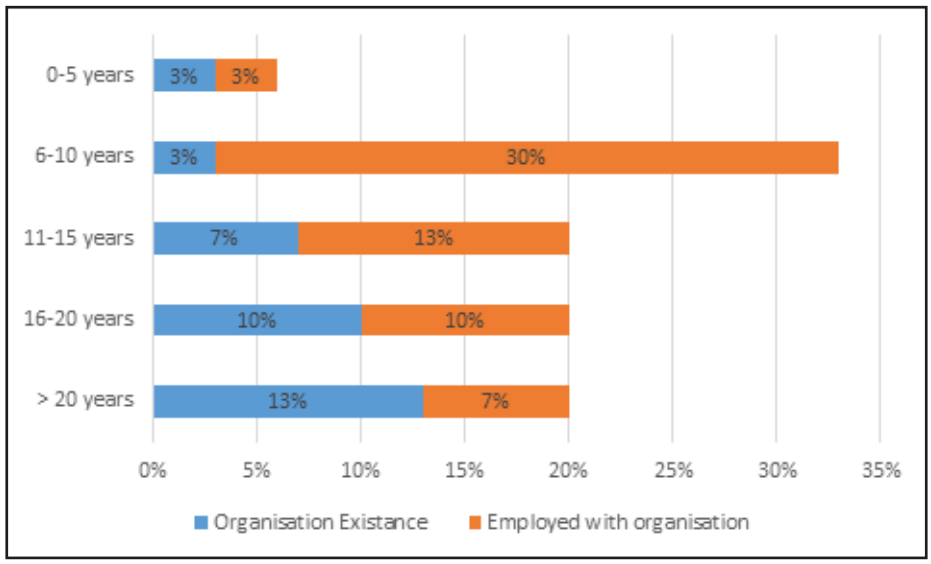

Figure 6: The Number of Years the Participant's Organisations Existed and Participant's Employment Duration

Types of Projects

Question 13, 14, 15 and 16 did not limit the participant's answer selection to one option, allowing them to choose more than one option. The rationale was that consultants might have an even spread of projects, for example, projects ranging from commercial to industrial, and consultants might have certain clients who prefer certain types of contracts for different types of projects. The construction projects mostly worked on were building projects with 43 per cent followed by institutional and commercial at 27 per cent (Figure 7).

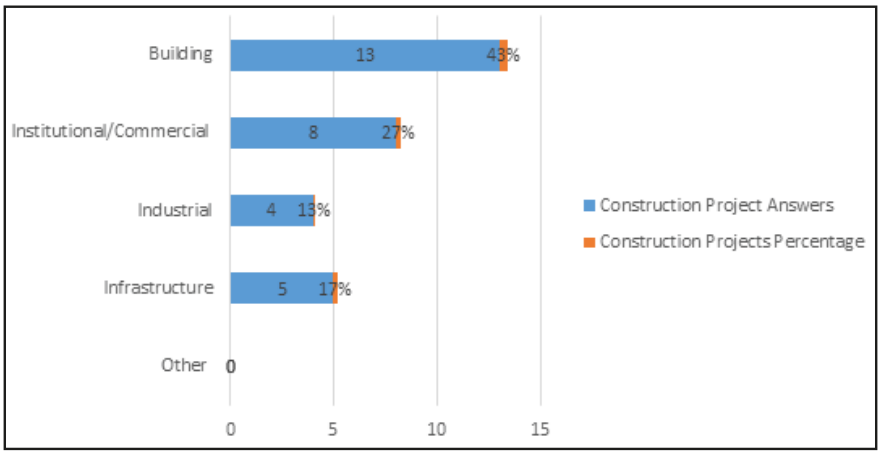

Figure 7: Types of Projects

Value of the Project's Participants

Seven per cent of the participants had mostly worked on projects of more than K100 million in the last five years, while 30 per cent of the participants worked on projects with values ranging between K50 million and K100 million (Figure 8).

Figure 8: Value of the Project's Participants were Mostly Involved With

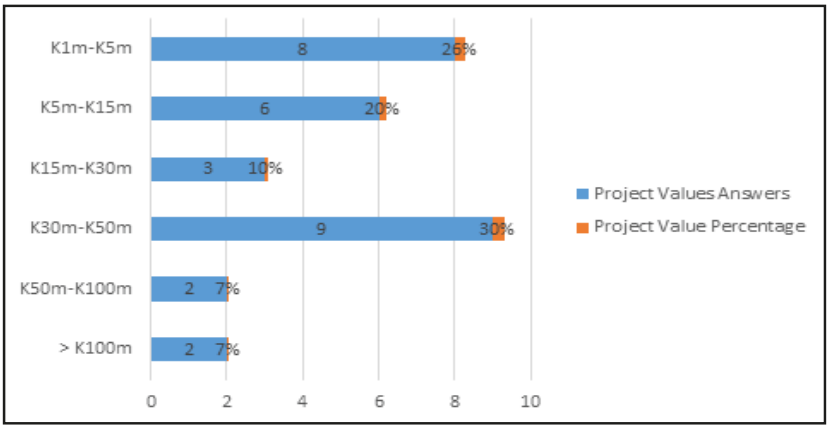

Table 3: Client/Consultant Agreements and Construction Contracts Used

The GCC was the most used construction contract, followed by NEC as shown in Table 4.3.

Key Roles of Contract Administrator

Participants were presented with five functions and asked to rank them in order of importance. As per the participant's responses, the most important function of the contract administrator is administration of the construction contract (Table 4). The scale was set as follows:

Data Scale	Range Set for Weighted Score (WS)
1=5	1= 4.21 ≤ WS ≤5.00
2=4	2= 3.41 ≤ WS ≤ 4.20
3=3	3= 2.61 ≤ WS ≤ 3.40
4=2	4= 1.81 ≤ WS ≤ 2.60
5=1	5= 1.00 ≤ WS ≤ 1.80

Table 4: Contract Administrators' Function as Ranked by Participants

	Very Important		Important		Unimportant	WS
Contract Administrator's Functions	**1**	**2**	**3**	**4**	**5**	
Administration of the construction contract	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**
Administration of the relationship between the client and the contractor	3 10%	7 23%	8 27%	5 17%	7 23%	**2.80**
Arranging and conducting site meetings	4 13%	6 20%	10 33%	3 10%	7 23%	**2.90**
Inspection and certification of the work	0 0%	9 30%	7 23%	8 27%	6 20%	**2.63**
To act as a quasi-adjudicator	5 17%	4 13%	4 13%	10 33%	7 23%	**2.67**

All participants stated that the contract administrator has a significant role to play from project inception to the signing of the construction contract between the client and the contractor. Participants were presented with nineteen key roles and asked to rank them in order of importance. As per the participant's responses, the key roles at this stage of construction were gotten using the analysis in Table 5.

Table 5: Contract Administrators' Key Roles Between Project Inception and Signing of the Construction Contract Ranked by Participants

Key Roles	SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean	σ	Decision
Procurement strategy and plan in terms of project cost confirmation, payment terms, and duration of the contracts	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.67	High Perception
Ensuring that the works are carried out and are progressing in accordance with the contract terms	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.80**	0.22	Low Perception
Contract compilation, review of contractual documentation, and ensure the tender contract data is accurate	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.23	High Perception
Managing the commissioning of works	0 0%	9 30%	7 23%	8 27%	6 20%	**2.56**	0.98	Low Perception
Formal appointments of contractors and manage the signing of the different contracts	4 13%	6 20%	10 33%	3 10%	7 23%	**4.90**	2.56	High Perception
Liaising with and instructing the main contractor of the project	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.21**	0.99	Low Perception
Procure the correct professional consultants in accordance with the requirements of the project scope, and ensure professional consultants' contracts are in place	0 0%	9 30%	7 23%	8 27%	6 20%	**3.63**	1.45	High Perception
Inspecting and managing the defects and ensuring that such defects are remedied within the stipulated time frame	0 0%	9 30%	7 23%	8 27%	6 20%	**2.22**	0.98	Low Perception
Coordinating and monitoring the professional team	5 17%	4 13%	4 13%	10 33%	7 23%	**4.67**	2.22	High Perception
Certifying works and issuing the relevant certificates (if applicable)	18 60%	4 13%	1 3%	4 13%	3 10%	**2.55**	1.00	Low Perception
Ensuring that the project cost is within the project budget	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.53	High Perception
Ascertaining variations and determining applications or requests for an extension of time	18 60%	4 13%	1 3%	4 13%	3 10%	**2.17**	0.92	Low Perception
Determine the project budget	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.46	High Perception
Liaising with and instructing the main contractor of the project	18 60%	4 13%	1 3%	4 13%	3 10%	**2.08**	0.77	Low Perception
Define the scope and confirm the required specifications., with the client including project budget and time frames	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.87	High Perception

Record keeping such as records of site visits, site inspections, correspondences, invoices, and payment slips	18 60%	4 13%	1 3%	4 13%	3 10%	**2.98**	0.56	Low Perception
Defining the scope of the work, ensuring the inclusion of all the required disciplines such as civil, structural, electrical, mechanical, etc	18 60%	4 13%	1 3%	4 13%	3 10%	**4.80**	2.56	High Perception
Other								

Note: N = 30, SA =Strongly Agree; A= Agree; N= Neutral D =Disagree SD= Strongly Disagree; Weighted average= 57.18/18 =**3.18**

The decision is based on the perception of the respondents. This is acquired by using weighed average value. To calculate the weighted average value, the summation of all the mean values is gotten and then divided by the total number of items/key roles; in this case, eighteen. The key roles that have a value greater than the weighted average value 3.18 (High perception) are regarded as the key roles of contract administrators between project inception and the signing of the construction contract.

Key Roles of Contract Administrator

Participants were presented with eighteen key roles and asked to rank them in order of importance. As per the participant's responses, the key roles at this stage of construction were gotten using the analysis in Table 6.

Table 6: Contract Administrators' Key Roles Once Tender has been Awarded Ranked by Participants

Key Roles	**SA (%)**	**A (%)**	**N (%)**	**D (%)**	**SD (%)**	**Mean**	**σ**	**Decision**
There needs to be trust between the contractor, the principal agent and professional team	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.67	High Perception
Ensuring that the works are carried out and are progressing in accordance with the contract terms	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.80**	0.22	Low Perception
Record-keeping, documentation management, and contract administration	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.23	High Perception
Managing the commissioning of works	0 0%	9 30%	7 23%	8 27%	6 20%	**2.56**	0.98	Low Perception
Monitor the performance of the contractor in terms of cost, time, quality, and scope	4 13%	6 20%	10 33%	3 10%	7 23%	**4.90**	2.56	High Perception
Liaising with and instructing the main contractor of the project	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.21**	0.99	Low Perception

Collecting and ensuring that the necessary insurances, permits, tax clearances and guarantees are in place	0 0%	9 30%	7 23%	8 27%	6 20%	**3.63**	1.45	High Perception
Inspecting and managing the defects and ensuring that such defects are remedied within the stipulated time frame	0 0%	9 30%	7 23%	8 27%	6 20%	**2.22**	0.98	Low Perception
Ensuring all contractual requirements, agreements, drawings, and other necessary documents are completed and in place before construction commences	5 17%	4 13%	4 13%	10 33%	7 23%	**4.67**	2.22	High Perception
Certifying works and issuing the relevant certificates (if applicable)	18 60%	4 13%	1 3%	4 13%	3 10%	**2.55**	1.00	Low Perception
Facilitate with the signing of construction contract between the employer and contractor	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.53	High Perception
Ascertaining variations and determining applications or requests for an extension of time	18 60%	4 13%	1 3%	4 13%	3 10%	**2.17**	0.92	Low Perception
Issuing award letters in accordance with tender	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.46	High Perception
Liaising with and instructing the main contractor of the project	18 60%	4 13%	1 3%	4 13%	3 10%	**2.08**	0.77	Low Perception
Ensuring contract documentation and criteria is thorough and comprehensive with clear deliverables in terms of scope, time, cost, and quality of workmanship	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.87	High Perception
Record-keeping such as records of site visits, site inspections, correspondences, invoices, and payment slips	18 60%	4 13%	1 3%	4 3%	3 10%	**2.98**	0.56	Low Perception
Team coordination and establishing team rapport	18 60%	4 13%	1 3%	4 13%	3 10%	**4.80**	2.56	High Perception
Other								

The decision is based on the perception of the respondents. This is acquired by using weighed average value. To calculate the weighted average value, the summation of all the mean values is gotten and then divided by the total number of items/ key roles; in this case, eighteen. The Key roles that have a value greater than the weighted average value 3.18 (High perception) are regarded as the key roles of contract administrators once the construction tender has been awarded.

Key Roles During Construction

Participants were presented with eighteen key roles and asked to rank them in order of importance. As per the participant's responses, the key roles at this stage of construction were gotten using the analysis in Table 7.

Table 7: Contract Administrators' Key Roles During Construction as Ranked by Participants

Key Roles	SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean	σ	Decision
Monitor and control the programme	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.67	High Perception
Ensuring that the works are carried out and are progressing in accordance with the contract terms	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.80**	0.22	Low Perception
Program risk identification	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.23	High Perception
Managing the commissioning of works	0 0%	9 30%	7 23%	8 27%	6 20%	**2.56**	0.98	Low Perception
Adjudication of contractual claims	4 13%	6 20%	10 33%	3 10%	7 23%	**4.90**	2.56	High Perception
Liaising with and instructing the main contractor of the project	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.21**	0.99	Low Perception
Checking payment and evaluation of variations	0 0%	9 30%	7 23%	8 27%	6 20%	**3.63**	1.45	High Perception
Inspecting and managing the defects and ensuring that such defects are remedied within the stipulated time frame	0 0%	9 30%	7 23%	8 27%	6 20%	**2.22**	0.98	Low Perception
Cost control and budget management	5 17%	4 13%	4 13%	10 33%	7 23%	**4.67**	2.22	High Perception
Certifying works and issuing the relevant certificates (if applicable)	18 60%	4 13%	1 3%	4 13%	3 10%	**2.55**	1.00	Low Perception
Monthly certification of works and preparation of payment certificates	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.53	High Perception
Ascertaining variations and determining applications or requests for an extension of time	18 60%	4 13%	1 3%	4 13%	3 10%	**2.17**	0.92	Low Perception
Risk mitigation	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.46	High Perception
Liaising with and instructing the main contractor of the project	18 60%	4 13%	1 3%	4 13%	3 10%	**2.08**	0.77	Low Perception
Managing the procurement of subcontractors	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.87	High Perception
Record keeping such as records of site visits, site inspections, correspondences, invoices, and payment slips	18 60%	4 13%	1 3%	4 3%	3 10%	**2.98**	0.56	Low Perception
Compliance and implementation of contractual requirements	18 60%	4 13%	1 3%	4 13%	3 10%	**4.80**	2.56	High Perception
Other								

Note: N = 30, SA =Strongly Agree; A= Agree; N= Neutral D =Disagree SD= Strongly Disagree; Weighted average= 58.5/18 =**3.25**

The decision is based on the perception of the respondents. This is acquired by using weighed average value. To calculate the weighted average value, the summation of all the mean values is gotten and then divided by the total number of items/

key roles; in this case, eighteen. The key roles that have a value greater than the weighted average value 3.18 (High perception) are regarded as the key roles of contract administrators during the construction stage.

Key Roles Once Project is Completed

Participants were presented with eighteen key roles and asked to rank them in order of importance. As per participant's responses, the key roles at this stage of construction were gotten using the analysis in Table 8.

Table 8: Contract Administrators' Key Roles During Construction as Ranked by Participants

Key Roles	SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean	σ	Decision
Managing the project close-out processes such as final accounts	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.67	High Perception
Ensuring that the works are carried out and are progressing in accordance with the contract terms	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.79**	0.22	Low Perception
Coordinating the submission of final completion reports from various consultants	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.23	High Perception
Managing the commissioning of works	0 0%	9 30%	7 23%	8 27%	6 20%	**2.56**	0.98	Low Perception
Payment valuation end issuing of payment certification	4 13%	6 20%	10 33%	3 10%	7 23%	**4.90**	2.56	High Perception
Liaising with and instructing the main contractor of the project	3 (15%)	7 (26%)	5 (20%)	6 (23%)	9 (45%)	**2.21**	0.99	Low Perception
Quality control inspections, defects lists and allocating time-frame for defect repairs	0 0%	9 30%	7 23%	8 27%	6 20%	**3.63**	1.45	High Perception
Inspecting and managing the defects and ensuring that such defects are remedied within the stipulated time-frame	0 0%	9 30%	7 23%	8 27%	6 20%	**2.22**	0.98	Low Perception
Functioning testing is carried out to ensure product delivers as per design	5 17%	4 13%	4 13%	10 33%	7 23%	**4.67**	2.22	High Perception
Certifying works and issuing the relevant certificates (if applicable)	18 60%	4 13%	1 3%	4 13%	3 10%	**2.55**	1.00	Low Perception

Coordinate and conduct practical work and final completion inspections	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.53	High Perception
Ascertaining variations and determining applications or requests for an extension of time	18 60%	4 13%	1 3%	4 13%	3 10%	**2.17**	0.92	Low Perception
Prepare and issue defects lists and inspect until all defects have been attended to	18 60%	4 13%	1 3%	4 13%	3 10%	**4.00**	2.46	High Perception
Liaising with and instructing the main contractor of the project	18 60%	4 13%	1 3%	4 13%	3 10%	**2.08**	0.77	Low Perception
Defects liability management	3 10%	7 23%	8 27%	5 17%	7 23%	**3.80**	1.87	High Perception
Record keeping such as records of site visits, site inspections, correspondences, invoices, and payment slips	18 60%	4 13%	1 3%	4 13%	3 10%	**2.28**	0.56	Low Perception
Contract claim resolution	18 60%	4 13%	1 3%	4 13%	3 10%	**4.80**	2.56	High Perception
Other								

Note N=30, SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD; Strongly Disagree; Weighted average=50/18=2.80

This decision is based on the perception of the respondents. This is acquired by using weighted average value. To calculate the weighted average value, the summation of all the mean values is gotten and then divided by the total number of items/ key roles; in this case, eighteen. The key roles that have a value greater than the weighted average value 2.80 (High perception) are regarded as the key roles of contract administration once the construction stage has been completed.

Best Suited Profession as a Contract Administrator

Participants were asked which profession they consider to be the best suited to fulfil the role of the Contract Administrator and they were provided with the following options in this multi-choice question: 'Construction Project Manager', Quantity Surveyor', 'Architect', 'Civil/Structural Engineer', 'Mechanical/Electrical Engineer' and 'Other'. Twenty (67%) participants opined that the best suited professional to act as a contract administrator is a construction project manager. Quantity surveyors were considered best suited by three (10%) participants, and civil/structural engineer by five participants (17%) (Figure 9).

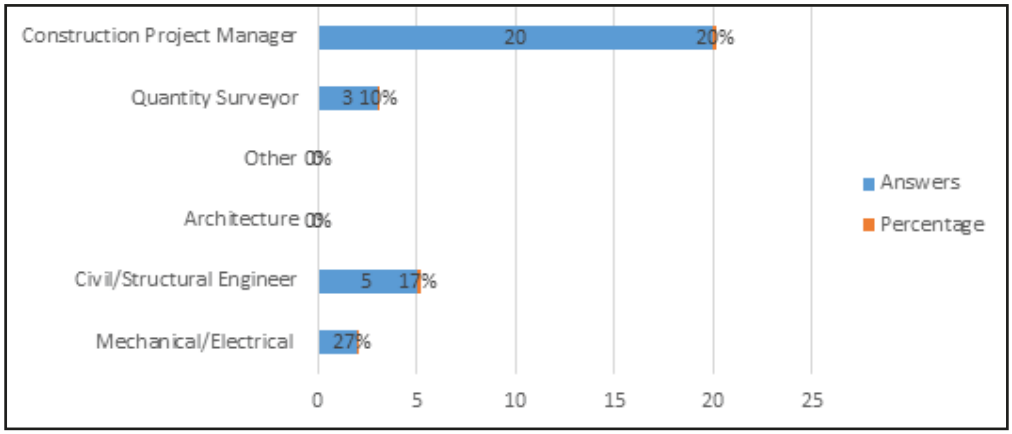

Figure 9: Best Suited Professional to Act as Contract Administrator

Knowledge of Contract Law

Participants were asked how often they read journal articles relating to construction contract administration and/or contracts/contract law. This multi-choice question presented participants with the following options to choose from: 'Never', 'Occasionally', 'Sometimes', 'Often' and 'Always'. The most response was 'Sometimes' (50%) followed by 'Occasionally' (27%). Other participants selected 'Often' (8%) acknowledged reading articles on a weekly basis, and one participant indicated that they do not read articles related to contract administration and/or contracts/contract law (Figure 10).

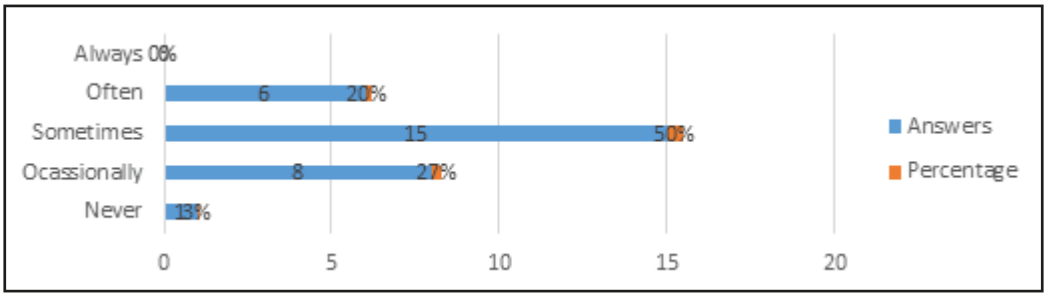

Figure 10: Journal Articles Relating to Contract Law

Participants with Newsletter Subscription

The number of participants that subscribe to newsletters related to contract administration and/or contracts/contract law was nineteen (63%) (Figure 11).

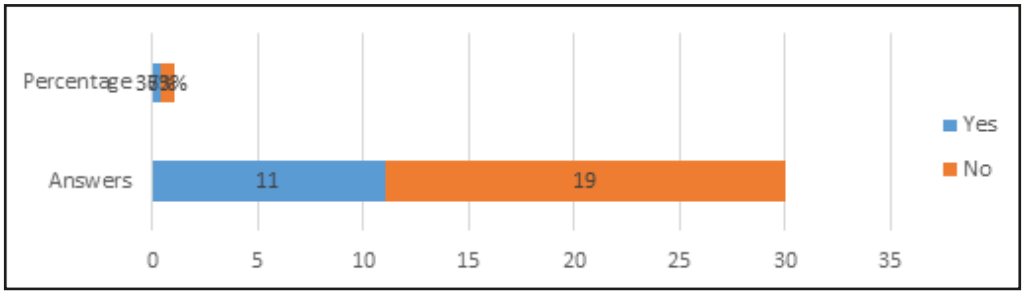

Figure 11: Contract Law Newsletter Subscription

Understanding of Contract

The participants were asked to rate their understanding of Zambian Contract Law. This multi-choice question presented participants with the following options: 'I'm an expert', 'I have a fairly good understanding', 'I have an average understanding', 'I need to pay more attention to this' and 'I have no clue'. As indicated in Figure 4.23, only two participants considered themself an expert in the field of Zambian Contract Law. The remainder of the participants were divided between having a fair understanding (50%) and having an average understanding (27%).

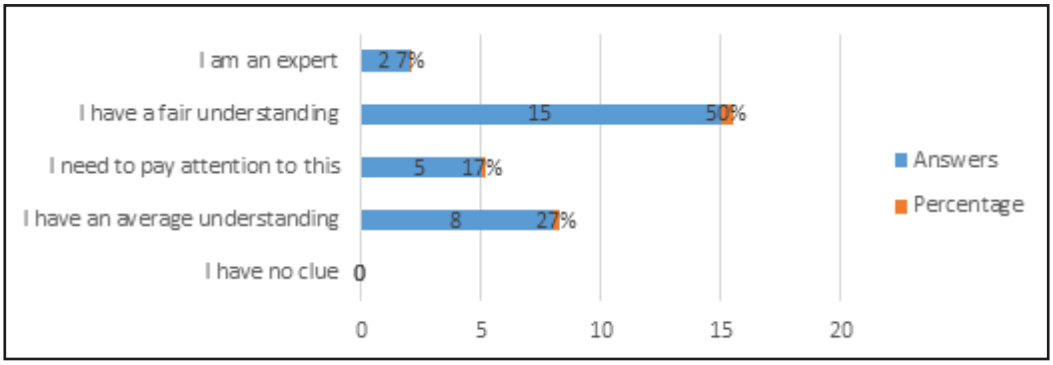

Figure 12: Understanding Zambian Contract Law

CDP Courses

The number of participants that rely solely on CPD courses to further advance their contract administration and construction contract knowledge is 18, equating to 60 per cent of the participants (Figure 4.24).

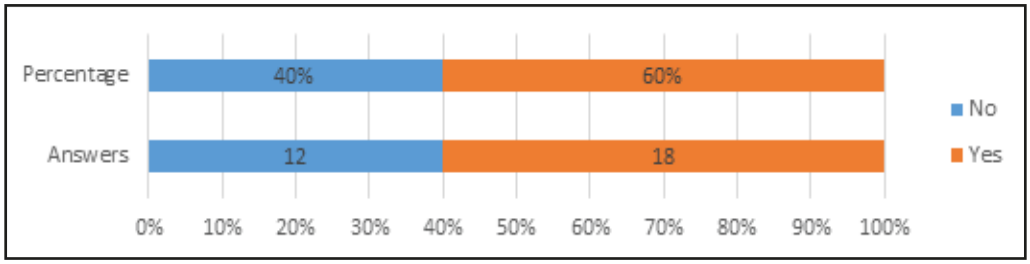

Figure 13: CPD Courses

Participants Attendance in Contract Courses

Fourteen (47%) participants indicated that they attend courses only once a year relating to construction contracts. Eight participants attend courses as often as possible, and a staggering seven (23%) participants never attend courses relating to construction contracts (Figure 4.25).

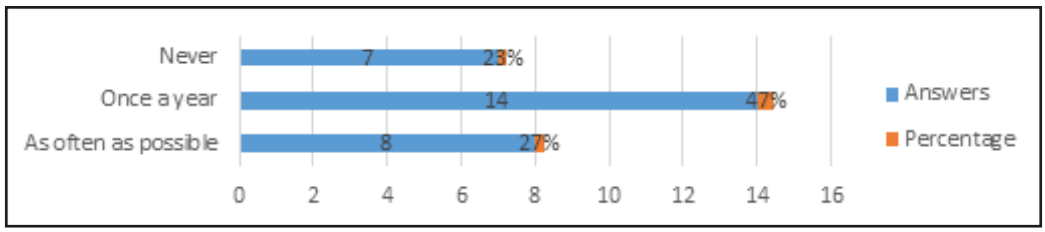

Figure 14: Construction contract course attendance

DISCUSSION OF RESULTS

The Key Roles of the Contract Administrator

It has been highlighted that, in the context of the study, the word 'key' is defined as 'of crucial importance; significant'. (Key, n.d.). The word 'role' is described as 'your role is your position and what you do in a situation or society' (role, n.d.) As a result, the 'key roles' of the contract administrator are those tasks of critical importance when appointed to assist both the client and the contractor in completing the construction contract fairly, within the agreed budget and within the agreed time-frame.

Most of the participants indicated that the most important function of the contract administrator is to 'administer the construction contract'. This function is a broad description considering the many administrative functions, but the objective was to determine what the participants categorised as 'Most Important'. The data analysis confirms the findings in the literature review that the contract administrator's role is complex (McMullan, 2019), the roles and responsibilities are often misunderstood (Gunduz and Elsherbeny, 2020), and the tasks are wide-ranging (RICS, 2011) and challenging (Cunningham, 2016).

To determine what the contract administrator does from project inception to project close-out, the closed-ended questions 19 to 22 addressed four stages of a project life cycle: before construction contract signing, once the contract has been signed, during construction and after construction.

Key Roles from Project Initiation to Signing the Construction Contract

According to the FIDIC Agreement, the period from project inception to the signing of the construction contract include stages one to four. there are no services required from the contract administrator at stages one and two, which is in contrast to the participant's viewpoint that the contract administrator has a significant role to play from project inception to the signing of the construction contract. The participants' answers also contribute to Richard's (2017) point of view that there are inconsistencies relating to the scope of services for the role of the contract administrator (principal agent) in the FIDIC Agreement. Little involvement is required from the contract administrator in stage three, according to the FIDIC Agreement; however, in stage four, the contract administrator is required to play a significant procurement-related role.

Based on the respondent's answers received, scope-, cost-, resource-, and procurement-related roles stand out as the four most important categories before the construction contract is signed. It must be noted that answers related to resource and procurement can be intertwined; exempli gratia, the procurement of the correct professional consultants could be categorised as both procurement and resource-related roles. These answers are summarised in Table 1.

Seven answers related to scope had a high perception meaning they were viewed as key roles at this stage. Secondly, three cost-related responses referred to the project budget. Thirdly, 5 resource-related answers addressed the acquirement of resources, and the development, management and monitoring of the consultant team. Procurement-related attracted the most answers (7); however, most of the responses scaled it on the lower half of the importance scale.

Table 10: Summary of Key Roles before the Construction Contract is Signed

Procurement	• Procurement strategy and plan in terms of project cost confirmation, payment terms and duration of contracts. • Contract compilation, review of contractual documentation, and ensure the tender contract data is accurate. • Contract compilation, review of contractual documentation, and ensure the tender contract data is accurate. • Formal appointments of contractors and manage the signing of the different contracts.
Resource	• Procure the correct professional consultants in accordance with the requirements of the project scope and ensure professional. • Coordinating and monitoring the professional team.
Cost	• Ensuring the project cost to be within the project budget. • Determine the project budget.
Scope	• Define the scope and confirm the required specifications., with the client including project budget and time frames. • Defining the scope of the work, ensuring the inclusion of all the required disciplines such as civil, structural, electrical, mechanical, etc.

Key Roles as Soon as the Construction Contract is Signed (Question 20)

The participants' answers related to functions ranging from the periods before the signing of the construction contract through to the construction stage; *exempli gratia*, the answer 'ensuring tender documentation is thorough and comprehensive' would typically be a role before the construction contract is awarded, and the answer 'supervising works and inspecting works' would be a function during the construction stage. That said, according to the participants' answers, the functions categorised under procurement, risk, integration and resource-related roles are the four most important categories as soon as the construction contract is signed. These answers are summarised in Table 2.

The responses related to procurement functions totalled four. One answer related to risk-related roles. Project integration-related roles amount to seven. Three answers related to resources.

Table 11: Summary of Key Roles as Soon as the Construction Contract is Signed

Resource	• There needs to be trust between the contractor, the principal agent and professional team. • Team coordination and team rapport.
Integration	• Facilitate the handover of the site to the contractor and issuing relevant guarantees. • Monitor the performance of the contractor in terms of cost, time, quality, and scope. • Record-keeping, documentation management, and contract administration.
Risk	• Collecting and ensuring that the necessary insurances, permits, tax clearances and guarantees are in place.
Procurement	• Ensuring all contractual requirements, agreements, drawings, and other necessary documents are completed and in place before construction commences. • Facilitate with the signing of construction contract between the employer and contractor. • Issuing award letters in accordance with tender.

Key Roles During the Construction Stage of the Project (Question 21)

The participants' answers revealed that the four most important function categories during the construction stage of a project are procurement-, cost-, schedule and risk-related roles.

Four answers related to procurement-related roles. cost-related functions amount to 3, three answers are categorised under the schedule umbrella. Three answers related to risk-related roles.

Table 13: Summary of Key Roles During the Construction Stage

Risk	• Analysing risks • Risk mitigation • Risk management
Schedule	• Programme and project management • Programme risk identification • Monitor and control the programme
Cost	• Cost control and budget management • Checking payments, evaluation of variations and coordinating with all disciplines • Monthly certification of works and preparation of payment certificates
Procurement	• Management and administration of the construction contract • Management and administration of the construction contract • Adjudication of contractual claims • Manage the procurement of subcontractors

Key Roles Once the Construction Stage has been Completed (Question 22)

The answers received from the participants revealed that quality, scope, procurement and project integration-related roles emerged as the four most important function categories once the construction stage has been concluded. Table 5.4 captures the summarised answers.

Six answers related to quality-related roles. There were two scope-related answers. Three answers related to procurement-related roles. Most of the answers related to project integration-related roles with a total of eight answers.

Table 14: Summary of Key Roles once the Construction Stage has been Completed

Procurement	• Payment valuation and issuing of payment certificates • Contractual claim resolution
Integration	• Obtain feedback from the client, determine client satisfaction • Managing the project close-out process such as the final accounts and resolving outstanding /open contractual claims • Prepare and issue the final payment certificate • Prepare and submit the Project Close-out Report to the client • Coordination and submission of Construction Reports and as-built data to local authorities in the event of deviations • Coordinating the submission of the final completion reports from the various consultants
Quality	• Functional testing is carried out to ensure product delivers as per the design • Prepare and issue defects inspection lists and inspect until all defects have been attended to • Defects liability management • Coordinate and conduct practical, works and final completion inspections • Quality control inspections, defects list and allocating time frames for defects repairs
Scope	• Issue practical, works and final completion certificates • Ensure that work has been done in accordance with the specifications and to the right quality

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Key Roles of the Contract Administrator

The key roles were subdivided according to four stages of a construction project: before construction contract signing, once the contract has been signed, during construction and after construction.

1) *Key Roles from Project Initiation to the Signing of the Construction Contract:* Before the construction contract is signed, the contract administrator's involvement consists predominantly of scope-, cost-, resource- and procurement-related activities
2) *Key Roles as Soon as the Construction Contract is Signed:* Functions categorised under procurement-, risk-, integration- and resource-related roles are the four most important key roles as soon as the construction contract is signed
3) *Key Roles During the Construction Stage of the Project:* The four most important function categories during the construction stage of a project are procurement-, cost-, schedule- and risk-related roles
4) *Key Roles Once the Construction Stage has been Completed:* Quality, scope, procurement and project integration-related roles emerged as the four most important function categories once the construction stage has been concluded
5) *The Contract Administrator and Project Integration:* Throughout the project's life cycle, the key role of the Contract Administrator is that of an 'integrator', to identify, categorise, integrate, unify, communicate, and coordinate the numerous project procedures and activities, all within the constraints set by the relevant construction contract. Considering that construction contracts create a multifaceted framework comprising of interdependent design requirements, activity, contractor, client and stakeholder-coordination, construction claims, evaluations and certifications, disputes and problem-solving, specialised consultants and regulatory compliance, this function assumes added relevance

Recommendations

Having considered the findings of this study, the following recommendations are made:

(i) Construction contracts and appointment agreements to define and describe the roles of the contract administrator consistently.
(ii) Contract administrator appointment agreements to outline the qualifications and competencies required.
(iii) The Council for the Built Environment to consider the contract administrator as a specialist position, requiring specific competencies that are different from those of the typical Built Environment professionally registered consultants.

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