A CASE STUDY: EVALUATION OF ADJUDICATION AS A DISPUTE RESOLUTION METHOD – NEC AND FIDIC CONTRACTS

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MASTER OF ENGINEERING

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DECLARATION

I, Zizodwa Zizo Mkhize, hereby declare that this dissertation, except where indicated in the text, is the candidate's own work and has not been submitted in part or in whole at any other University or University of Technology.

This research was conducted at the Durban University of Technology under the supervision of Professor Dhiren Allopi.

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ABSTRACT

Construction development plays an important role in the development of South Africa, not only in respect of its built infrastructure, but also in its broader economic and social development. It also creates employment prospects on a broader scale. Construction contract adjudication has been introduced in South Africa by means of four forms of contracts endorsed by the Construction Industry Development Board. Amusan and Owolabi (2014) mention that the unfavourable outcomes of project objectives in terms of time, cost and quality are as a result of delays in construction projects. Although disputes may be unwanted, having suitable knowledge to manage disputes when they happen often provides better results for the disputants and the project. The study was conducted in an electricity generation organisation, which has various divisions and departments that develop and execute projects. Complex projects that require multiple interdivisional or external stakeholder interfaces are planned, developed and implemented in the Group Capital Division (GCD). The purpose of this research study was to evaluate whether the causes, practices and outcomes of the construction contract adjudication method for the Fédération Internationale des Ingénieurs-Conseils (FIDIC) were similar to those of New Engineering Contract (NEC) used for infrastructure construction projects. A mixed method by means of a case study was adopted to answer the research questions. Data were collected from an analysis of 33 study documents related to FIDIC and NEC contract case studies. The results of the study showed the following: 1) There are comparable causes of disputes among the two contracts, even though they vary in terms of ranking on each contract; 2) some of the disputes referred to adjudication could have been avoided; and 3) FIDIC and NEC complied with the adjudication practice, and the outcomes of the adjudications differed based on the merits of each case.

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LIST OF ABBREVIATIONS

ADR	Alternative Dispute Resolution
CAASA	Construction Adjudication Association of South Africa
CE	Compensation Event
CIDB	Construction Industry Development Board
CMO	Contract Management Office
DAB	Dispute Adjudication Board
DRBF	Dispute Resolution Board Foundation
ECC	Engineering and Construction Contract
FIDIC	French acronym for Fédération Internationale des Ingénieurs-Conseils
GCC	General Condition of Contract for Construction Works
GCD	Group Capital Division
ICE	Institute of Civil Engineers
JBCC	Joint Building Contracts Committee
MW	Megawatt
NEC	New Engineering Contract
SACPCMP	South African Council for Project and Construction Management Professions
SAICE	South African Institution of Civil Engineering

LIST OF SYMBOLS

%	Percent
R	Rand
$	Dollar

CHAPTER 1: INTRODUCTION

1.1 Research background

Construction contract adjudication was initially implemented in the United Kingdom through the Housing Grants Construction and Regeneration Act of 1996, which allows for an accelerated process that provides decisions on disputes. The resolution of disputes between contract parties is administered by an appointed intermediary third party known as an adjudicator. An adjudicator's conclusions and decisions are final and binding to the contract parties unless such decisions are later submitted for review to either arbitration or court proceedings (Ranasinghe and Korale 2011).

According to Arcadis (2016), a 'dispute' is explained as a circumstance where two parties usually have differences in the interpretation of a contractual right, which results in a decision under the contract to pursue a formal dispute. The first step in dispute resolution on construction projects across the South African construction industry which is accepted by the South African government and the Construction Industry Development Board (CIDB), is through construction contract adjudication. This has become a common practice between the public and private sectors as a mechanism that provides solutions for disputes in construction projects in the South African construction industry (Hattingh and Maritz 2015).

Construction contract adjudication has been introduced in South Africa in four CIDB-endorsed forms of contracts as the standard method of dispute resolution. Adjudication may be defined as an accelerated and cost-effective form of dispute resolution, which, unlike other means of resolving disputes, involves a third-party intermediary (Hatting and Maritz 2015). Previous researchers have suggested that contractual disputes may influence the business relationship between parties and that disputes in the South African construction industry are a common phenomenon (Povey, Cattell and Michell 2005).

Construction professionals involved in certifying or playing advisory or commercial roles in construction projects need to have a comprehensive understanding of the adjudication procedures, practices and implementation of these principles, which have become vital for any construction project. However, the current skill level for adjudication, and the understanding of the adjudication process and its impact on

projects, need to be researched. Besaiso *et al*. (2018) explain the importance of avoiding disputes by emphasising the need for site level employees to comprehend the conditions without necessarily memorising dozens of cases about specific clauses.

1.2 Research problem

Hattingh and Maritz (2015) mention that adjudication procedures have increased in frequency, especially in the South African construction trade industry, but warn about the shortage of knowledge on adjudication procedures in the industry. Eskom has been increasing its generation and transmission electricity capacity to supply and meet the country's growing demand for energy. Construction contracts have been awarded to local and international suppliers using different types of construction and engineering contracts. One of the reasons for awarding contracts to international suppliers is due to them being the original equipment manufacturers on some of the components installed in the power plant. The values of these contracts have varied from R1 million to R20 billion. Moreover, some of the contracts have been denominated in multiple foreign currencies, including the United States Dollar and the British Pound. During construction phases, disputes have arisen in some of the contracts between Eskom and its suppliers, which has led to some of the contracts being referred for adjudication by either Eskom or the contractor.

Eskom was established in 1926 and produces approximately 95% of the electricity consumed in South Africa and approximately 45% of the electricity distributed in Africa. Eskom produces, transfers and distributes electricity to industrial, mining, commercial, agricultural and residential customers and redistributors. It is the biggest power utility in South Africa and Africa, and has 47 000 employees. Projects are established and executed by different divisions and departments within the organisation. Complex projects that require multiple interdivisional and external stakeholder interfaces are planned, developed and implemented by the Group Capital Division (GCD).

As part of its mandate, Eskom is responsible for providing electricity in an efficient and sustainable manner, including its generation, transmission, and distribution and retail. The productivity of Eskom is driven by values such as integrity, customer satisfaction, excellence and innovation. In supporting the mentioned mandate, Eskom has embarked on building additional power stations and major power lines to meet the

increasing electricity demand in South Africa (Eskom 2019). The research will focus on Eskom construction contracts only.

1.2.1 Contracting strategy: Kusile and Medupi

Multiple contracts were placed for the design, manufacture, construction and commissioning of Medupi and Kusile. The turnkey contracting strategy was not deployed for the execution of contracts at Kusile and Medupi, because as a State-owned company, Eskom had to make an impact on the local economy through its contracting approach. At execution, the projects had multiple risks, which, if not treated properly could have led to contract variations and increased disputes on site. The FIDIC contract was used for the majority of packages at both power stations.

It is reported that Eskom paid out R14,8 billion towards the settlement of claims, which led to a total of R252,9 billion, and further pursued its own claims worth R2,6 billion against companies that failed to meet their contractual obligations (Burkhardt and Cohen, 2019).

1.2.2 Kusile Power Station

The Kusile Power Station project is situated in the Nkangala district of Mpumalanga. The Kusile Power Station comprises six units, each confirmed to produce 800 MW capacity with a total capacity of 4 800 MW. The operational life of the power station is estimated at 60 years. The total estimated cabling to be installed for Kusile Power Station is 5 300 km. The Kusile Power Station has awarded 130 infrastructure contracts. To date, 89 contracts have been completed. The contractor's personnel on site amount to approximately 21 000 and Eskom personnel about 400 (Eskom 2019). The Kusile project has approximately 74 contract packages. Table 1.1 below reflects the list of the Kusile infrastructure contract packages.

Table 1.1: Kusile Infrastructure contract packages

Land Surveying	Control and Instrumentation
Geotechnical Investigation	Permanent Plant Information Technology
Terrace Construction	Permanent Plant Communication
Railroad Construction	Material Handling Silos
Permanent Access Road	Combustion Waste Terrace Construction

Raw Water Pipeline	Fly Ash Material Handling Systems
Site Services	Combustion Waste Material Handling Systems
Construction Information Technology	Terrace Material Handling Systems
Construction Communication	Coal Stock Yard Material Handling Systems
Construction Security Services	Coal Mine Overland Coal Handling Systems
Medical Aid Services	Limestone Stock Yard Material Handling Systems
Construction Canteen Facility Services	Terrace Underground Facilities
Construction Village and Onsite Meal Services	Site Finishing
Main Civil Works	Low Voltage Switchgear
Turbine Generator Area	Medium Voltage Switchgear
Boiler Area	Generator Power Transformers (GSU)
Balance of Plant Mechanical	Unit Power Transformers
Chimney Construction	Auxiliary (SUS) Power Transformers
Substation and Transmission Lines	DC System and UPS
Miscellaneous Structures Construction	Diesel Generator
Water Treatment Systems	Mechanical and Electrical Maintenance Shop Equipment
Fuel Gas Desulphurisation Systems	Heavy Mobile Material Handling Equipment
Electrical and Auxiliary Power Construction	

1.2.3 Medupi Power Station

The Medupi project is a green field coal-fired power plant project situated west of Lephalale in Limpopo, South Africa. The name “Medupi” is a Sepedi word which means “rain that soaks parched lands, giving economic relief”. The estimated operating life of the station is 50 years. The new power station will comprise six units that will each produce 800 MW and an estimated total capacity of 4 800 MW. Construction activities started in May 2007. The boiler and turbine contracts for Medupi are the largest contracts that Eskom has ever signed in its 90-year history (Eskom 2019). Approximately 30 infrastructure contracts have been awarded for the Medupi Power Station. Refer to Table 1.2 for the list of Medupi contract packages.

Table 1.2: Medupi infrastructure contract packages

Coal Overland Conveyor	Control and Instrumentation
Boilers	Information Technology
Steam Turbine-Generators	Communication Systems
Low Pressure Services	Hydrogen and Nitrogen Plants
Water Treatment Plant	Laboratory
Chimney and Silos	Ash Dump and Dams Works
Main Civil Works	Diesel Generators

Technical Building Equipment	Land Surveys
Site Enabling Works	Coal Stockyard Equipment
Electrical Power Installations	Ash Dump Equipment
Low Voltage Switchgear	Reservoirs
Medium Voltage Switchgear	Dust Handling and Conditioning
Transformers	Terrace Coal and Ash System
Generator Transformers	Miscellaneous Infrastructure
DC Systems Uninterrupted Power Supply	Miscellaneous Buildings

1.3 Aim of the research

The aim of the study was to evaluate whether the causes, practices and outcomes of the construction contract adjudication procedure for mega projects (FIDIC) are similar to those of infrastructure construction projects (NEC).

1.4 Research questions

The research followed a qualitative analysis. Neither survey questionnaires, nor interviews were conducted. The study was mainly based on the project records, a literature review, books, internet-published papers and other applicable resources from the Eskom library. It was envisaged that the results of the research would assist Eskom's Dispute Adjudication Committee in mitigating future disputes and effectively managing future construction contract adjudications. Some of the key questions in the research were as follows:

- What key issues contribute to disputes in construction contracts?
- Are some of the disputes referred to adjudication avoidable?
- What is the comparison between the FIDIC and NEC method of adjudication?

1.5 Objectives

In order to fulfil the aim, the following objectives were set:

- To identify the main causes of construction contract disputes;
- To evaluate the appropriateness of adjudication practices; and
- To assess the outcomes of the adjudication process.

1.6 Limitations pertaining to the research

The research was conducted on Eskom contracts only because the results of the research will be unbiased as the contracts are managed by the same personnel, same skills set, following the same governance process. The institution executes the projects utilising the FIDIC and NEC contracts only. All Eskom personnel implement the approved type of contracts, terms and conditions (applicable Z clauses) of contracts by the legal department. The majoring of projects executed by Eskom are Electrical projects, the civil projects are very minimal therefore the institution does not use the JBCC and GCC contracts. The research focused on the principal or main contractors only as they had signed a direct contract with Eskom. In addition, all disputes with the client were between Eskom and the main contractor only.

The research was limited to FIDIC contracts at Eskom's Kusile and Medupi power projects, the results of which may not be applicable to all other power projects in Eskom and South Africa. NEC contracts were limited to the GCD in Eskom.

1.7 Importance of the study

During and after the construction phase of the projects, there were disputes between Eskom and the contractor, of which some were referred to adjudication by either the employer or the contractor. This adjudication/dispute process is catered for in all Eskom's contracts. The focus of this study was on the construction of the Medupi and Kusile power station projects in Eskom GCD as these are two mega projects with a budget value of R145 billion and R161 billion, respectively. In addition, due to the many disputes and adjudications in progress, these project costs could escalate even further.

The purpose of the study was to evaluate whether the causes, practices and outcomes of the construction contract adjudication procedure for mega projects are similar to those of infrastructure construction projects, for example, the NEC contracts. According to the Oxford Handbook of Megaproject Management 2017, "mega projects are large-scale, complex ventures that typically cost $1 billion or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people".

Techniques for the adjudication process on projects may vary depending on the type of contract selected for the implementation of that project. The methods used have certain elements in common, such as being cost effective, convenient and headed by a neutral third party. Heaphy (2013) states that FIDIC recommends Dispute Adjudication Boards (DABs) as the primary method of resolving disputes, followed by an amicable settlement and the arbitration method as the final resolution, whereas the NEC encourages adjudication then next is arbitration and litigation as the final resolution methods.

It is envisaged that the results of this research will assist Eskom in mitigating future disputes and effectively managing future construction contract adjudications. It will also add to the knowledge base of construction contract adjudication for large projects in developing countries.

1.8 Research structure and chapter overview

The dissertation comprises six chapters. The list of references and appendices follow last chapter.

Chapter 1

Introduction to the research study, and presentation of the research problem, research questions and aim of the research.

Chapter 2

In this chapter, the relation of proposed work to existing theory is dealt with by examining and exploring the available literature relating to the problem statement outlined in Chapter 1.

Chapter 3

This chapter comprises an outline of the adopted research method and how the data were collated and interpreted.

Chapter 4

Presentation of results and discussion of the findings.

Chapter 5

The advantages and disadvantages of the FIDIC adjudication process are dealt with in this chapter.

Chapter 6

The conclusions to this study are presented in this chapter. Some recommendations are provided based on discussions in Chapter 1, the literature research and the gathered/presented data.

CHAPTER 2: REVIEW OF RELATED LITERATURE

2.1 Introduction

In Chapter 1, the problem statement was introduced. In this chapter, the literature reviewed provides an overview of the knowledge available on the topic of this study, namely, the New Engineering Contract (NEC) and the Fédération Internationale des Ingénieurs Conseils (FIDIC) contracts adjudication methods. The dispute adjudication method and root causes of the adjudication are also explored.

2.2 Management of construction contracts

The Construction Industry Development Board (CIDB) Act, 2000 (Act No.38 of 2000) manages the entire construction industry and issues standards, directives and regulations that influence the management of the construction industry (CIDB 2005). The CIDB Act, 2000, supports the use of an approved CIDB standard form for contracts when conducting business with government entities.

Hughes and Murdoch (2008) found that contracts should include all the available dispute resolution methods, while CIDB (2005) mentions that standard forms of conditions of contract stipulate a framework that administers the process of risk apportionment by explaining the rights and obligation of both parties. Contract management outcomes that are effective are monitored through performance delivery from the appointed contractors and the opportunities savings attained (De Oliveira 2011).

2.3 Contract dispute resolution

Maritz and Mewomo (2015) state that globally the occurrences of disputes in the construction industry have had diverse consequences on construction projects.

Aitchson *et al*. (2021) mention that Energy sector construction disputes are typically linked with common themes of complex and sometimes new technology, low tolerance of defects and high thresholds for contractual and regulatory compliance. The projects in the energy sector include:

- Laying of pipeline
- Construction of power transmission infrastructure;
- Construction of power plants (ranging from traditional coal to nuclear power projects);
- Construction of liquefied natural gas (LNG) liquidation and regasification facilities;
- Development of facilities for the loading and unloading of oil and LNG;
- Construction of platforms and supporting facilities (storage tanks, processing facilities, pipes, etc.); and
- Development of solar and wind farms.

2.3.1 Defining a dispute

Storskrubb (2016) mentions that the term “adjudicate” is described as to “give a ruling” or “to judge”, and in later years, the term “adjudication” is used to describe a form of alternative dispute resolution (ADR) available to the construction industry. Ranasinghe and Korale (2011) define adjudication as a method of ADR used broadly in the construction industry.

2.3.2 Dispute resolution methods in South Africa

The CIDB (2015) standard for uniformity in construction procurement mentions four standard forms of construction contracts currently being used in the South African construction industry, namely:

- FIDIC (French acronym for Fédération Internationale Des Ingenieurs-Conseils)
- The Joint Building Contracts Committee (JBCC);
- The General Conditions of Contract for Construction Works 2010 (GCC 2010); and
- The New Engineering Contract (NEC3).

Project managers continuously assist clients or employers to decide on the best suited contractual arrangements for a project (CIDB 2005).

In December 2017, 18 years after FIDIC released its First Edition Rainbow Suite in 1999, FIDIC published Second Editions of the Red, Yellow and Silver Books as updates to the First Editions. The introduction of the 2017 Rainbow Suite was the latest significant landmark in the development of international contracting for major infrastructure projects worldwide. (Baker *et al* 2020)

The construction industry in South Africa provides job opportunities to almost 429 000 individuals and the entire industry is valued at approximately R145 billion (Bowmans 2016). Since South Africa is categorised as a developing country, it is also presented as one of the countries with a limited awareness and research on dispute resolution processes, especially focussing on adjudication and conciliation procedures (Hattingh and Maritz 2012; 2015). The adjudication process in South Africa is described as exorbitant and prolonged in the manner that it is addressed in South Africa, which defeats the point of ADR (Hattingh and Maritz 2015).

Yung and Rafferty (2014) found that in a case of settling claims in South Africa, adjudication

- Is less effective for smaller than larger cost claims;
- Has a lower rate of appeal, indicating that more of its dismissal decisions are fair; and
- Is generally becoming more popular by virtue of an increase in its uptake.

The main objective of the Construction Adjudication Association of South Africa (CAASA) is encouraging, promoting and developing effective processes that use adjudication as a way for resolving disputes in the South African construction industry. The CAASA provides platforms that are reachable, comfortable, regular, and open for engagements in construction adjudication issues and practices (Construction and Adjudication Association of South Africa. n.d.).

2.4 Dispute resolution methods endorsed in the standard forms of contract

The list of dispute resolution methods endorsed in the standard forms of contract and the applicable clauses are listed in Table 2.1 below. The two forms are developed internationally (FIDIC and NEC3) and the additional two forms are developed in South Africa (GCC and JBCC), as stated in Maritz and Mewomo (2015). This study focused on two of the contracts, namely the NEC and the FIDIC.

Archer and Stiegler (2021) state that a contractual dispute resolution clause sets out the mechanism by which parties intend to resolve any disputes that may arise out of their contract. While, more often than not, relegated to the tail end of a contract, these clauses can have a major impact on the manner in which a dispute is resolved and the parties' entitlements and obligations and can, ultimately, be pivotal to the outcome of a dispute.

New Engineering Contract (NEC) 4 2017 provides a two-tier approach with the first step being adjudication, and the second, in the event the dispute is not resolved, arbitration;

FIDIC 2017 suite follows a multi-tiered approach with the first step being referral to the Dispute Avoidance/Adjudication Board (DAAB) for a decision. If either party is unhappy with the DAAB decision, it gives a notice of dissatisfaction within 28 days and, if it cannot be resolved through amicable settlement, final determination is by arbitration

Table 2.1: Dispute resolution methods in South Africa

Contract Type	Adjudication/Dispute Adjudication Board	Arbitration
FIDIC	Clause 20.2	
NEC	Clause W1.1	
GCC	Clause 10 GCC	Clause 10 GCC
JBCC	Clause 30.3	Clause 30.5, Clause 30.7

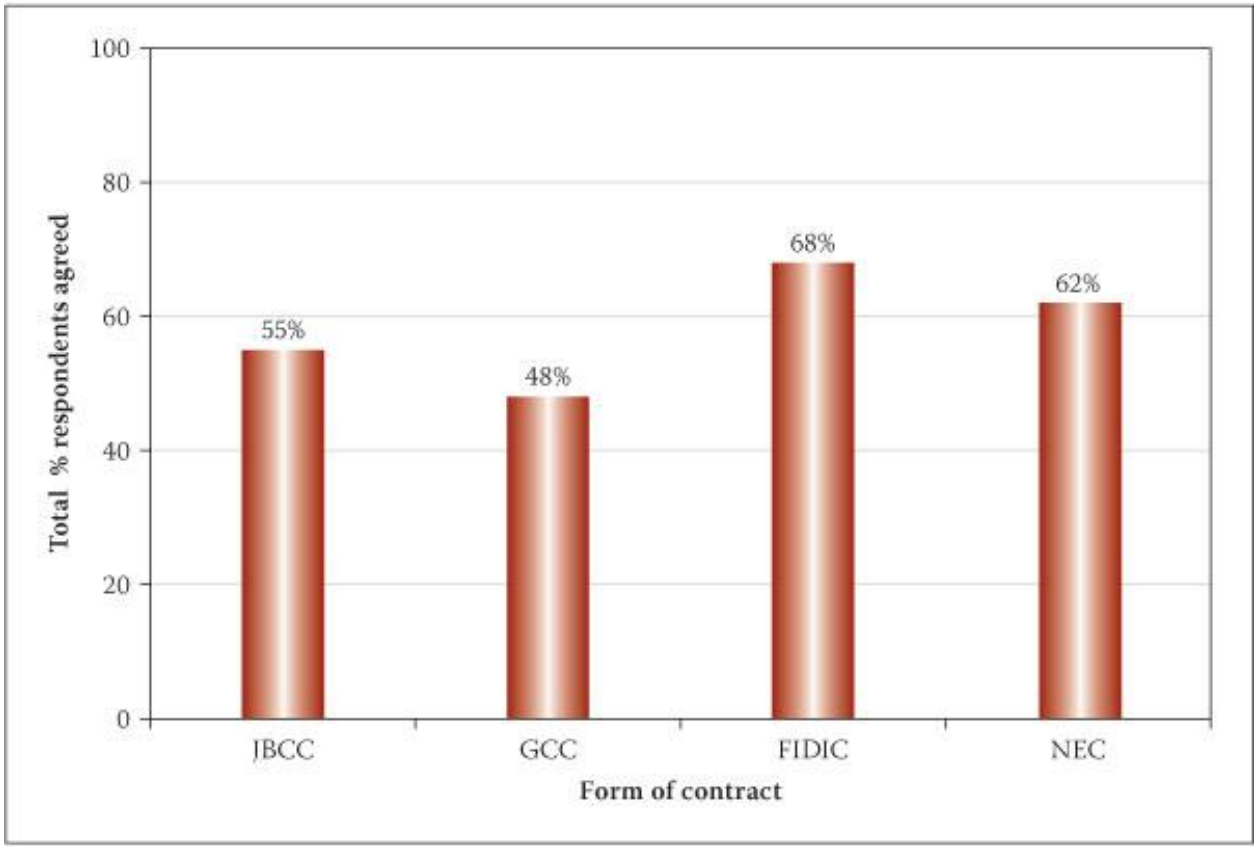

Figure 2.1: Sufficiency of provisions for adjudication in forms of contract

Maiketso and Maritz (2012) conducted a study to determine whether adjudication has sufficiently incorporated the necessary contractual, institutional and legislative framework. Figure 2.1 above demonstrates the respondents' confirmation that the four forms of contract had adequate provisions for adjudication, with FIDIC scoring the highest.

Higgs and Patterson QC (2019) states that the 2017 editions of the FIDIC 'rainbow suite' maintain and expand the dispute board provisions, whereas The New Engineering Contract Fourth Edition (NEC4) provides for dispute boards that issue recommendations.

2.4.1 Fédération Internationale des Ingénieurs Conseils Contract

The FIDIC 1999 suite has been superseded by the FIDIC 2017 suite, but FIDIC 1999 provides a useful comparison to show a contractor-specific provision before FIDIC's

move towards contractual parity in the procedure for bringing claims between the employer and the contractor. (Archer and Stiegler. 2021). The contracts used in this study are on FIDIC1999 hence the focus of literature review on those books.

Figure 2.2 below shows the FIDIC books, as summarised in the FIDIC 1999a guideline notes.

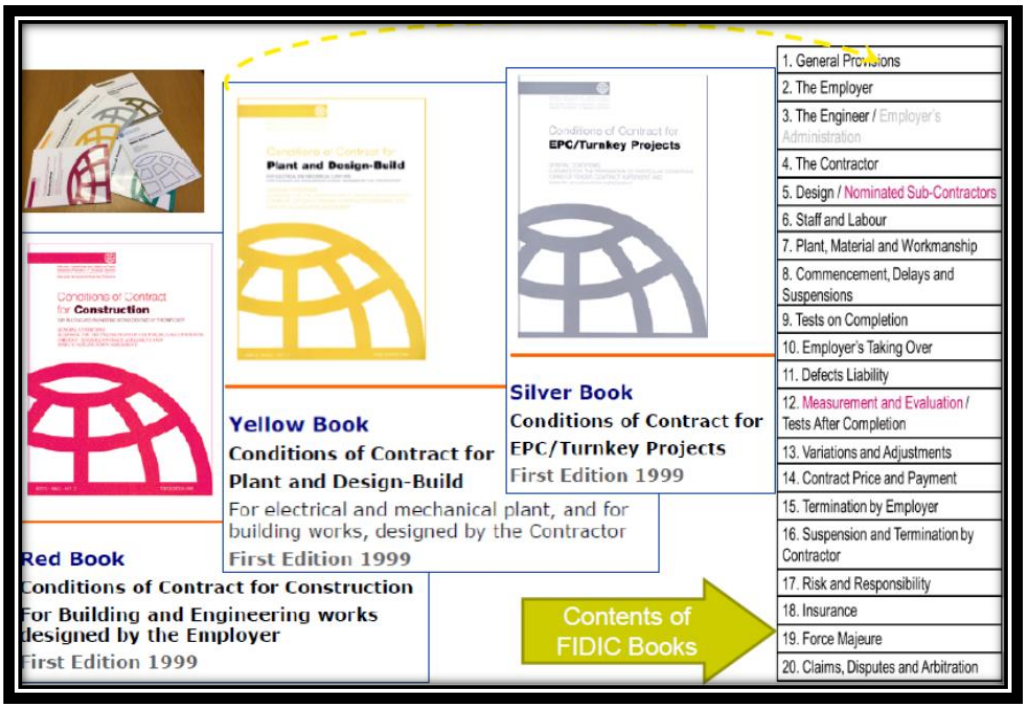

Figure 2.2: FIDIC books

The contract role players under the FIDIC Red and Yellow Book for the design and build infrastructure projects are represented in Figure 2.3 below (FIDIC 1999a).

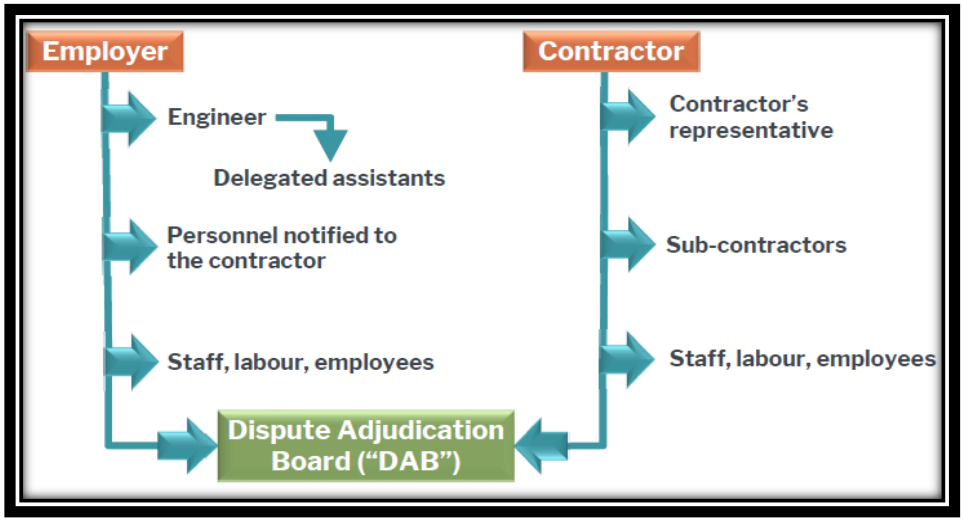

Figure 2.3: FIDIC role players

The FIDIC Clause of 1999a (Clause 20) requires contract parties to refer a dispute to the contract engineer, especially matters that involve claims, disputes and arbitration. The engineers' failure to intervene creates an opportunity for notification of the dispute to the Dispute Adjudication Board (DAB) as per Clause 20.4 of the contract.

DABs work as experts, as well as providing rulings, depending on the cases (Harmon 2012). The decision is final and binding if no notice of dissatisfaction is raised by either party within 28 days after the decision has been made. The DAB provides a decision within 84 days (or as agreed) and if the decision is not provided within the specified time period, either party can issue a notice of dissatisfaction, indicating the reason and intention to refer the dispute further.

The disputes may be referred directly to arbitration, as specified in sub clause 20.6, where there is no existence of the DAB's appointment letter, or it has expired. In accordance with Clause 20.4, such disputes cannot be submitted to either the DAB or for agreeable settlement (FIDIC 1999a and FIDIC 1999b). Spence (2017) discusses the differences between the ad-hoc DAB and the standing DAB, as indicated in

Table 2.2 below.

Table 2.2: Differences between the ad-hoc DAB and the standing DAB

Ad-Hoc DAB	Standing DAB
Appointed once there is the intention to refer a dispute	Put in place at the outset of the contract
Appointment expires when the DAB has given its decision	Kept on a retainer
No prior communication	Should be copied in on minutes of meetings/other documentation
No first-hand knowledge of site conditions	May make site visits (FIDIC construction Contract: 70 to 140 day intervals)

Archer and Stiegler (2021) mentions that the most recent (2017) editions of the FIDIC Red, Yellow and Silver books revised Sub-Clause 20.1 [Contractor's Claims] to address the claims process for both employer and contractor claims so that they are aligned and, in turn, both the employer and contractor are subject to the same time limits and time bars for claims. Under the 2017 editions, there are four essential steps to making a claim:

- notify the engineer of a claim;
- engineer provides an 'initial response';
- submit a fully detailed claim; and
- agreement or determination of the claim.

There is provision aimed at early resolution of claims and dispute avoidance by allowing 'time bar' issues related to the contractor's notice to be raised at the earliest opportunity.

The FIDIC books used in this study are defined as in the FIDIC 1999a guideline notes, as follows:

FIDIC Yellow contains the condition of contract for the plant and design. This contract allows the contractor to consider the employer's plant and/or other work requirements when designing the work.

FIDIC Red contains the conditions of contract for construction which are recommended for building or engineering works designed by the employer or by the representative, namely the engineer. The contractor executes the works, incorporating the design provided by the employer.

The dispute resolution process in FIDIC 1999a is summarised in Figure 2.4 below.

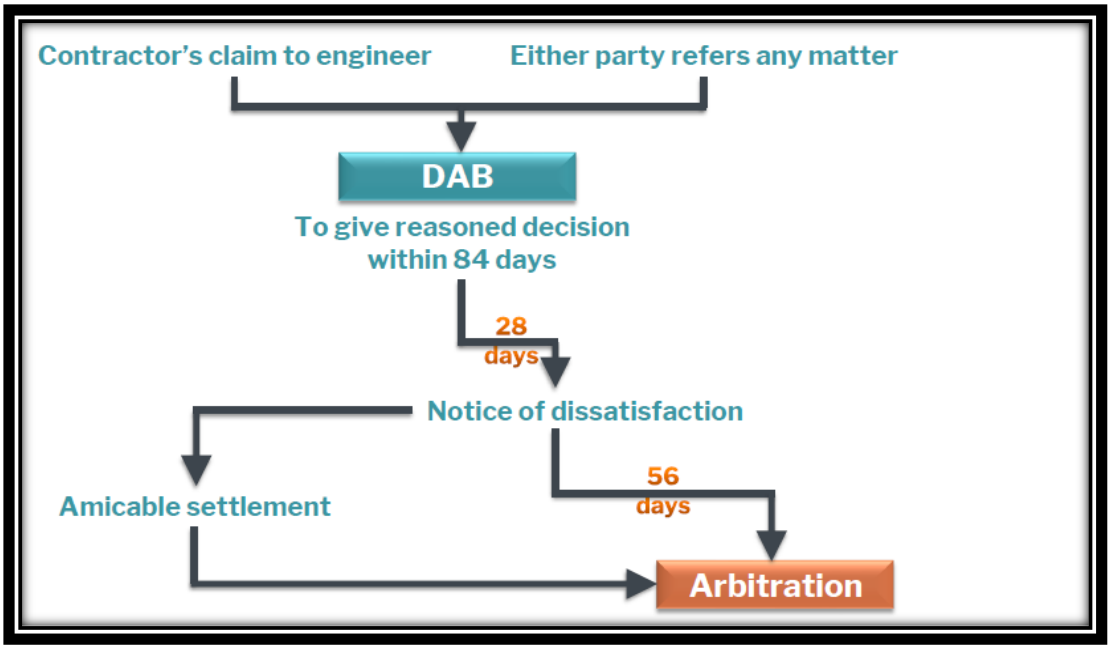

Figure 2.4: FIDIC DAB process

Baker *et al.* (2020) state that conceptually, the new versions are similar to their 1999 predecessors: the 2017 Red Book is FIDIC's 'traditional procurement' employer design contract, the 2017 Yellow Book has the dual function of design-and-build/contractor design and mechanical/electrical plant procurement, and the 2017 Silver Book is FIDIC's EPC/Turnkey Contract.

A striking new feature of the 2017 Books is the inclusion of a set of criteria known as the Golden Principles (GPs). Their purpose is to act as a benchmark which must be met if a contract is to be regarded as a FIDIC contract.

2.4.2 New Engineering Contract

The NEC was initially considered in the mid-eighties after the London Institution of Civil Engineers accepted a recommendation delivered by its Legal Affairs Committee (CIDB 2005). The NEC has been used as the primary suite of contract for public works projects in Hong Kong, South Africa and New Zealand, and has been successfully implemented in public and private sector building and infrastructure projects in Antarctica, Australia, China, Ireland, the Netherlands, North Africa, the Philippines and South America (Brookfield 2017).

Sub-Clause 61.3 of NEC4 sets out the mechanism by which the contractor can make a claim for a compensation event. Under standard form NEC contracts, the contractor's entitlement to claim is dealt with by a 'compensation event'. A compensation event means an event that can affect the cost of the work being carried out or the time when the works can be completed, or both. There are three categories of compensation event:

- an instruction or a change (unless by reason of the contractor's breach);
- failure on the part of the 'client', 'project manager' or 'supervisor' to take action that the contract requires of them; and
- a supervening event where the risk has been allocated to the client under the contract.

Adjudication is compulsory and the NEC clauses W1.3 and W1.4 define the procedure and are strict on time frames. It is mentioned that arbitration cannot follow adjudication and the adjudicator's decision is final and binding, except in circumstances where either of the parties issues a notice of dissatisfaction with a decision to refer the dispute to the tribunal. The main principle of adjudication is to resolve disputes efficiently and without delays. Clauses W1.3 and W1.4 stress that neither contract party can refer the disputes for adjudication or arbitration if the procedures and timeframes are not followed correctly. Conversely, the NEC overlooks negotiation, amicable settlement or mutual consultation and mediation regardless of its emphasis on the spirit of mutual trust and cooperation (Eggleston 2015). The graph in Figure 2.5 shows the summarised dispute method for the NEC.

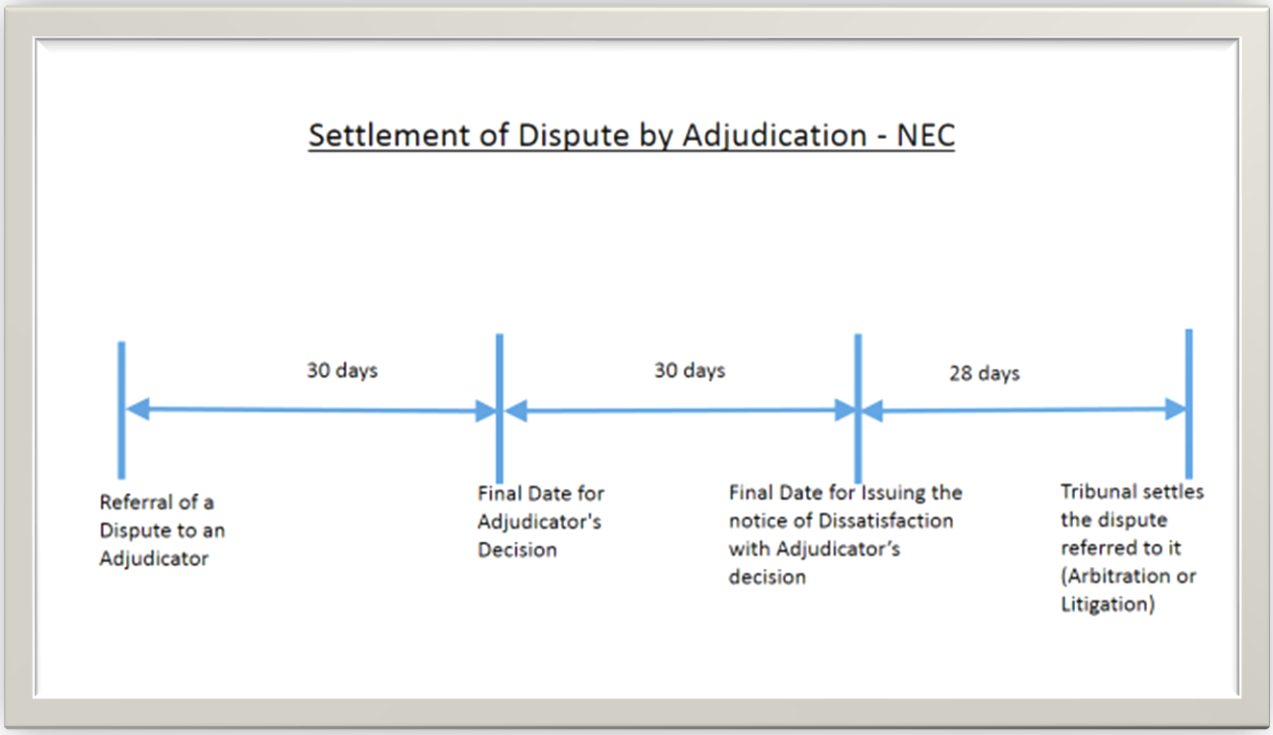

Figure 2.5: Summary NEC contract dispute methods

The NEC Engineering and Construction Contract (ECC) is defined as the contract used for the engineering and construction work, whether the contractor has full design responsibility, some design responsibility or no design responsibility (NEC 2005).

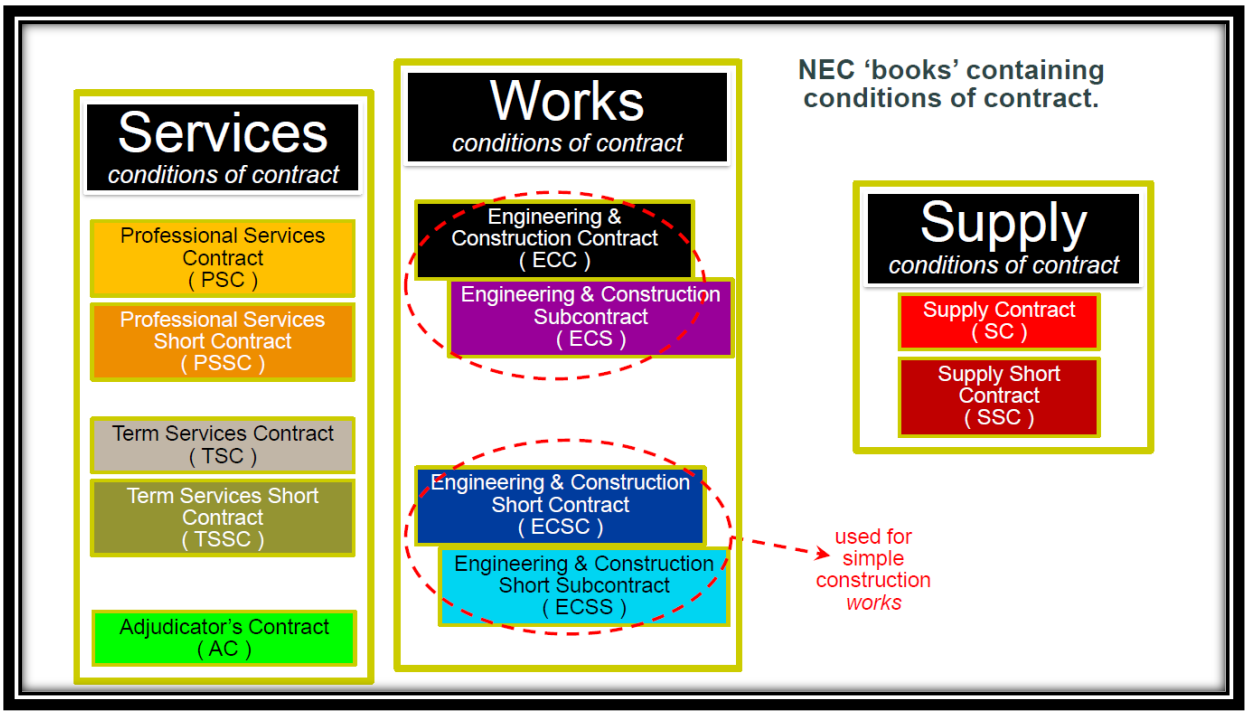

Figure 2.6: NEC books

2.4.3 Comparison of adjudication in the standard forms of construction

When comparing contracts found in different standard forms of construction contract, some of these contracts may be the basis for more disputes compared to others. However, it is not clear how standard forms of contracts may influence the development and advancement of disputes differently (Cheung and Pang 2013).

Differently from FIDIC, the NEC acknowledges that the standard form should not only be a mechanism for risk allocation, but can also be used for proactive and dynamic risk management. The NEC recognises that an important part of risk management is effective communication between the parties. This includes risk registers, risk prevention, early warning, and risk reduction meetings (Wassenaer 2009).

The FIDIC recommends DABs as the primary procedure to resolve disputes, followed by amicable settlement and ultimately the arbitration method, whereas the NEC recommends adjudication, followed by arbitration and ultimately litigation. The FIDIC prescribes arbitration as the final dispute resolution method, while the NEC commends litigation as the final process. In addition, the FIDIC contains a provision for adjudication, while the NEC renders adjudication obligatory and has a separate adjudicator's contract (Heaphy 2013).

Allan and Rooney (2013) established that the NEC ECC has been shown to outperform other standard forms of contract in terms of time and cost certainty. The MDA Construction and Technology Attorneys (MDA 2018) adjudication survey results showed that the NEC3 was the leading standard form of contract under which disputes were adjudicated in 2016 in South Africa.

The timelines for the adjudications in FIDIC 1999a and NEC ECC 2005 are indicated in Figure 2.7 below.

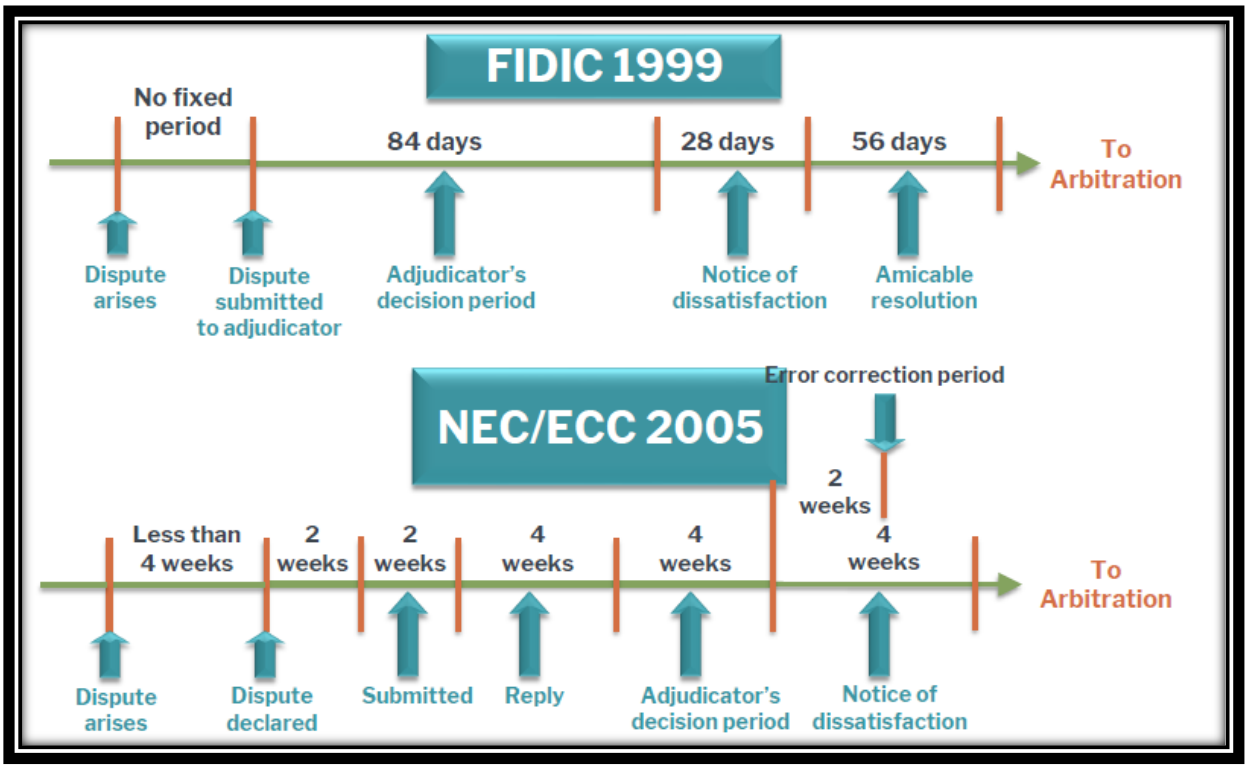

Figure 2.7: FIDIC and NEC adjudication timelines

Archer and Stiegler (2021) argue that unlike FIDIC Sub-Clause 20.1, Sub-Clause 61.3 of NEC4 only makes reference to the time the contractor becomes aware that the event has happened, not when it should have been aware of it. Sub-Clause 61.3 throws up a few ambiguities on interpretation. First, awareness is a subjective test and can be extremely difficult to prove. Second, the wording of Sub-Clause 61.3 is ambiguous as to whether 'event' is a reference to the date when the event itself occurred or the date when the contractor believed the event was a compensation event.

Baker *et al.* (2020) mentions that the major changes in latest revisions of the Red, Yellow and Silver Books can be classified under three main themes:

- Product, Risk Allocation and Time;
- Contract Administration and Claims; and
- Dispute Avoidance and Resolution

2.4.3.1 The procedure to appoint an adjudicator or DAB for a referred case

Spence (2017) mentions that generally appointments for adjudicators in South Africa are done through:

- FIDIC President's List;
- Association of Arbitrators (Southern Africa);
- South African Institution of Civil Engineers;
- Engineering Professions Association of Namibia;
- National Adjudicators List;
- Other engineering associations; and
- By reputation (word of mouth).

Refer to Appendix C: Application for admission to the Institute of Civil Engineers South Africa Panel of NEC adjudicators.

Refer to Appendix D: South African Institute of Civil Engineers procedure for appointment of an adjudicator or DAB and arbitrator.

The MDA (2018) adjudication survey showed that most adjudicators were appointed via agreement between parties.

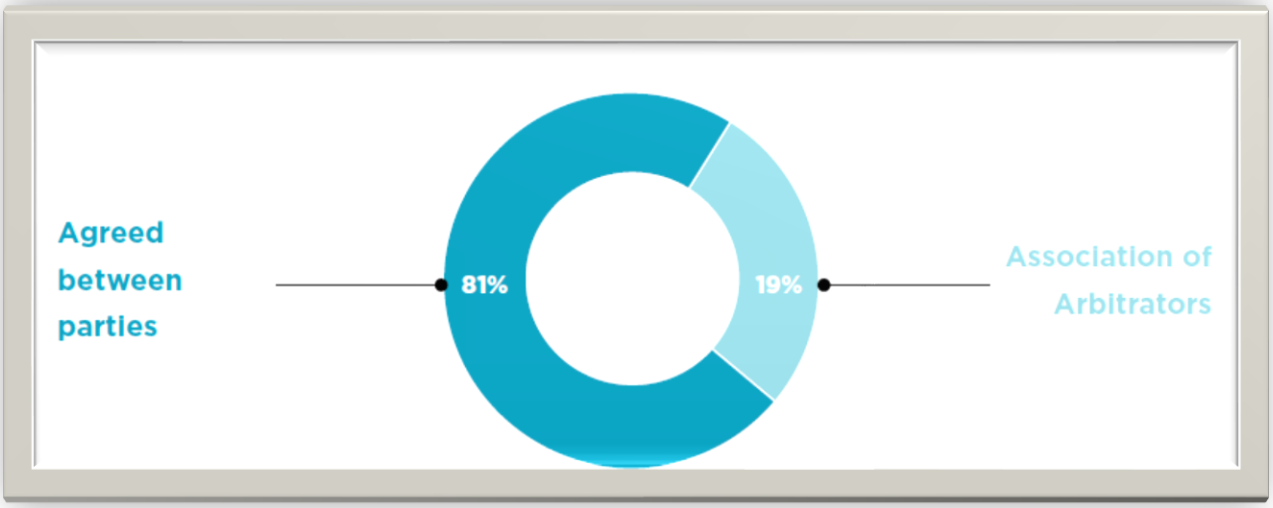

Figure 2.8: Appointment of adjudicators (MDA, 2018)

The appointment of the adjudicator is done by the parties to the dispute in terms of the NEC3 Adjudicator's Contract (refer to Appendix A). The adjudicator has to apply a fair and detailed study of the dispute submissions and such work includes investigation, identification of the dispute, and legal contractual issues (Ranasinghe and Korale 2011).

2.4.3.2 Difference between the Dispute Adjudication Board (DAB) and the adjudicator

Murphy *et al.* (2014) state that there are two known methods used to resolve disputes, namely, the dispute board (or DB) and statutory adjudication (or SA). The DAB is used under the FIDIC contracts, while the adjudicator is used in the NEC, JBCC and GCC contracts (FIDIC 1999a; NEC 2005).

When compared with adjudicators, DABs have the following benefits (Dispute Resolution Board Foundation 2016):

- Panel members are highly valued as they are selected by the parties, considering their reputation and expertise, whereas adjudicators are usually unfamiliar to the parties involved.

- The involvement of the DB is introduced at the start of the construction/engineering project, whereas adjudicators generally have no previous involvement.
- The regular DB meetings that are held between the parties are used as a platform to identify and address any potential issues arising from the reporting procedure.

Refer to Appendix A for a copy of the FIDIC Standing DAB Appointment Contract.

Harmon (2012) states that DBs were used in 2 340 construction and engineering projects internationally between 1974 and 2012, amounting to a combined industry cost of approximately US$175.5 billion. Each DB usually comprises a panel of three people (CIArb–Australia 2016). In cases where the parties have implemented a DB, they usually agree on binding and final determinations on every dispute (DRBF 2016; Harmon 2012).

Spence (2017) also states that many DBs and DABs have been appointed with great success in Africa, for example:

- Neckartal Dam, Namibia (Standing DAB);
- TCTA pipeline contracts in South Africa;
- Maputo Airport, Airside Facilities (Standing DB);
- Various contracts in Zambia.
- SANRAL in South Africa have adopted adjudication as a dispute resolution process; and
- New fossil-fuelled power station projects – Kusile and Medupi.

Higgs and Patterson (2019) state that the FIDIC 2017 ‘rainbow suite’ editions all provide for standing boards. Such boards can provide informal assistance, as under the First Edition Red Book, but only if both parties agree. To emphasise the avoidance element, the boards have been renamed dispute avoidance and adjudication boards (DAABs).

2.4.4 Arbitration in the standard forms of contracts used in South Africa

The repeated rate of dispute errors during the adjudication process could possibly increase the number of cases presented to arbitration/litigation (Coggins, Mills and Skaik 2016). The Arbitration Act in South Africa manages the arbitration procedure and the parties mutually agree on the selection of the arbitrators. The arbitration outcome has a concluding right on the presented dispute, with restricted appeal, which necessitates a bench of three arbitrators.

In FIDIC, the dispute boards are associated with an argumentative perception that contains a long procedure, which presents unpersuasive results and fewer disputes are resolved than anticipated (Harmon 2009). Harmon (2012) reviewed 2 753 disputes presented to DBs in construction projects and reported the following:

- Satisfactory resolution was achieved on 88% of these (or 2 426) disputes.
- An alternative method of dispute resolution was followed for 12% of these (or 327) disputes.
- Benefits in terms of substantial cost and time benefits were achieved.
- The significance and the increased use of the DB process were acknowledged.

The MDA (2018) adjudication survey results shown in Figure 2.9 reveal that 42% of dispute conclusions recognised the adjudicator’s decision as final. Even though a few notices of dissatisfaction were presented, this picture does not automatically confirm that the dispute will be referred to arbitration. The adjudications taken to arbitration are a small number. The 42% time period yet to expire was still time barred, the parties to still decide either to accept the Adjudicator’s decision as final or issue a notice of dissatisfaction.

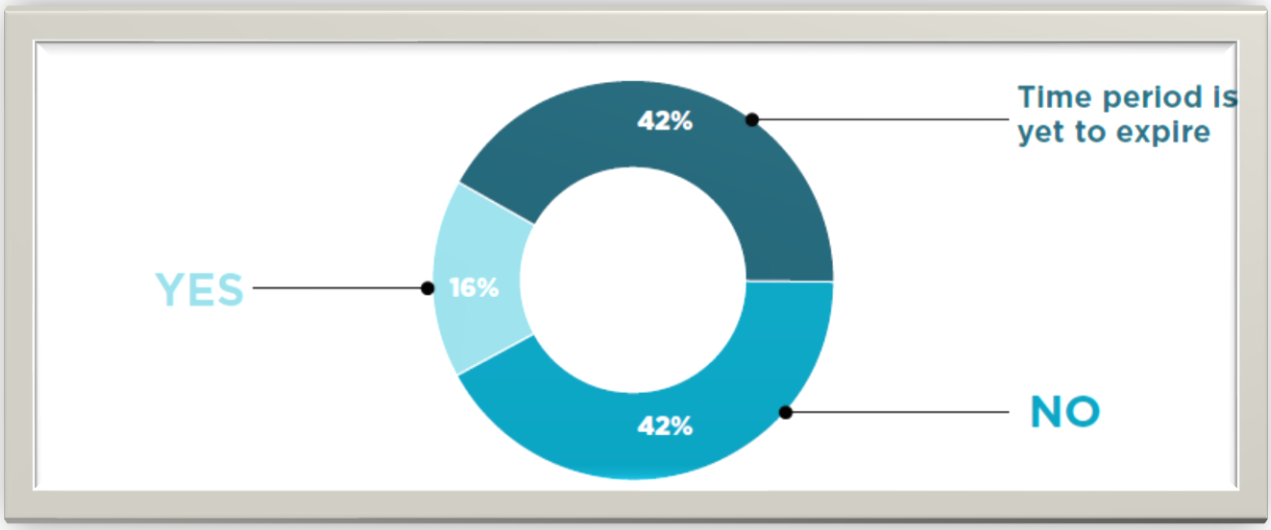

Figure 2.9: Notice of dissatisfaction issued
Source: MDA (2018)

2.5 Key issues that contribute to disputes in construction contracts

Abedi, Fathi and Mohammad (2011) state that construction disputes can be costly, take a lot of time to resolve, and their consequences can be devastating. The significant growth in the number of disputes in construction projects results has resulted in increased complexity and uncertainty (Haugen and Singh 2015). The nature of dispute is associated with the intensions and sensitivity of the matter addressed; hence, various factors can contribute to the decisions made by humans regarding disputes, such as a lack of communication, technical issues and misinterpretation of contractual terms or changes of scope (Cheung and Pang 2013).

Construction disputes arising within the energy sector often result from many of the common issues that arise in large construction projects more generally, including claims relating to time and delay, defect, quality and performance, and payment and variation disputes. (Aitchison *et al.* 2021).

2.5.1 The root causes of construction dispute

Disputes are organised into types or groupings. These areas involve quality, performance, acceleration, payment, administration, deviation of scope or conditions, disruption, delay and termination (Love *et al.* 2010). Additionally, extension of time,

process problems, and availability of information, people issues, and contract terms, define the categories of disputes.

The MDA (2018) adjudication survey indicated that claims for extension of time and time-related costs are the most common disputes referred to adjudication. The study is based on 35 disputes; NEC was 57%, GCC 22%, FIDIC 11%, JBCC 5, 5%, and 2, 5% bespoke contracts.

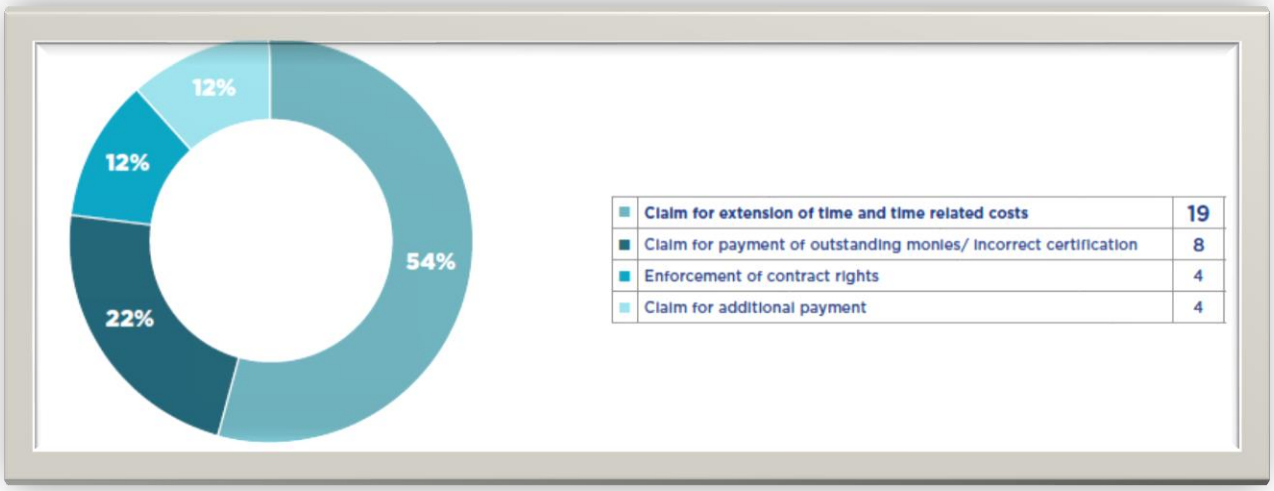

Figure 2.10: Disputes Analysis Causes
Source: MDA (2018)

The conflicts and differences that cause disputes are often linked to power, personal character influences, dominance, human nature or tendencies, egos and behavioural issues (Cheung and Pang 2013). Chong and Zin (2012) mention that the misunderstanding and misinterpretation of contract clauses are the leading cause of disputes.

Energy sector construction disputes are further complicated by the likelihood of the project being financed and the frequency with which the owners in such projects are consortia. Evolving technologies (particularly in the renewables sector), frequently harsh environments and political pressure to deliver projects and avoid environmental damage all serve to raise the stakes higher still. (Aitchison *et al* 2021).

Researchers have established that various interconnected sources formulate the foundation of a dispute and a single source cannot justify forming a dispute (Hughes and Murdoch 2008).

2.5.2 Driving factors of construction disputes

In the construction environment, several factors such as poor management, design errors, adversarial culture, poor communication, improper design, tender development errors, unrealistic tendering, inadequate contract drafting, unrealistic client expectations, lawyers' influence and inadequate contract drafting, as well as poor work relationship have been categorised as leading factors that cause the development of disputes (Love *et al*. 2010). Love *et al.* (2011) recognise that changes to the scope of work, lack of contract documentation, limited access, unanticipated ground conditions, and ambiguities in the contract are main contributors to construction disputes.

It is common for parties to use their contractual knowledge (motivated by their opportunistic conduct) to gain a superior financial position over the other party (Love *et al*. 2010). A common example is that parties may search for gaps in the contract document; however, a lack of such loopholes and repeated design changes by the client can discourage this opportunistic behaviour and other modifications in relation to the contract (Cheung and Pang 2014). The main causes and driving forces identified in the literature review are shown in Table 2.3 below.

Table 2.3: Summarised literature review – main causes and driving forces of disputes

Author	Findings
Cheung and Pang (2013); Ilter (2012); Love *et al*. (2010)	Payment, variations, performance and inexperience
Love *et al*. (2010)	Delay, quality and administration
Cheung and Pang (2013); Love *et al*. (2010).	Human issues and the availability of information
Ilter (2012); Love *et al*. (2010); MDA survey (2018)	Time extension cost, shortage of construction material, person power limitations and unrealistic timeframes
Chong and Zin (2012); Love *et al*. (2011)	Contractual ambiguities, poor communication, changes of scope, acceleration and termination
Love *et al*. (2010)	Inadequate contract drafting and restricted access
Love *et al*. (2011)	Unforeseen ground conditions

2.6 Are some of the disputes referred to adjudication avoidable?

Chong and Phuah (2013) mention that increased avoidance behaviour can reduce the necessity to pursue disputes. Nielsen and Powell (2013) also indicate that the built

environment is troubled with the existence of disputes and that there is a continuous drive to resolve these disputes quickly and competently.

There is limited effort and focus to prevent disputes in this industry (Murphy *et al.* 2014). Intense consequences are associated with disputes such as excessive cost, delays and unfavourable working relationships (Chapman 2009). The determination to resolve these situations swiftly could assist in avoiding further disputes and reducing their related costs (Murphy *et al*. 2014).

Ilter (2012) states that conflicts in some of the projects, which are likely to cause disputes can be avoided or resolved before they become disputes by means of ADR methods. The author also mentions that bigger contractors defend their points of dispute unreservedly compared to smaller contractors, who tend to succumb to pressure to preserve their relationships with the employers.

According to the Arcadis (2016), the most significant activities in assisting with avoidance of disputes are the following:

- Good contract administration;
- Unbiased and suitable risk and balances in contract; and
- Correct contract documents.

In summary, FIDIC attempts to avoid disputes by decreasing variations to a certain limit, following which a new process should be agreed upon, whereas the NEC is very flexible as it does not limit variations; however it requires pre-pricing and quotations that fix the prices before starting with the variation (Besaiso *et al.* 2018).

2.6.1 Contracts referred to adjudication due to non-adherence to contract conditions

Wang, Kunc and Bai (2017) state that ineffective risk management systems can lead to adjudication. Failure to respond to early warnings in projects can be managed better (Haji-Kazemi, Andersen and Klakegg 2015). Awwad, Barakat and Menassa (2016) mention that the reasons for disputes include incomplete contracts.

2.6.2 Contracts referred to adjudication due to human interface

The human element is one of the key factors in construction dispute resolution (Eriksson and Kadefors 2017). A prejudiced conclusion threatens construction project success and causes escalation of commitment (Geraldi and Stingl 2017). The diversities in construction projects provide for the management of technical and contractual challenges. Regrettably, numerous projects conclude with many disputes, some of which are only settled after many years (Flyvbjerg 2017).

Sometimes the employer's conduct is misinterpreted as a deliberate motive to reject the approval of claims. Contractors tend to implement stringent methods to safeguard their interest and exposure to exploitation (Lu, Pan and Zhang 2015). Lorenzo-Hervé (2012) recommends increased dispute avoidance awareness and awareness of ADR in the construction industry.

2.7 Summary

The construction industry contributes almost 6% of global Gross Domestic Product. However, this input is hindered by the occurrence of disputes (Cheung and Pang 2014). Even though ADR is common in dispute prevention and resolution within construction projects, several factors make its use challenging (Lee, Yiu, T. and Cheung 2016).

Aitchison *et al.* 2021 explain that given the large-scale and often long-running nature of many energy sector projects, as well as the highly technical nature and huge costs associated with their infrastructure elements, more complex disputes typically tend to follow.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

In this chapter, the type of research method that was adopted in this study is presented, as well as how data were collated and interpreted.

3.1 Definition of research

Leedy and Ormrod (2014) describe research as “a process, in which information is collected, analysed and interpreted using a systematic manner so as to better understand a phenomenon which is of interest to the researcher with verifiable facts”.

Academics conceive construction disputes as a vital area for investigation to ascertain the reasons behind the failures found in construction contracts. Construction disputes are described as challenging, hostile and dysfunctional, destroying client-supplier business relationships, costly, and able to cause cost/time overruns (Fenn 2012).

3.2 Research method

The most important concern of a researcher is to employ a methodology that will answer the research questions. Biggam (2015) states that the items listed below indicate the relationship between research methodologies, data collection methods, and techniques of data analysis:

- What data should be collected (concept of the research).
- Why data should be collected (significance of the research).
- From whom data should be collected (target population).
- When data should be gathered.
- How data should be analysed.

The aim of the study was to evaluate whether the causes, practices and outcomes of the construction contract adjudication procedure for mega projects (FIDIC) are similar to those of infrastructure construction projects (NEC). The study, therefore, addressed the following objectives:

- To identify the main causes of construction contract disputes;
- To evaluate the appropriateness of adjudication practices; and

- To assess the outcomes of the adjudication process.

The key questions in the research were as follows:

- What key issues contribute to disputes in construction contracts?
- Are some of the disputes referred to adjudication avoidable?
- What is the comparison between the FIDIC and NEC method of adjudication?

The research is mixed method because of the questions to be answered in this research. According to Crowe *et al*. (2011), case study research has four stages (mentioned below), which have been adopted for this study, as follows:

- Defining the case by carefully formulating the research questions.
- Selecting a case based on its own merit or uniqueness.
- Collecting, analysing and interpreting the data.
- Reporting the findings.

3.2.1 Quantitative research method

The collection of quantitative data often includes the use of a closed-ended questionnaire or checklist as this provides the respondents with clear questions and answered in line with research objectives. Notably, Leedy and Omrod (2010) identify the following methods for conducting quantitative research:

- Theoretical studies;
- Descriptive research;
- Developmental studies (case studies and surveys); and
- Correlational studies.

According to Flick (2011), the advantages of quantitative research are that the design of quantitative research is specific, well-structured and clearly defined and recognised.

3.2.2 Qualitative research method

Qualitative researchers demonstrate a common belief that a research approach provides a more in-depth understanding of phenomena than a quantitative methodological approach (Silverman 2016). Flick (2011) states that a qualitative research method allows for a detailed and exact analysis of a few cases, and the

participants have more freedom to determine issues that are relevant in the context. Crowe *et al.* (2011) also state that a case study is used when a researcher seeks to develop an in-depth, multifaceted understanding of an activity, an institution, an individual or a programme in a real-life situation.

Umeokafor and Windapo (2018) reviewed papers presented at a Built Environment International Conference Series from 2013 to 2014, jointly hosted and organised by Ghana, Nigeria and South Africa. The authors concluded that qualitative techniques are almost non-existent in the built environment.

3.3 Research instrument

A case study-based mixed method was deemed suited to the objectives of the research study as it focuses on the current situation of adjudication in South Africa. The case study method is flexible and may produce new and unexpected results. Its advantages include that it permits a variety of data collection methods that can give rise to an understanding of a complex issue (Crowe *et al.* 2011).

In their study, Maritz and Mewomo (2015) analysed selected documents which revealed that there were adequate provisions for adjudication in the current forms of contract endorsed for usage in the South African construction industry; however, the benefits and advantages of contractual adjudication can only be fully realised provided that adequate consideration is given to special circumstances and limitations surrounding the public sector.

In order to provide an overview of the South African construction industry and to determine its adjudication practices, the following selected documents were examined in the course of this study:

- Journals, books and published literature related to adjudication practice in South Africa.
- CIDB-endorsed standard conditions of contracts, namely FIDIC and NEC.
- The South African Institution of Civil Engineering (SAICE), Construction Adjudication Association of South Africa (CAASA) and South African Council for Project and Construction Management Professions (SACPCMP) websites.

3.4 Sampling

Bertram and Christiansen (2014) define sampling as “deciding on which population and settings to include in the study”. The Kusile and Medupi power projects were selected as case studies as they are two mega projects undertaken by Eskom. The researcher also had reasonable access to the data required for the study.

A mixed research approach using a case study method was adopted to answer the research questions. Data were collected from the analysis of 33 case study documents. The research was based on the contract dispute cases where the adjudicator/DAB had issued rulings. The research was focused more on the comparison between FIDIC and NEC due to the following reasons:

- The FIDIC and NEC contracts are for the same organisation infrastructure construction contracts for GCD.
- The skill set requirements and experience to manage these contracts.
- The FIDIC contract in this organisation is used for high value and complex projects, whereas the NEC contract is used for non-complex and low value projects.
- The availability of the number of FIDIC (18) cases and NEC (15) cases were enough for the study.
- The FIDIC contract was first used in this organisation for the two power station projects used in this study.

The graph in Figure 3.1 below represents the sites of the available concluded cases for FIDIC and NEC in GCD. Refer to Table 3.1 below for the list of the adjudication cases.

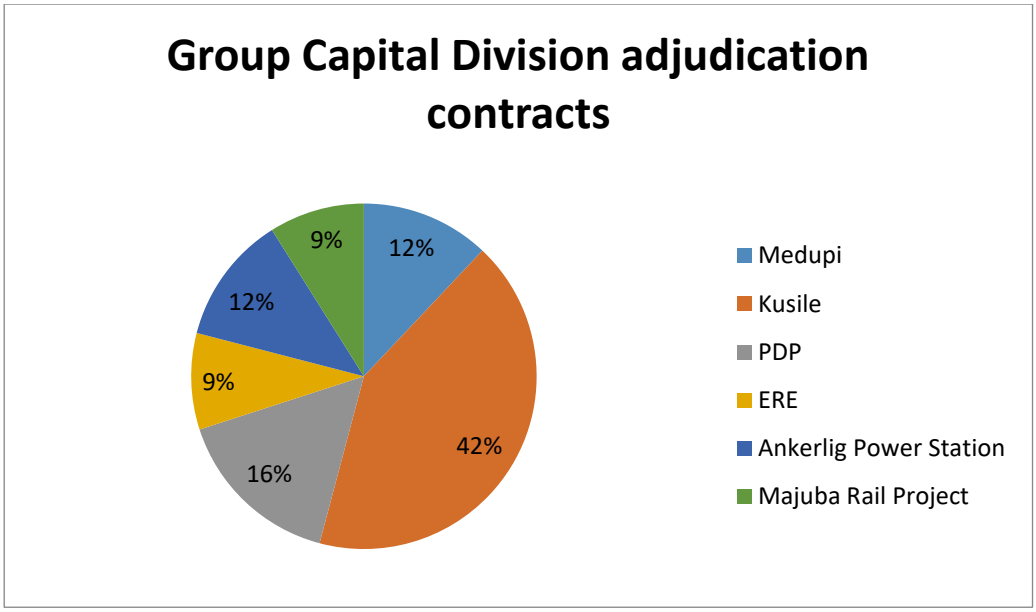

Figure 3.1: Group Capital Division adjudication contracts

3.5 Data collection

Ketokivi and Mantere (2017) state that qualitative data attained from the research process can be grouped and quantified to provide significant study information. The database of the Eskom Contract Management Office (CMO) was used to access the concluded adjudication cases. Where the cases were concluded, but the decisions were not available on the database, copies of the decisions were requested from the legal firms that were working with the CMO and the relevant sites. The research study was conducted on the concluded adjudication FIDIC contracts for Medupi and Kusile versus other infrastructure contracts in GCD in Eskom.

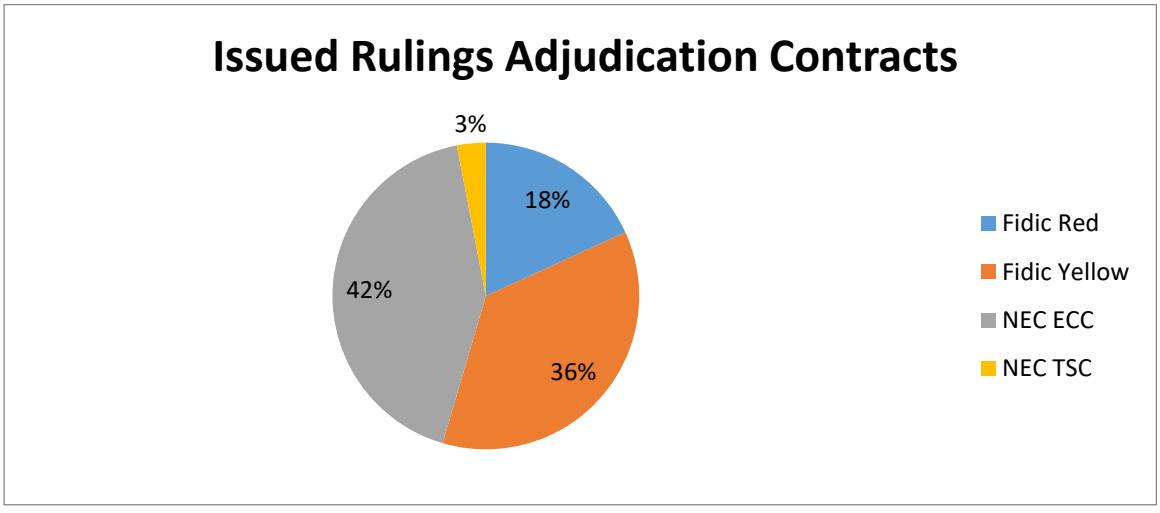

Figure 3.2: Concluded adjudication contracts

Figure 3.2 above shows the type of contracts used in the research. There were six FIDIC Red cases and 12 FIDIC Yellow cases for the Kusile and Medupi power stations. The NEC ECC comprised 14 cases and one NEC (TSC) contract case. In conclusion, 33 concluded adjudication cases were used in the research. Table 3.1 lists the cases collected for the study.

Table 3.1: List of awarded adjudication cases

Item	Contract Name	Form of Contract
1	KPS001	FIDIC Red
2	KPS002	FIDIC Red
3	KPS003	FIDIC Red
4	KPS004	FIDIC Red
5	KPS005	FIDIC Yellow
6	KPS006	FIDIC Yellow
7	KPS007	FIDIC Yellow
8	KPS008	FIDIC Yellow
9	KPS009	FIDIC Yellow
10	KPS010	FIDIC Yellow
11	KPS011	FIDIC Yellow
12	KPS012	FIDIC Yellow
13	KPS013	FIDIC Red
14	KPS014	FIDIC Red
15	MPS001	FIDIC Yellow
16	MPS002	FIDIC Yellow
17	MPS003	FIDIC Yellow
18	MPS004	FIDIC Yellow
19	GCD001	NEC ECC
20	GCD002	NEC ECC
21	GCD003	NEC ECC
22	GCD004	NEC ECC
23	GCD005	NEC ECC
24	GCD006	NEC TSC
25	GCD007	NEC ECC
26	GCD008	NEC ECC
27	GCD009	NEC ECC
28	GCD010	NEC ECC
29	GCD011	NEC ECC
30	GCD012	NEC ECC
31	GCD013	NEC ECC

32	GCD014	NEC ECC
33	GCD015	NEC ECC

Table 3.1 above reflects the following abbreviations, namely KPS for the Kusile Power Station; MPS for the Medupi Power Station, and GCD for Group Capital Department and other infrastructure projects.

3.6 Data analysis

Crowe *et al.* (2011) recommend that a case can be analysed using a five-step framework, as follows:

- Familiarisation;
- Identifying a thematic framework;
- Indexing;
- Charting, mapping; and
- Interpretation.

The literature review analysis was used to develop subthemes to be able to categorise each element to address the research objectives. The data analysis was done as per the subthemes. For each contract, a framework was developed to identify and analyse the data obtained. Referring to Creswell (2014), coding was implemented for the regularity of occurrence of the themes. The Contracts Management database was searched using the key words “Dispute”, “DAB”, “adjudication”, “Adjudicator”, “FIDIC” and “NEC”.

3.7 Limitations of the study

No two energy projects are the same, and each project will require its own decision-making analysis. This analysis is primarily aimed at understanding the commercial aspects of the project in the context of the current and future market. (Aitchson *et al*. (2021). The research was focused on the principal or main contractors only as they had signed a direct contract with Eskom. In addition, the study covered the concluded adjudication cases for the FIDIC and NEC infrastructure projects only in Eskom GCD.

3.8 Summary

The adjudication process and its root causes have been discussed in this chapter. The importance of avoiding disputes by emphasising site level employees was also explained. A mixed approach using a case study method was adopted to answer the research questions.

CHAPTER 4: RESULTS AND FINDINGS

4.1 Introduction

In this chapter, the results and findings of the study are provided. The summary of the collected contract data for the study is indicated in Figure 4.1 below.

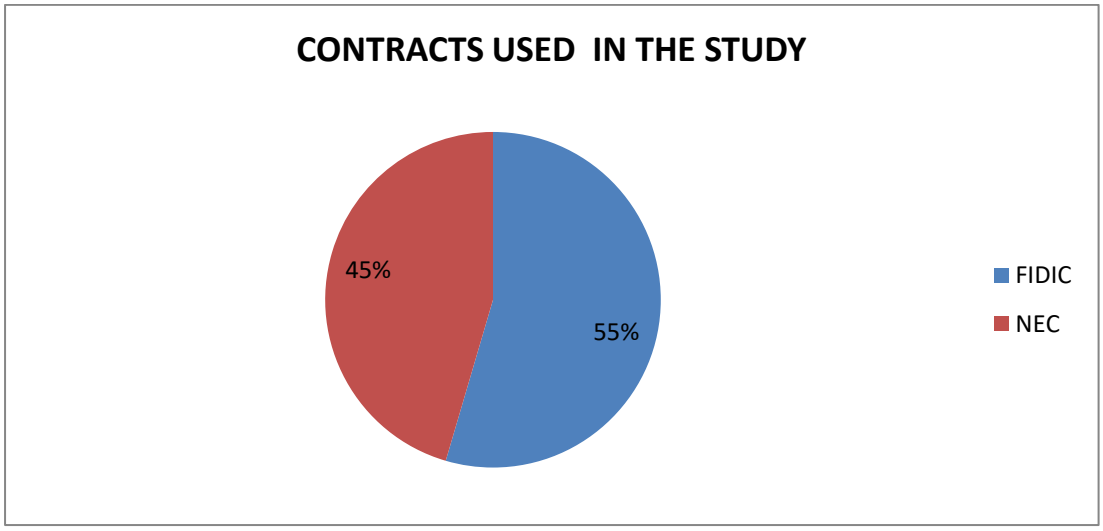

Figure 4.1: Percentage of FIDIC and NEC contracts

A total of 55% (18) of the contracts were FIDIC, whereas 45% (15) were NEC. The contract adjudication cases were obtained from the database of the Eskom CMO.

4.2 Adjudication contract cases analysis

4.2.1 Demographics

The experience and qualifications of the personnel were not the same. The minimum qualifications and experience requirements were determined by the company human resource structure. The Project Director developed a site-specific structure based on the standardised human resource structure and site requirements.

4.3 Dispute resolution methods permitted in the standard forms of contract

This section deals with the results obtained in the application of the adjudication method in the FIDIC and NEC contracts.

4.3.1 Comparison of adjudication in the standard forms of construction

The literature review in Chapter 2 demonstrated that some contracts used a dispute adjudication board, while other contracts used an adjudicator. Figure 4.2 below shows the results of this study.

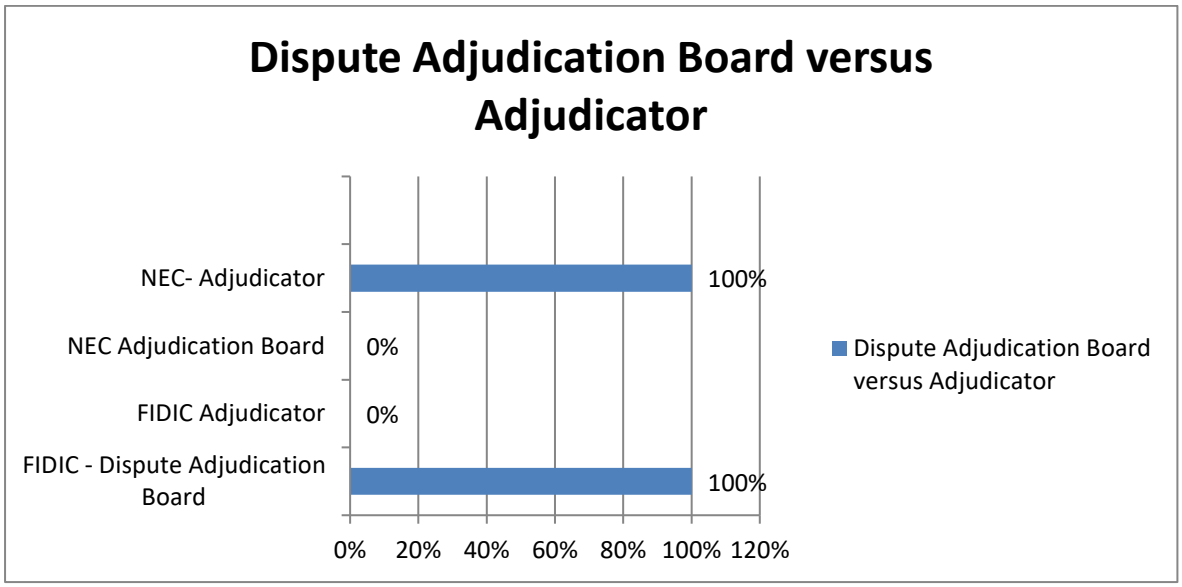

Figure 4.2: Dispute adjudication board and adjudicator appointment

As per the figure above, the results show that FIDIC contracts had 100% DABs appointed and that NEC had 100% adjudicators appointed.

4.3.2 Adjudication process

Regarding the appointments in the adjudication process, the results show that 33% were FIDIC standing DABs, 67% ad-hoc DABs, that 27% of the adjudicators had been appointed by the Engineering Association, and that 73% were named in the contract data for the NEC (Figure 4.3).

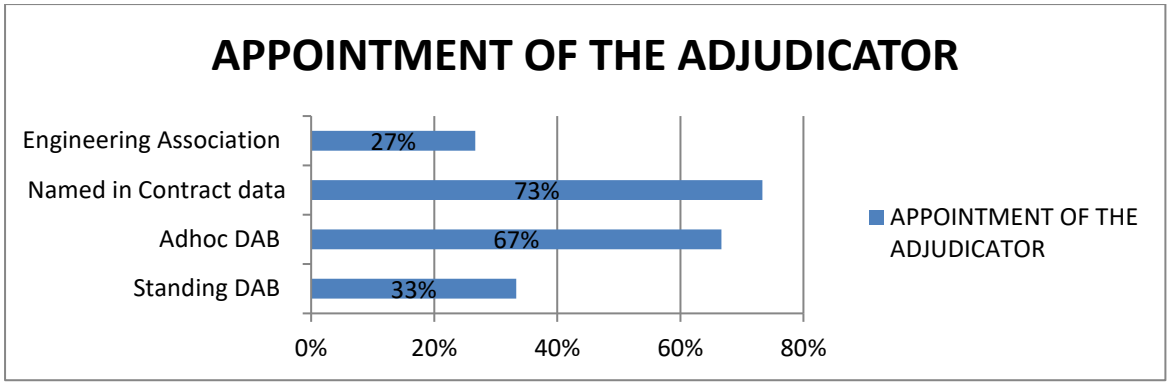

Figure 4.3: Appointment of the adjudicator/DAB

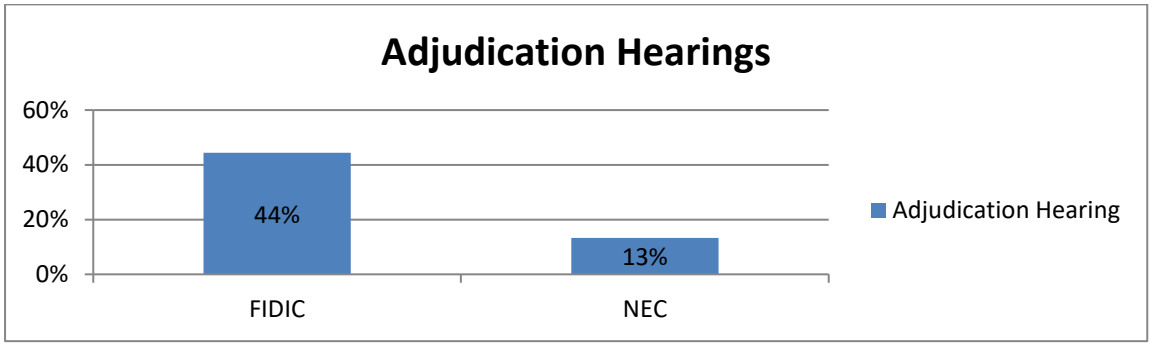

Figure 4.4: Adjudication hearings

A total of 44% of the FIDIC contracts had hearings requested by the panel, whereas in the NEC contracts, only 13% of the hearings had been requested. In the contract, the adjudicators were allowed to have hearings and call expert witnesses should the need arise (Figure 4.4).

4.3.3 Adjudication rulings in the FIDIC and NEC contracts

These standard forms of contracts emphasise the binding effect of the adjudicator's decision while waiting for a revised decision by arbitration, litigation or agreement. The party that fails to adhere to it can be referred to court or for arbitration.

4.3.3.1 Adjudication rulings in the FIDIC and NEC contracts

The adjudication award varies (Figure 4.5). At times, it may favour the contractor or the employer. The DAB may award certain costs to either the contractor or the employer based on the merits of the case. A total of 43% of the FIDIC and 57% of the

NEC adjudication awards favoured the contractors with 56% of the FIDIC and 44% of the adjudication awards favouring the employers. Ten cases of the adjudications were not awarded 100% to either the contractor or the employer – the merits of these cases led the adjudicator to rule partly between the employer and the contractor.

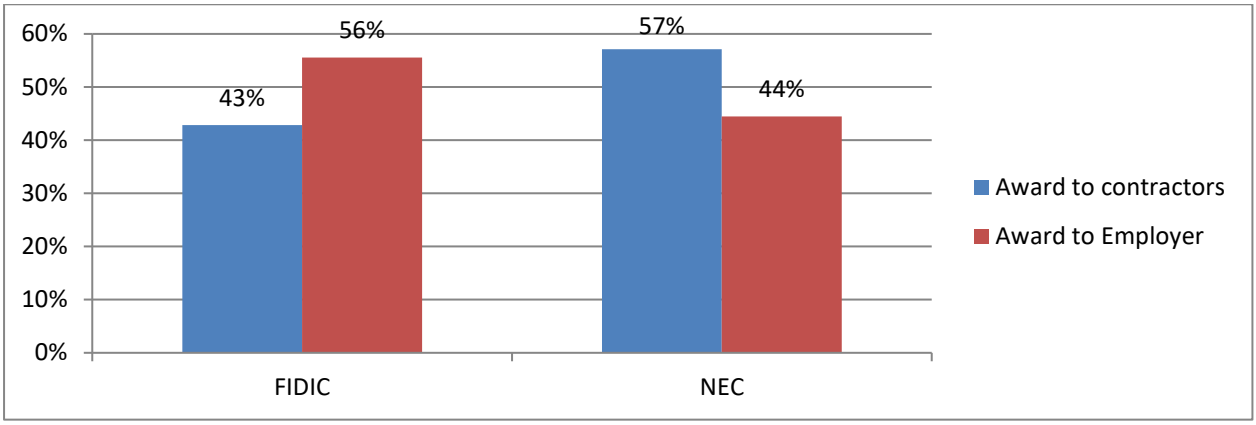

Figure 4.5: Adjudicator/DAB rulings

4.3.3.2 Adjudication process duration

Figure 4.6 shows the number of cases completed on time for the adjudication process. The results show that 17% of the FIDIC DABs had been completed as per the contract requirements and that 47% of the NEC had been completed as per the contract. The comparison excluded any extensions that the parties may have agreed upon.

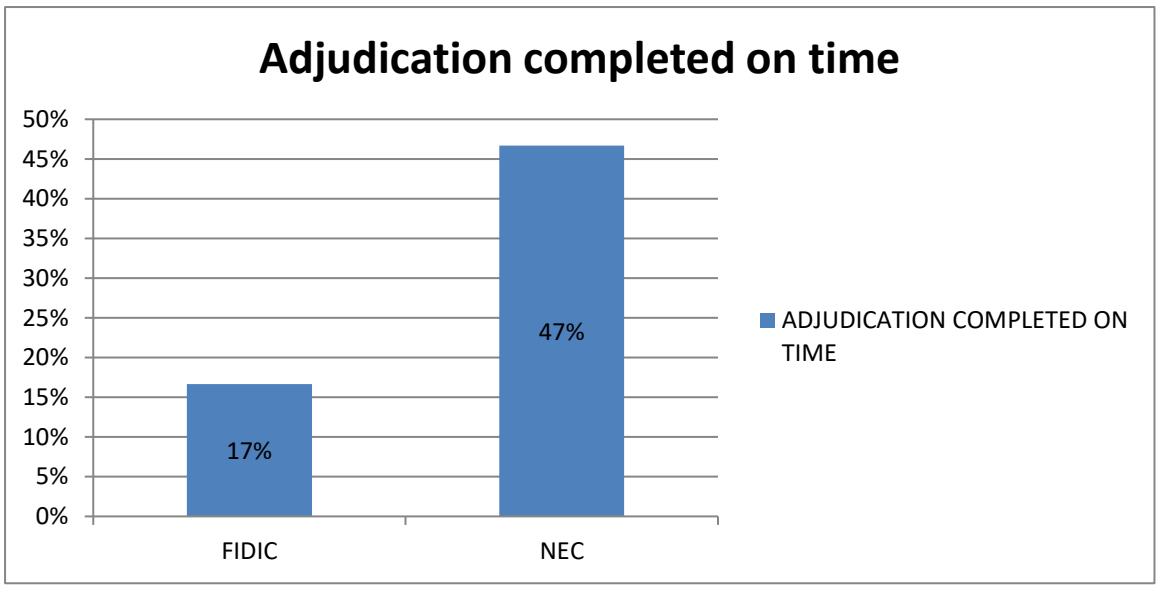

Figure 4.6: Adjudication/DAB completed on time

The FIDIC DAB duration differed from 36% to 789%, as indicated in Figure 4.7 below, and included extensions that were agreed upon by the contractor and the employer.

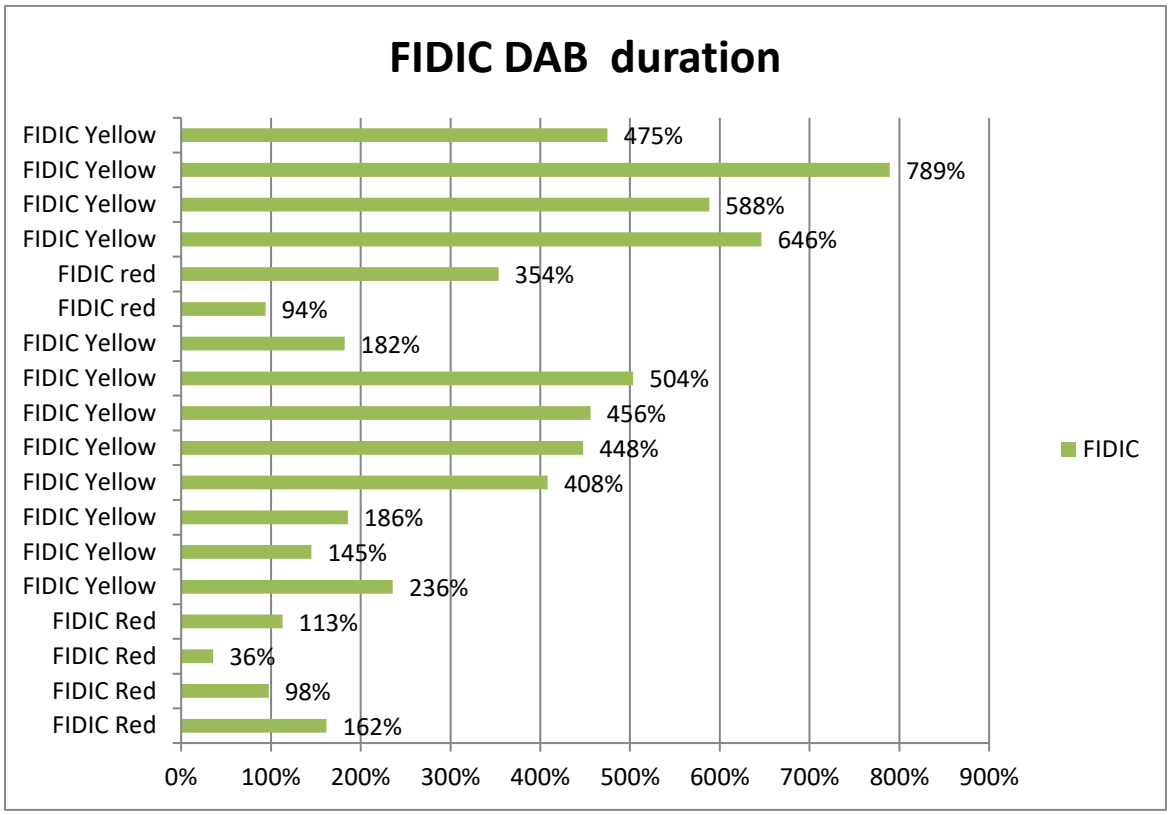

Figure 4.7: FIDIC DAB duration

The NEC adjudications, as indicated in Figure 4.8 below, show that the duration of the adjudication process varied from 82% to 729% including extensions that were agreed upon by the contractor and the employers.

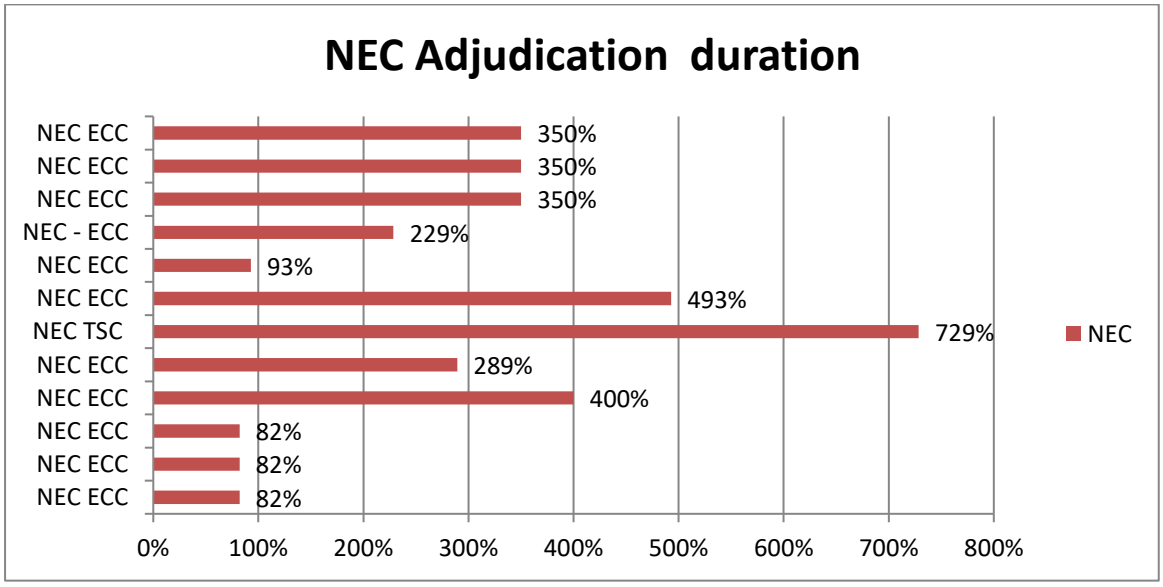

Figure 4.8: NEC adjudication duration

4.4 Key issues that contribute to disputes in construction contracts

A total of 21 main causes and driving forces were identified in the FIDIC cases and 16 were derived from the NEC cases, as summarised in Table 4.1 below.

Table 4.1: Root causes and driving factors of the disputes

Sources of disputes from cases	Number of occurrences in NEC	Number of occurrences in FIDIC	Total number of occurrences	Ranking
Communication	5	1	6	7
Contract Ambiguity	2	7	9	4
Contract Management	6	10	16	1
Cost	5	11	16	1
Delayed Access	0	8	8	5
Design/Scope	0	1	1	11
Dispute Settlements	1	1	2	10
Extension of Time	5	8	13	2
Human Behaviour	1	2	3	9
Labour Unrest	2	2	4	8
Material	1	3	4	8
Payment	7	3	10	3
Performance and Experience	3	1	4	8
Poor Planning	0	1	1	11
Quality	1	1	2	10
Claim Rejected	1	6	7	6
Risk Management	0	1	1	11
South African Laws/ Regulation	0	2	2	10
Termination	2	0	2	10
Unrealistic Client Expectations	1	2	3	9
Variations/CE	3	3	6	7
Weather Conditions	0	1	1	11

The FIDIC and NEC sources were not the same. Some sources were identified in the FIDIC, but not in the NEC contracts. Figure 4.9 on the next page shows the top 10 contract adjudication causes in the FIDIC.

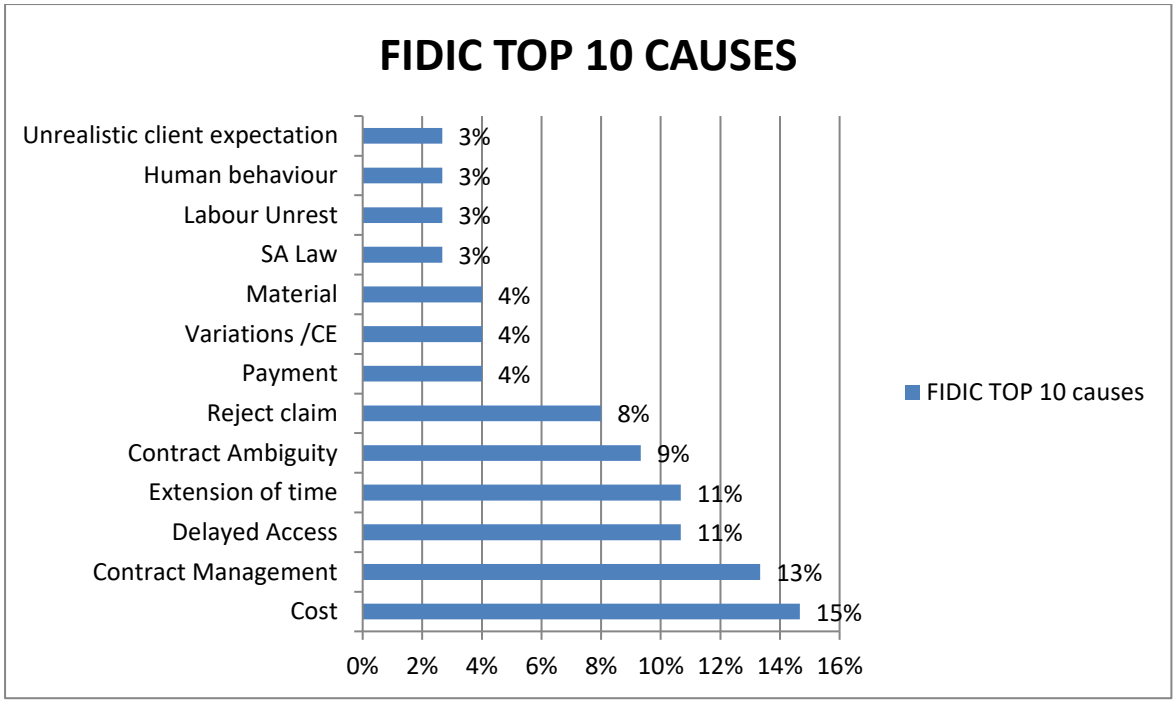

Figure 4.9: FIDIC top 10 causes of contract adjudication

Figure 4.10 shows the top 10 contract adjudication causes of disputes in the NEC.

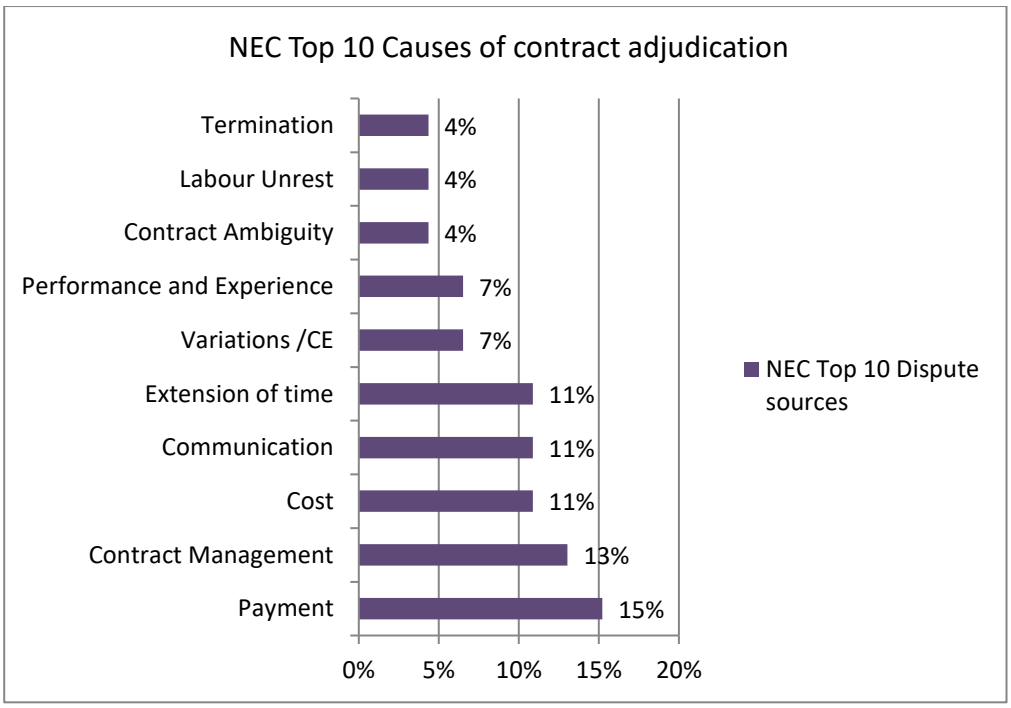

Figure 4.10: NEC top 10 causes of contract adjudication

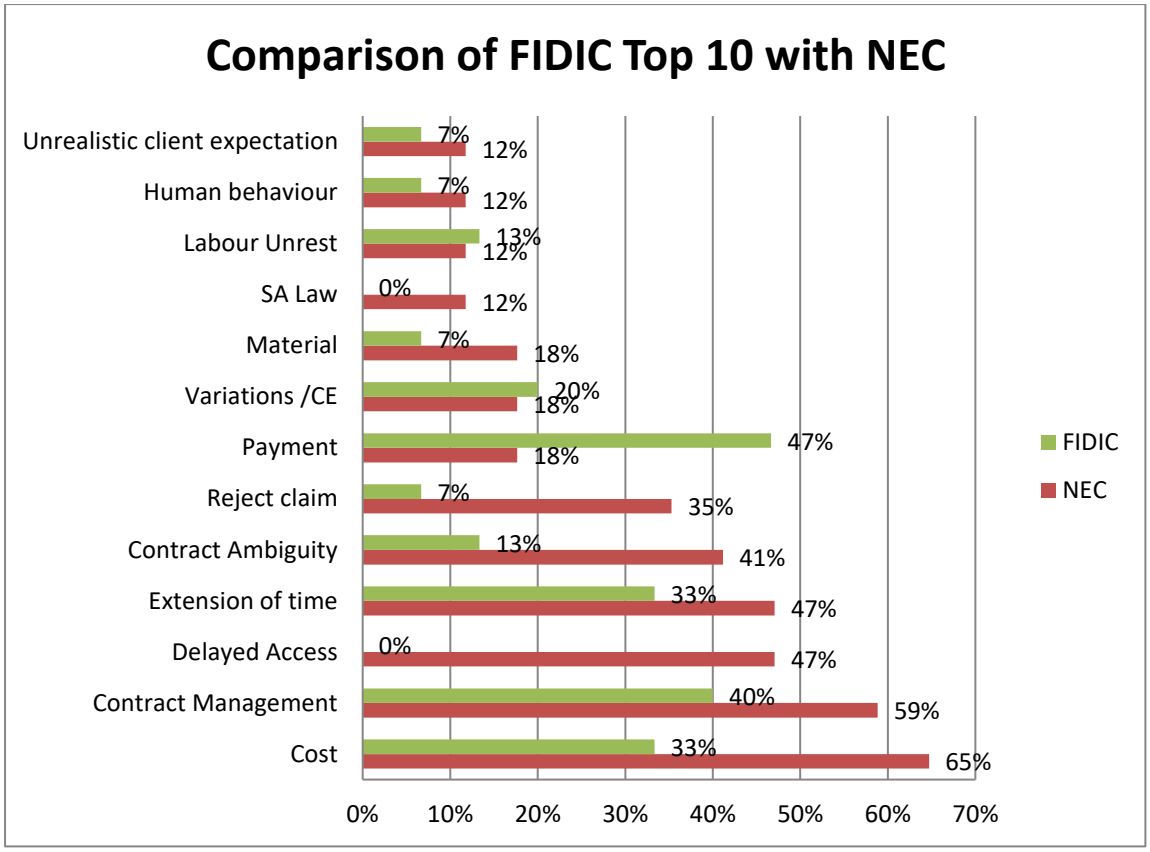

Figure 4.11: Comparison of FIDIC top 10 causes of disputes with NEC top 10

4.5 Are some of the disputes referred to adjudication avoidable?

According to Arcadis (2016), the most important activities in helping to avoid a dispute are (i) proper contract administration, (ii) fair and appropriate risk and balances in a contract, (iii) accurate contract documents, (iv) contracts referred to adjudication due to human interface. Figure 4.12 shows the results from the FIDIC and NEC contracts.

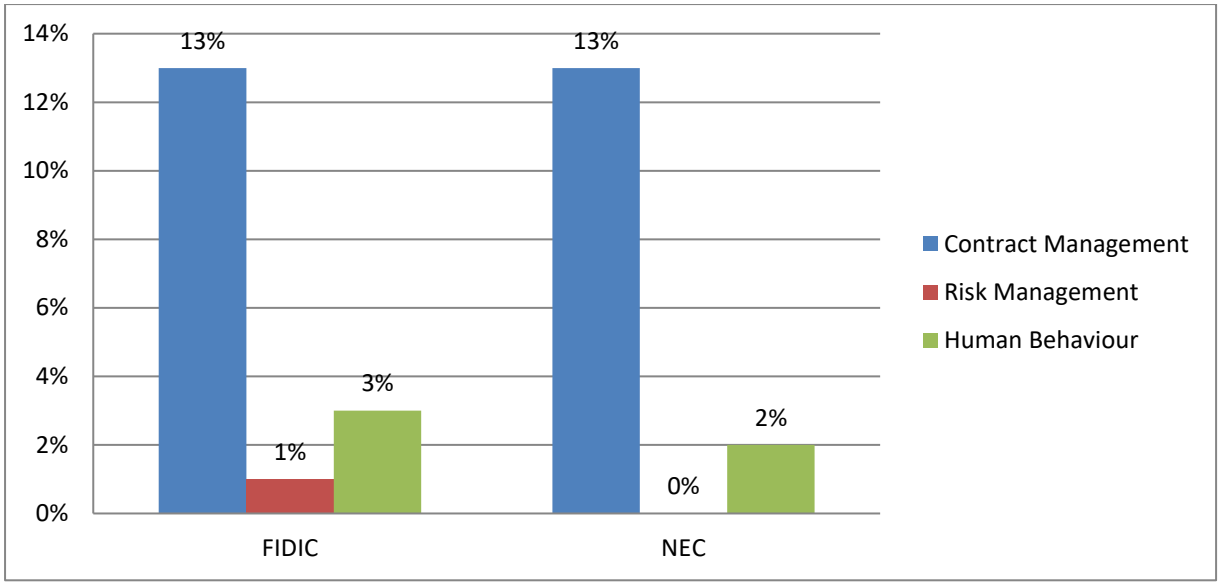

Figure 4.12: Adjudication avoidance findings

In both types of contracts, contract management (administration) at 13% in FIDIC, and 13% in NEC was the most common reason for adjudication avoidance.

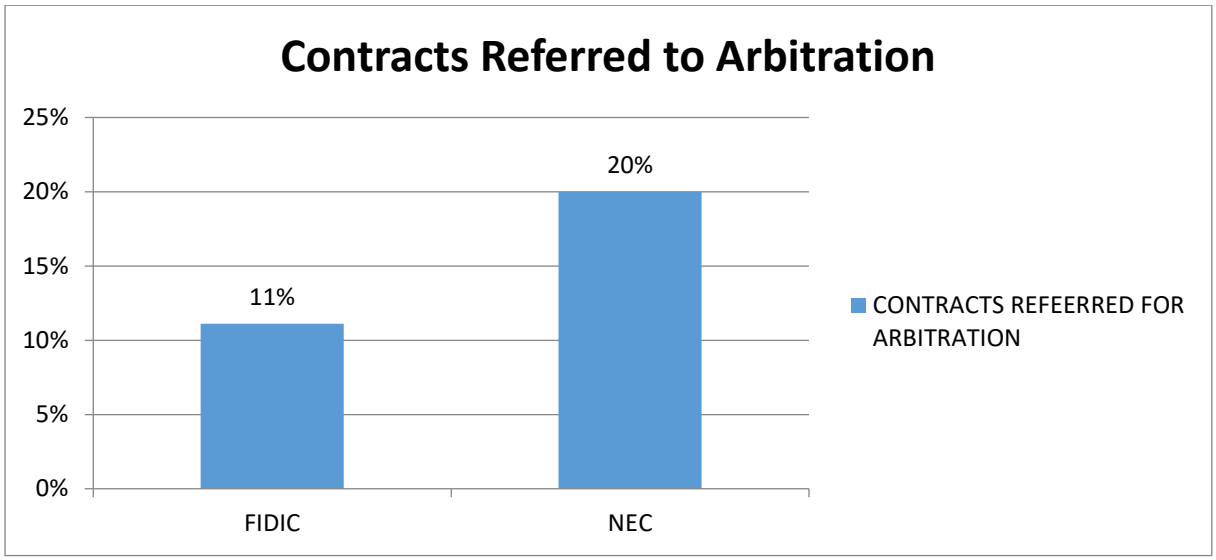

Figure 4.13: Contracts referred to arbitration in the FIDIC and NEC cases

The results showed that 11% of the FIDIC contracts used in the study had been referred for arbitration, and that 20% of the NEC had been referred for arbitration.

4.6 Data analysis and findings

This section analyses the findings on the NEC and FIDIC and compares this to the literature review in Chapter 2, as per the objectives.

4.6.1 Findings in dispute resolution methods endorsed in the standard forms of contracts

The FIDIC and the NEC cases complied with the methods endorsed in the standard forms of contract and the applicable clauses, namely Clause 20.2-4 FIDIC and Clause W 1 NEC.

NEC now includes an additional dispute resolution clause in its NEC4 (Option W3) contracts providing for the use of a dispute avoidance board. (Higgs and Patterson. 2019)

4.6.1.1 Difference between the Dispute Adjudication Board and the adjudicator

The FIDIC Clause 20.2 requires that a DAB must be appointed for any adjudication. In all the FIDIC contracts, the DAB was in place, of which 33% were the FIDIC standing boards and 67% were the ad-hoc boards. In the NEC contracts it states that an adjudicator be appointed and in all of the contracts used where the adjudicator was appointed, 73% were named in the contract and 27% were appointed by the engineering association.

Based on this research, the findings made in the report by Arcadis (2016) are applicable to the standing DAB and not the ad-hoc DABs. The Arcadis report (2016) states that when compared with adjudicators, DABs have certain benefits, as indicated in Table 4.2 below.

Table 4.2: Comparison between this study's findings and DRBF (2016)

DRBF (2016)	Research Findings
Panel members are highly valued because they are selected by the parties considering their reputation and expertise, whereas adjudicators are usually unfamiliar to the parties involved.	A total of 67% of the DAB panel were selected based on their expertise and reputation and 33% were standing DAB known to both parties. A total of 27% of the NEC adjudicators were unknown to the parties.
The involvement of the DB is introduced at the start of the construction/engineering project,	A total of 33% of the FIDIC DAB were involved from the beginning of the contract.

whereas adjudicators generally have no previous involvement or knowledge with either party.	All the adjudicators for the NEC were appointed when disputes arose.
The regular DB meetings that are held between the parties are used as a platform to identify and address any potential issues arising from the reporting procedure.	There are DB meetings for the standing DAB only, which is 33% of the FIDIC disputes. The research did not support the statement.

All FIDIC 2017 forms of contract contain provisions for dispute boards. As a result, much of the case law and guidance on dispute boards concerns the interpretation and application of the FIDIC dispute board provisions.

4.6.1.2 Appointment of an adjudicator or DAB and arbitrator for a referred case

The DAB or the adjudicator appointed in all the contracts was agreed on by both parties, as per the procedure. The 67% ad-hoc DABs and 33% standing DABs were appointed as per FIDIC Clause 20. The FIDIC DAB had 44% hearings and the NEC had 13% hearings. The FIDIC cases were more complex than the NEC cases. The only issue was with the three NEC contracts where the employer was not paying the contractor as per the adjudicator's ruling. These matters were referred to court to enforce the adjudicator's award and the employer paid.

4.6.1.3 Adjudication rulings in the FIDIC and NEC contracts

Within 84 days after having received such referral or within such other periods as may be proposed by the DAB and approved by both parties, the DAB shall give its decision.

Table 4.3: Summary of adjudication rulings in the FIDIC and NEC contracts

Author	Finding	Research findings
DRBF (2016); Harmon (2012); Zhang *et al*. (2016)	The decisions of the adjudicator or DAB is final and binding.	The decisions of the DAB and the adjudicator were final and binding.
Allan and Rooney (2013)	NEC3 ECC has shown to outperform other standard forms of contract in terms of time and cost certainty	The 42% ruling favoured the contractor and 27% favoured the employer. The FIDIC had 43% awarded to contractors and NEC had 57% of contractor awards. The results showed that 17% of the FIDIC and 47% of the NEC adjudicators were completed on time.
Zhang *et al*. (2016)	Hearing is arranged at the adjudicator's preference but is not mandatory.	The FIDIC DAB had 44% hearings and NEC had 13% hearings.

4.6.2 Findings on the main causes and driving factors of the construction contract disputes

The main sources and driving factors identified in the FIDIC contract and NEC contracts are reflected in Table 4.1.

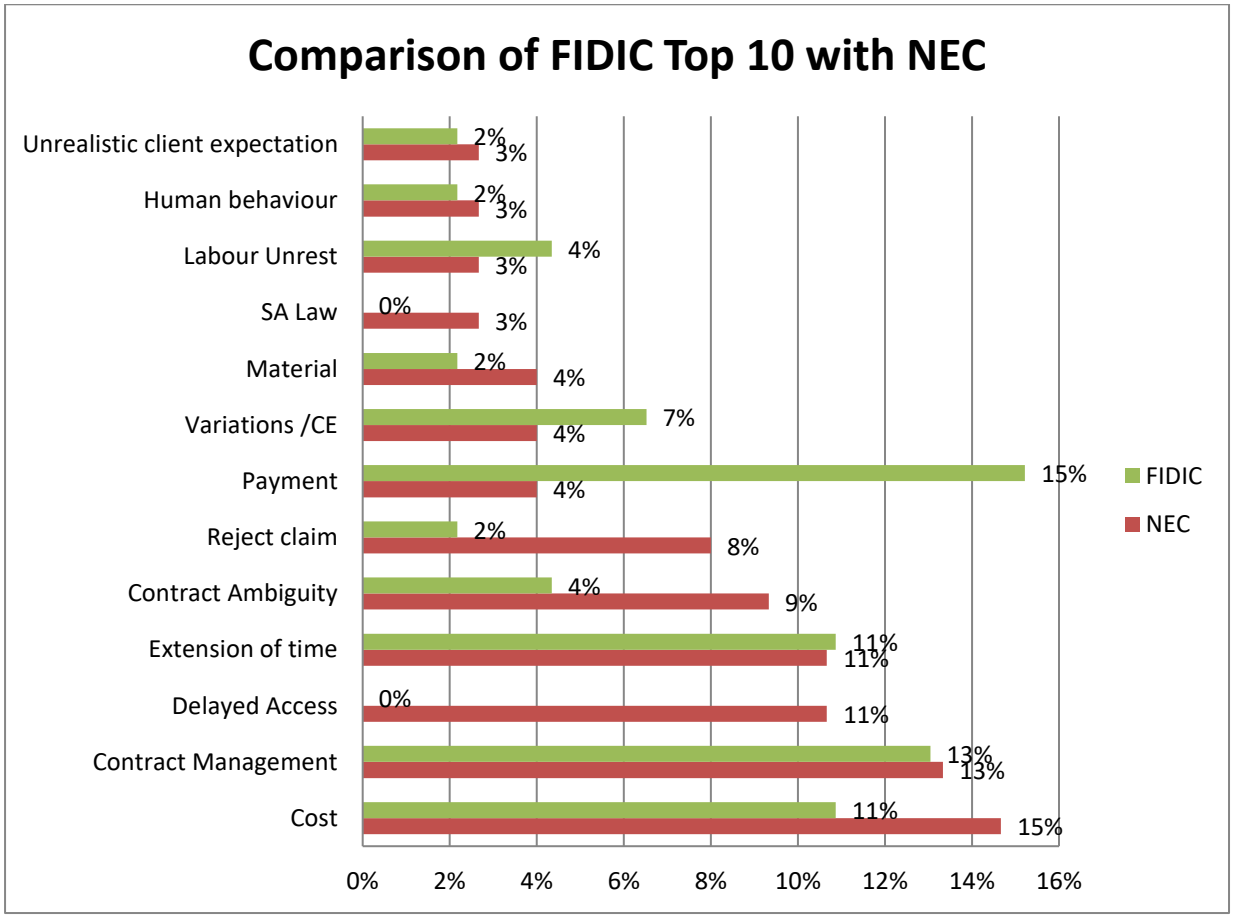

Figure 4.14: Comparison of NEC and FIDIC Top 10 sources of disputes

Contract management is the top source of dispute. The cost is item two in the FIDIC whereas it is item four under the NEC contracts. Delayed access is not in the top 10 of the NEC contracts owing to the contracting strategy that was deployed.

A total of 21 main causes and driving forces were identified in the FIDIC cases and 16 were identified in the NEC cases, as shown in Table 4.1. Some of the causes overlap, as reflected in Figure 4.14 above.

Eleven main causes were the same in the NEC and FIDIC contracts, namely, contract ambiguities, contract management, claim rejected, payment, cost, communication,

extension of time, material, performance and experience, human behaviour and unrealistic client expectation.

A total of six main causes were found in the FIDIC contracts but not in the NEC contracts, namely, delayed access, design/scope, SA law, poor planning, risk management, and weather conditions. Compared to NEC contracts, there is only one source of disputes that is not in the FIDIC contracts. Researchers have established that there are various interconnected sources that formulate the foundation of a dispute and a single source cannot justify forming a dispute (Hughes and Murdoch 2008).

4.6.3 Findings in determining whether some of the disputes referred to adjudication are avoidable

Looking at the results reflected in Figure 4.14, contract management is one of the main causes of disputes in FIDIC and NEC. This means that the personnel managing the contracts are not managing them efficiently, hence the adjudication process. Should these be managed properly, some of the disputes would have been avoided or managed through amicable settlements.

The results further revealed that risk management and human interface have very low percentage as the drivers of contract disputes. Based on this, the cases used in this study did not have a human interface. Cheung and Pang (2013) mentioned that conflicts and differences that cause disputes are observed between the parties and are linked to personality influences, power, dominance, egos, human nature or tendencies and behavioural issues.

CHAPTER 5: THE IMPACT OF FIDIC ADJUDICATION ON PROJECTS

5.1 Introduction

Dmaidi, Dwaikat and Shweiki (2013) state that for a project to be successful it is important that the requirements of the construction contract and obligations are agreed upon and fulfilled by the parties involved to achieve the anticipated contract benefits as efficiently and effectively as possible.

The summarised adjudication method for the FIDIC is illustrated in Figure 5.1 below.

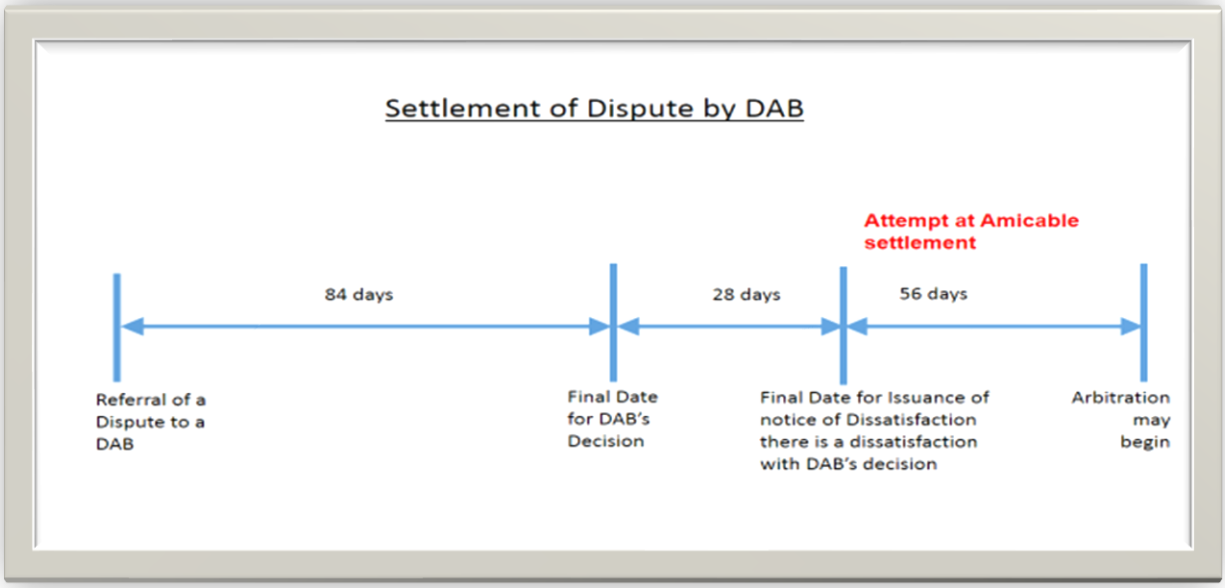

Figure 5.1: Summary of the FIDC dispute resolution method

5.2 Project success factors

Construction management or construction project management is the overall planning, coordination and control of a construction process from beginning to completion. According to Chou and Yang (2012), in successful projects, the actual final cost is lower than budgeted for and the actual progress is faster than expected, with anything else being regarded as a failure. Chou and Yang (2012) have also expressed that various project management knowledge areas impact project outcomes and form key factors in the performance of projects.

Maritz and Mewomo (2015) explain that construction performance mainly relies on the active involvement of the contracting parties, thereby allowing an environment for the effective delivery of projects within a specified time. Disputes among contracting parties arise from time to time, which can hinder the smooth operation of construction projects and can eventually jeopardise the industry's performance.

In entering into a contract, parties face a choice about how to deal with the risks inherent in the venture. Risks in contracts are allocated differently depending on the type of contract used (Hughes and Murdoch 2008). Claims and disputes are detrimental to contractual relationships, project deliveries, the construction industry, as well as the national and world economy (El-Adaway and Kandil 2009). Organisations have realised the need for proper and effective contract management; hence the recent interest in establishing contract management departments.

In a contract, a procedure should be made available to be used once a contractor or employer realises the need to pursue a claim. Submission for and against such a claim is usually made. In a contract, time periods will usually be set out for the contractor to give notice of a claim and to submit a claim. These must be identified, noted and complied with by the contractor (Bowmans 2016).

Grounds of claims include acceleration, restricted access, weather/cold, scope increase, parties' unrealistic expectations, ambiguous contract documents, poor communication between the project participants, a lack of team spirit, failure to promptly deal with changes, and unexpected outcomes (Love *et al*. 2010).

5.3 Disadvantages of adjudication in FIDIC contracts

Spence (2017) mentions reluctance to appoint dispute boards and the perception of the excessive costs of dispute boards due to the following:

- One of the larger costs is the employment of DAB members who do not reside in Africa as the travel costs could be considered excessive.
- (Perhaps) African problems should be resolved by African people.
- The construction industry has a reputation for disputes and conflict.
- A total of 50% of all legal costs incurred in construction projects are associated with disputes.

- A total of 10% of total project costs are legal costs.

Spence (2017) also mentions the refusal to accept bad decisions made by the employer. Despite their shortcomings, the use of DBs has generally been effective worldwide (Harmon 2012).

5.4 Advantages of adjudication in FIDIC contracts

According to Abedi, Fathi and Mohammad (2011), ADR is said to be more expedient and cost-effective, therefore, parties use the contract when things go wrong or disputes surface in an attempt to find a clause that will support their contractual position or justify a claim, or to allocate blame (Eggleston 2015). In their study, Maritz and Mewomo (2015) mention the distinguishing features of adjudication, as illustrated in Figure 5.2.

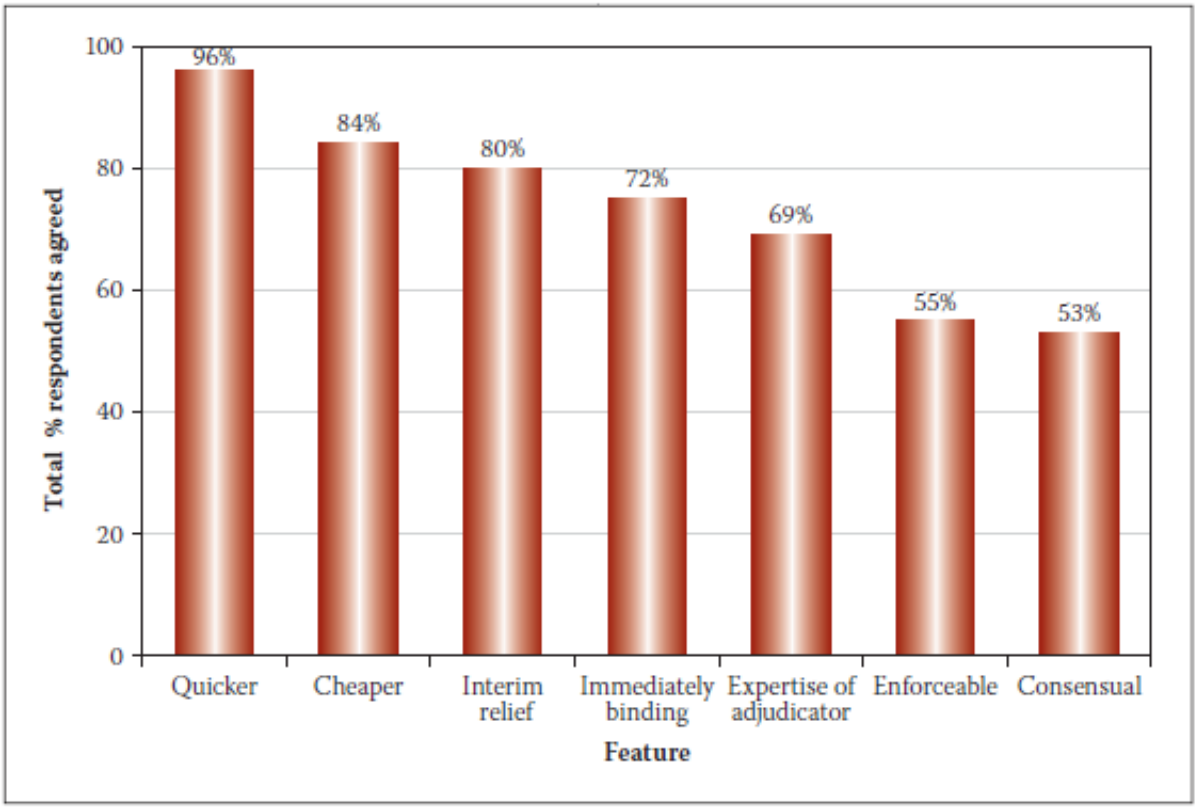

Figure 5.2: Distinguishing features of adjudication

5.4.1 FIDIC cost award results

Figure 5.3 shows the FIDIC results of this study.

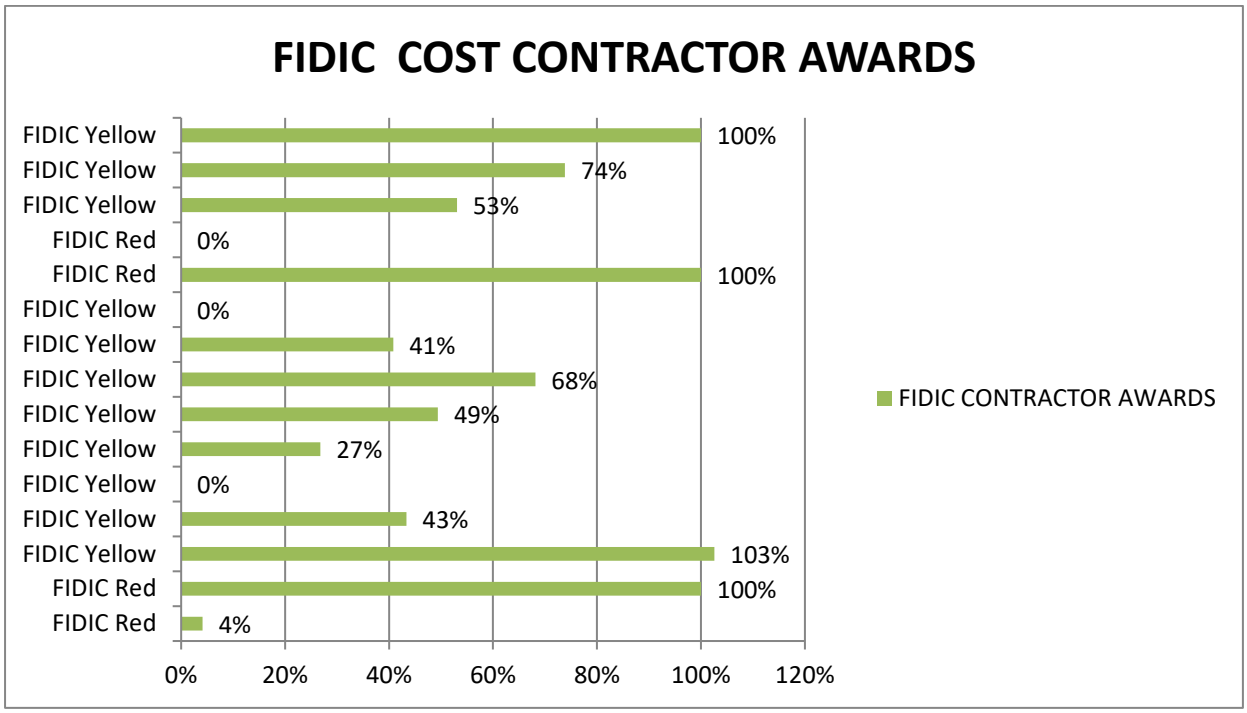

Figure 5.3: FIDIC cost awards to contractors

The awarded adjudications that were referred for contract ambiguity at zero cost are detailed in Table 5.1 below.

Table 5.1: Zero cost adjudication results

Form of Contract	% of the Amount Awarded	Adjudication Awards
FIDIC Red	100%	Contractor
FIDIC Red	100%	Contractor
FIDIC Yellow	0%	Employer

In summary, costs were awarded to the contractor, which increased the client's project budget. The disputes happened while the projects were under execution, which, therefore, did not affect the project timelines.

5.4.2 Skills and techniques

In a study conducted by Maiketso and Maritz (2012), a comparison was drawn between information on *adjudication skills* and *training* from selected institutions, namely the CIDB, Institution of Civil Engineers (ICE), Chartered Institute of Arbitrators

(CIArb), DRBF, American Arbitration Association (AAA) and FIDIC. The following major findings emerged:

- Formal training is common, varying from workshops to formal tuition and assignments.
- Formal assessment and accreditation, including examinations and peer reviews, are also common, used in different formats and to varying degrees of intensity.
- Continuing professional development as an ongoing requirement has become universal.

FIDIC, in its 2017 forms, has now introduced a dispute avoidance/adjudication board, or DAAB. The DAAB is a standing dispute board with dual roles: to issue decisions, like a DAB; and, importantly, to help the parties to resolve issues before they turn into formal disputes in the first place. (Higgs and Patterson. 2019).

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion: Identify the main causes of contract disputes

In this chapter, the conclusion and recommendations of the study are presented. The aim of the study was to evaluate whether the causes, practices and outcomes of the construction contract adjudication method for mega projects are similar to those of infrastructure-related construction contracts. A qualitative approach was adopted using a case study to answer the research questions. Data were collected from the analysis of 33 case study documents.

Some of the cases had more than one main source. A FIDIC case was referred to the DAB as the employer had delayed access to the working areas, which led to time extensions and cost impacts. The contract had access dates that the employer could not meet, which led to contract management being the cause of the dispute as well.

In comparing the FIDIC and NEC main causes of contract adjudication, the following was found in this study:

- The FIDIC contracts revealed more of the main causes than the NEC contracts.
- The two contracts showed the same causes for the disputes even though they varied in terms of being the highest or lowest in the contracts.
- There was one main cause of dispute in the NEC that was not reflected in FIDIC, whereas there were six main causes in FIDIC, but not in the NEC contracts.
- Costs and contract management were ranked as the highest sources or the causes of the disputes.
- Design, poor planning and risk management ranked as the lowest sources or causes of the disputes.
- The adjudicators' or DABs' disputes on the interpretation of the terms and conditions of the contract should have been avoided.

6.2 Conclusion: Are the disputes referred to adjudication avoidable?

Some disputes referred to adjudication should have been avoided for the following reasons:

- In both the FIDIC and NEC contracts, contract administration was in the top 10 causes of the disputes.
- There was more human interface in the FIDIC contracts than in the NEC contracts.

6.3 Conclusion: Assess the appropriateness of adjudication practices

The study was focused on the comparison of FIDIC and NEC contracts only. The conclusion regarding the most appropriate practice for the adjudication is as follows:

- NEC and FIDIC complied with the appointment of the adjudicator (NEC) and DAB (FIDIC), as per the contract.
- Both the FIDIC (clause 20.2-4) and the NEC (clause W1) disputes were referred for adjudication, as per the defined method in the contract.
- The FIDIC contracts had more rulings in favour of the employer than the NEC contracts.
- The FIDIC contracts had less rulings in favour of the contractor than the NEC contracts.
- The FIDIC contracts had far less DAB adjudications completed on time than the NEC adjudications.
- In both the FIDIC and NEC case studies, the adjudicator's decisions were binding and final and where dissatisfied, the parties were notified of the arbitration method.

Based on the latest FIDIC 2017 Dispute boards will have an increasingly important role to play in resolving the disputes that inevitably arise in the context of ever more complex global projects. There is a wealth of local knowledge and experience in South Africa to manage the construction disputes.

The NEC 4, disputes are first subject to an amicable dispute resolution stage, which is now stated to be mandatory, followed by adjudication.

6.4 Recommendations

The adjudication method was introduced to drive progress during the construction projects, irrespective of any disputes between the parties. This process allows for disputing parties to resolve their disputes without delaying progress in the projects.

The key root causes that contributed to adjudication in the construction contracts in the study were similar. Most of the driving factors were influenced by a lack of contract management in FIDIC and NEC. There were repeated causes of dispute which could have been avoided. It is suggested that there be an increasing awareness within the9 construction industry of the importance of dispute avoidance.

Some of the disputes referred for adjudication could have been avoided. The FIDIC contract allowed for settlement even after the dispute had been referred for adjudication. Both parties might agree to a settlement outside the DAB and inform the DAB. This assists in savings with regards to legal costs, expert costs and DAB costs for both parties.

The key strategic factor in dispute management is appropriate knowledge on managing construction disputes. The formal training of project managers, engineers, and contract managers on contract dispute avoidance and management is, therefore, recommended. In addition, the lesson learnt on the awarded adjudication cases must be published in organisations to ensure a common understanding and aligned focus on the primary mandate, namely optimal infrastructure delivery.

The construction disputes in the energy sector are heavily driven by the number of players in the dispute. In general, the more significant and complex the asset, the higher the likelihood of dispute arising out of the construction of the asset.

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APPENDICES

Appendix A: FIDIC Standing DAB Appointment Contract

DISPUTE ADJUDICATION BOARD AGREEMENT
Xxxxxxxxxx
CONTRACT REFERENCE No. XXXXXX

Between

ESKOM HOLDINGS LIMITED

(Registration No. 2002/015527/06)

Eskom Megawatt Park, Maxwell Drive, Sunninghill, Sandton

("the Employer")

And

XXXXXXXXXXXXX

("the Contractor")

and

XXXXXXXXXX

("the Member")

Whereas the Employer and the Contractor have entered into the XXXXX Contract **(Ref. No. XXXXXX)** ("the Contract") and desire jointly to appoint the Member to act as one of the three persons who are jointly called the "DAB" and desire the Member to act as chairman of the DAB.

The Employer, Contractor and Member jointly agree as follows:

1. The conditions of this Dispute Adjudication Agreement comprise the "General Conditions of Dispute Adjudication Agreement", which is appended to the General Conditions of the "Conditions of Contract for Construction" First Edition 1999 published by the Federation Internationale des Ingenieurs-Conseils (FIDIC), and the following provisions. In these provisions, which include amendments and additions to the General Conditions of Dispute Adjudication Agreement, words and expressions shall have the same meanings as are assigned to them in the General Conditions of Dispute Adjudication Agreement.

2. The General Conditions of Dispute Adjudication Agreement are amended by the deletion of The reference to the International Chamber of Commerce at clause 9 and inserting in its Place reference to the Standard Procedure Rules of the Association of Arbitrators (Southern Africa).

3. In accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member shall be paid as follows:

3.1 a retainer fee of RXXXXXX per calendar month;
3.2 a daily fee of RXXXXX per day.
3.3 where applicable, an hourly rate of R XXXXX. (all amounts are exclusive of VAT)

4. In consideration of these fees and other payments to be made by the employer and the Contractor in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member undertakes to serve, as described in this Dispute Adjudication Agreement, as one of the three persons who are jointly to act as the DAB.

5. The Employer and the Contractor jointly and severally undertake to pay the Member, in consideration of the carrying out of these services, in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement.

6. This Dispute Adjudication Agreement shall be governed by the law of the Republic of South Africa.

SIGNED: -
For and on behalf of the Employer
in the presence of:

Witness:
Name
Address:
Date:

SIGNED by:
For and on behalf of the contract
presence of:

Witness:
Name:
Address:
Date:

SIGNED by:

The member in the presence of
Witness:
Name:
Address:
Date:

Appendix B: Example of an Adjudicator's Contract

NEC3 Adjudicator's Contract

Contract between ESKOM HOLDINGS SOC LIMITED
(Reg No. 2002/015527/06)

and [•]

and [•]

for [•]

Contents:

Documentation prepared by:

Form of Agreement

This agreement is made on the **[•]** day of **[•][•]** 20 between

Eskom Holdings SOC Limited (Reg No. 2002/015527/06), Megawatt Park, Maxwell Drive, Sandton, Johannesburg, Republic of South Africa And

{Insert registered name and address of the supplying Party}

(the Parties) and

{Insert name and address of the Adjudicator}

(the *Adjudicator*).

1. The Parties appoint the Adjudicator in accordance with the conditions of contract stated in the NEC3 Adjudicators Contract (April 2013)[1] and the Contract Data attached to this agreement.
2. The Adjudicator accepts this appointment and undertakes to carry out the Adjudicator's duties as described in the conditions of contract.

Signed jointly on behalf of the Parties by:

	for the procuring Party	for the supplying Party
Signature(s)		
Name(s) (printed)		
Position in organisation		
On behalf of (name of organisation)	Eskom Holdings SOC Limited	
Signature of Witness(s)		
Name(s) (printed)		
Date:		

and signed by the Adjudicator:

Signature		Name (print)
Date:		

Contract Data

[Instructions to the contract compiler: (delete these two notes in the final draft of a contract)

[1] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 011 803 3009 or www.ecs.co.za
Insert "June 2005" in place of "April 2013" if previous edition is to be used.

1. Please read the relevant clauses in the NEC3 Adjudicator's Contract before you enter data. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.

2. Whenever a cell is shaded in the left hand column it denotes this data is optional and would be required in relation to the option selected. In the event that the option is not required select and delete the whole row. Where this symbol is used "**[•]**" - data is required to be inserted relevant to the specific option selected.]

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

Clause	Statement	Data
1.1	The *contract between the Parties* is	**[•]**
1.6	The *law of the contract* is the law of	**the Republic of South Africa**
1.9	The *language of this contract* is	**English**
2.6	The period of retention is	**[•] weeks**
3.1	The amount of the advanced payment is	**R [•]**
3.4	The Adjudicator's *fee* (which also applies to time spent travelling) is.	**R [•] per hour excluding value added tax**
3.5	The period for payment of invoices (if it is not three weeks), is	**[•] weeks**
3.6	The *currency of this contract* is	**the South African Rand.**
3.7	The *interest rate* is	**[•]% per annum above the prime lending rate of [•]**
4.3	The Adjudicator's appointment terminates	**18 months after completion of the whole of the works, services or supply in the *contract between the Parties*.**
	The *additional conditions of contract* are:	
	1	**[To be inserted by the Adjudicator as he requires]**
	2	

Appendix C: Application for Admission to the Institute of Civil Engineers South Africa Panel of NEC Adjudicators

APPLICATION FOR ADMISSION TO THE ICE-SA PANEL OF NEC ADJUDICATORS

Assessed against the ICE-SA Panel of NEC Adjudicators Admission Criteria of 05 August 2014

INSTRUCTIONS:

- All responses must include detailed particulars and may not merely consist of yes or no / abbreviated answers – the space provided will expand to accommodate this. Where, however, a maximum word count is stipulated, this must be adhered to.
- All particulars provided must be supported by appropriate documentation.
- Both Parts 1 and 2 must be completed in full, regardless of duplication of information.
- Should your application be successful, the particulars provided in response to Part 1 will be published on the ICE-SA website as your panel CV. You should not, therefore, include any confidential information in Part 1.

The qualities of an Adjudicator on the ICE-SA Panel of NEC Adjudicators can be expected to have as a minimum:

- ***Knowledge of the procedures in the NEC3***
- ***A full understanding of the roles within the NEC3 form of Contract.***
- ***A full understanding of how construction costs arise and how they are affected by changes to programme.***
- ***Knowledge of construction planning and how programmes are affected by change.***
- ***The ability to obtain technical and/or legal assistance when his own technical knowledge does not cover the matter in dispute;***
- ***The ability to obtain up-to-date information about construction costs when he does not have access to relevant cost data;***
- ***An appreciation of construction risks and how allowances for them should be set.***
- ***A sound knowledge of the law as it affects engineering and construction contracts.***

PART 1: CV FOR PANEL PUBLICATION

1.	*Personal Details:*		
	Title & Surname		
	Forenames		
	Date of birth		
	Address physical		

	Address postal					
			Fax		Tel	
			Cell			
			E-Mail:			
	Employer					
	Current Position					

2.	*Experience:*
	Experience as a built environment professional at a senior level (200 words max):
	Experience as a legal practitioner at a senior level (200 words max):

	Experience in working with NEC contracts and/ or dispute resolution experience (200 words max):
	Career overview including official positions held:
	Other professional activities and publications (200 words max)

PART 2: DEMONSTRATION OF COMPLIANCE WITH CRITERIA

Candidates applying to be accredited and admitted to the ICE-SA Panel of NEC Adjudicators are required to:	
1. be professionally registered of at least 10 years standing with a local or international built environment council, or be professionally registered of at least 10 years standing in the practice of law, with commercial experience in engineering and construction field, or be able to demonstrate equivalent qualifications and provide suitable motivation for the acceptance of such equivalent qualifications	
Name of Built Environment Council	
Category of Registration	
Date of registration	
Registration Number	
or	

Registration in Legal Practice	
Category of Registration	
Date of registration	
Registration Number	

2. have suitable work experience a) as a built environment professional on construction projects at a senior level **or** as an Attorney or Advocate practicing in the field of construction law **and** b) in the development of contract documentation, contract administration or disputes involving one or more contracts in the NEC family of contracts
General Work Experience:
As a built environment professional on construction projects at a senior level
Indicate the positions held and responsibilities whilst in that position
or
As an attorney or advocate practicing in the field of construction law
Indicate the positions held and responsibilities whilst in that position
and
Experience in the development of contract documentation, contract administration or disputes involving one of more contracts in the NEC family of contracts
Indicate which of the NEC family of contracts that you have a working knowledge of, i.e. ECC, ECS, ECSC, ECSS, PSC, TSC and CIDB supply contracts, and describe your experiences relating to such contracts in detail

3. demonstrate the following three outcomes defined below to peers through a written submission, an interview, a written examination, the submission of a portfolio of work, attendance of courses or a combination thereof as may be required by ICE-SA.
Outcome 1: Communicate the manner in which any one of the NEC3 family of contracts operate. Communicate the manner in which any one of the NEC3 family of contracts operate in respect of: • Risk management, project management and programming procedures • Compensation event procedures. • Payment procedures of the main Options. • The dispute referral and adjudication process. **Assessment Criteria:** Extensive experience in the following is essential: 1. Demonstrated ability to draft Contract Data; Goods Information; Services Information; Works Information; Scope and Pricing Data, **and** 2. Demonstrated experience in the administration of a NEC contract as a *Project Manager; Service Manager; Employer's Agent* or *Supply Manager* **or** Demonstrated ability to prepare information to be considered by an *Adjudicator* or acting as an *Adjudicator*.

Demonstrate ability to draft Contract Data; Goods Information; Services Information; Works Information; Scope and Pricing Data.

Which of the NEC family of contracts do you have a working knowledge of? Demonstrate how.

and

Demonstrate experience in administration of a NEC contract as a *Project Manager; Service Manager; Employer's Agent* or *Supply Manager*

Have you been required to act as one of the principal parties in an NEC Contract? Demonstrate how.

or

Demonstrate ability to prepare information to be considered by an *Adjudicator* or acting as an *Adjudicator*.

Do you have experience in preparing adjudication submissions? Demonstrate
Have you previously undertaken work as an Adjudicator? Demonstrate

Outcome 2: Communicate with experts in other professions regarding a dispute.

Communicate with experts in other professions regarding a dispute.

Assessment Criteria:

1) Demonstrate the ability to communicate factual and technical information and questions on matters of law regarding the contract to experts.
2) Demonstrate the ability to receive and interpret communications from experts.
3) Acknowledges and recognises limitations of own skill base in order to know when advice is required from others.
4) Demonstrate a full understanding of the differences between Adjudication and other dispute resolution processes such as Mediation or Arbitration.

Demonstrate the ability to communicate factual and technical information and questions on matters of law regarding the contract to experts

Have you had to prepare factual reports and other contractual communications for use by other experts? Demonstrate how

Demonstrate the ability to receive and interpret communications from experts.

Have you had to analyse and interpret communications from experts? Demonstrate how

Acknowledge and recognise limitations of own skill base in order to know when advice is required from others.

Do you consider you have a reasonable knowledge of Construction Law? Demonstrate how

Demonstrate a full understanding of the differences between Adjudication and other dispute resolution processes such as Mediation or Arbitration

Demonstrate how these dispute mechanisms differ.

Outcome 3: Ability to adjudicate a dispute under a NEC contract.

Ability to adjudicate a dispute under a NEC contract.

Assessment criteria:

1) Demonstrate appropriate processes and procedures required in terms of the NEC contract in order to:

- Ascertain the contractual position of the Parties to a dispute.
- Identify correct procedures in accordance with the provisions of an NEC Contract.
- Communicate the inquisitorial process associated with an adjudication.

• Calculate the amount of money and / or time that either Party may be due in accordance with the NEC compensation procedures. 2) Define the rules of natural justice, common law principles, contract law, legal precedent and statutory legislation as they are applied to a dispute. 3) Demonstrate the ability to present fair and impartial judgement in written arguments and present decisions in a clear understandable form capable of in-depth scrutiny.
Demonstrate appropriate processes and procedures required in terms of the NEC contract in order to: • **Ascertain the contractual position of the Parties to a dispute.** • **Identify correct procedures in accordance with the provisions of an NEC Contract.** • **Communicate the inquisitorial process associated with an adjudication.** • **Calculate the amount of money and / or time that either Party may be due in accordance with the NEC compensation procedures.**
Describe how an NEC adjudication takes place. Describe the typical steps in an NEC Adjudication process.
Define the rules of natural justice, common law principles, contract law, legal precedent and statutory legislation as they are applied to a dispute.
Describe these legal terms and how they apply under Adjudication.
Demonstrate the ability to present fair and impartial judgement in written arguments and present decisions in a clear understandable form capable of in-depth scrutiny
Have you had to prepare written arguments, or decisions in a dispute? Demonstrate how you've undertaken this, and provide a typical sample.

DEMONSTRATING COMPLIANCE WITH CRITERIA:

Acceptable means of demonstrating compliance with the Admission Criteria include (but are not limited to):

- Attendance and passing of courses associated with aspects of NEC Adjudication is a recommendation;
- Attendance of NEC3 training events, workshops and User Group events;
- Experience, knowledge and understanding of the construction industry at the date of application to be placed on the ICE-SA Panel of NEC Adjudicators;
- Prior involvement in commercial disputes adjudicated by others under the NEC family of contracts;
- Experience of having performed alternate dispute resolution under a form of contract other than NEC, or
- Prior interaction with technical, commercial, legal and other experts in the construction industry.

REFEREES		
Give names and addresses of two referees		
Referee #1:	**Name:**	**Tel:**
Explain how the referee knows you.		

Referee #2:	Name:	Tel:
Explain how the referee knows you.		

DECLARATION

I have read the requirements for inclusion in the ICE-SA Panel of NEC Adjudicators and ask for the reviewers to waive the following requirements for the following reasons:

(If all requirements satisfied enter 'none')

I wish to be enrolled on the ICE-SA Panel of NEC Adjudicators, and am prepared to undertake adjudications for the following forms of NEC Contract:

CONTRACT EXPERIENCE		Experience	Adjudicate
NEC	NEC3 Engineering and Construction Contract (ECC)		
	NEC3 Engineering and Construction Subcontract (ECS)		
	NEC3 Engineering and Construction Short Contract (ECSC)		
	NEC3 Engineering and Construction Short Subcontract (ECSS)		
	NEC3 Professional Services Contract (PSC)		
	NEC3 Professional Services Short Contract (PSSC)		
	NEC3 Term Service Contract (TSC)		
	NEC3 Term Service Short Contract (TSSC)		
	NEC3 Supply Contract (SC)		
	NEC3 Supply Short Contract (SSC)		
	NEC3 Framework Contract (FC)		
	NEC3 Adjudicator's Contract (AC)		
CIDB	Standard Professional Services Contract (1014) - Third Edition		
	General conditions of purchase (1018) - Third Edition		
	General Conditions of Service edition 1		
	Contract for the Supply and Delivery of Goods (1019) - Third Edition		
	The Supply Contract (1021) - Second Edition		
	Supply of Goods (Short Contract) (1020) - Second Edition		
FIDIC	Construction Contract 1st Ed (1999 Red Book)		
	Plant And Design-Build Contract 1st Ed (1999 Yellow Book)		
	EPC/Turnkey Contract 1st Ed (1999 Silver Book)		
	DBO Contract 1st Ed (2008 Gold Book)		
	Construction Contract MDB Harmonised Ed (Version 2: March 2006 Harmonised Red Book)		
	Short Form Of Contract 1st Ed (1999 Green Book)		
	Dredgers Contract 1st Ed (2006 Blue-Green Book)		
SAICE	GCC2004		
	GCC2010		
JBCC	JBCC Principal Building Agreement (Edition 5.0)		
	JBCC Minor Works Agreement (Edition 4.0)		

I attach my Curriculum Vitae, and a cheque for R 1000 or proof of payment of an amount of R 1000 into the ICE-SA's bank account :

Name of Account:	ICE-SA
Bank Name :	First National Bank
Account Number:	62750652482
Branch Code:	210554
Branch Name:	Commercial
Swift Code:	FIRNZAJJ

I confirm that I:

1) will not take on any adjudication where a conflict of interest might exist; 2) will perform any adjudications that may be assigned to me promptly and in accordance with the provisions of the contract; 3)will before 01 July of each year that I am on the panel, submit an Annual Return and pay the applicable annual renewal fee of R500.			
Signature:		**Name (Print)** **Date:**	

Appendix D: South African Institute of Civil Engineers Procedure for Appointment of an Adjudicator or DAB and Arbitrator

SAICE PROCEDURE FOR APPOINTMENT OF AN ADJUDICATOR OR DAB AND ARBITRATOR

To enable the President to nominate a suitable person, the following information is needed:

- The type of nomination required; arbitrator, adjudicator or amicable settlement facilitator
- The names of the Parties and their representatives or agents.
- A copy of the Dispute Notice and the Contract Data listing the conditions of contract applicable to the contract.
- The specific clause, if applicable, in the contract agreement stipulating dispute resolution through arbitration, adjudication or amicable settlement and giving rise to the request for the nomination.
- Copies of relevant further correspondence between the parties concerning the dispute.
- The names of the persons who may have already been considered and rejected by the parties.
- A brief description of the dispute, including of the role of the parties involved in the dispute.
- The location of the subject matter of the dispute

(https://saice.org.za/saice-mediation-arbitration-adjudication/; 13 August 2019 at 13h20)

Appendix E: Language Editing Certificate

DR RICHARD STEELE
BA, HDE, MTech(Hom)
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EDITING CERTIFICATE

Re: **ZIZODWA ZIZO MKHIZE**
Master's dissertation: **EVALUATION OF ADJUDICATION AS A DISPUTE RESOLUTION METHOD – NEC AND FIDIC**

I confirm that I have edited this dissertation and the references for clarity, language and layout. I returned the document to the author with track changes so correct implementation of the changes and clarifications requested in the text and references is the responsibility of the author. I am a freelance editor specialising in proofreading and editing academic documents. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homoeopathy at Technikon Natal in 1999 (now the Durban University of Technology). I was a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology for 13 years.

Dr Richard Steele
25 June 2021
per email

Appendix F: Published Article

CONTRACTING

FIDIC versus NEC

When it comes to contract disputes, the FIDIC and New Engineering Contract (NEC) suites both have their merits, but which is the most practical and cost-effective?

By Zizodwa Zizo Mkhize

The *Global Construction Disputes Report* (2018) definition outlines a situation where two parties typically differ in the assertion of a contractual right, resulting in a decision being given under the contract, which in turn can become a formal dispute. The important point is to find a middle ground that achieves favourable resolution.

In this respect, the construction contract adjudication process is a form of dispute resolution that meets a need for a rapid, inexpensive mechanism where agreed-on outcomes can be implemented immediately. The aim of my study was to evaluate if the clauses of the construction contract adjudication method for FIDIC (International Federation of Consulting Engineers) were similar for NEC infrastructure construction projects.

Dispute resolution methods in South Africa

Table 1 shows the four standard forms of construction contracts used in South Africa, as noted by the Construction Industry Development Board and the applicable dispute management clauses.

Two prominent methods used for resolving disputes include the dispute adjudication board (or DAB) and statutory adjudication. The DAB is utilised under FIDIC contracts, while adjudication is utilised within the NEC, JBCC (Joint Building Contracts Committee) and GCC (General Conditions of Contracts) framework.

FIDIC versus NEC adjudication

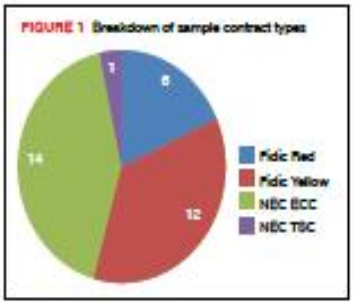
FIDIC contracts make provision for arbitration as the final dispute resolution method, while the NEC prescribes litigation as the final method. In addition, FIDIC contains a provision for adjudication, while NEC renders adjudication compulsory, and has a separate adjudicator's contract.

In both the DAB and adjudicator's case, decisions are final and binding. That's if no notice of dissatisfaction is raised by either party within 28 days after the decision.

Several studies have confirmed that there is no single source of disputes, since various interconnected factors combine to form them. However, where delays do occur, this has adverse consequences on project objectives in terms of time, cost and quality.

According to the *Global Construction Disputes Report*, the most important activities in helping to avoid a dispute are proper contract administration, fair and appropriate risk and balances in the contract, and accurate contract documents.

FIGURE 1 Breakdown of sample contract types



Zizodwa Zizo Mkhize, Pr CPM (SACPCMP), senior manager: Contracts Management at Eskom

Research methodology

My research focused on the principal or main contractors only, as they signed a direct contract with one organisation. The research study was mainly qualitative in nature because of the questions to be answered. A total of 37 awarded adjudication cases were analysed, of which 19 were FIDIC and 18 NEC contracts. The FIDIC analysis referenced high-value and complex projects, whereas the NEC was used for non-complex and low-value projects.

A comparison between the FIDIC suite of contracts and the NEC suite is very complex because there are many contracts in each family. Therefore, it was never clause-to-clause. The scope of this study was limited to the concluded adjudication cases for the construction infrastructure contracts only.

The case study was based on the type of contracts as per Figure 1.

Key findings

There were 21 main causes and driving forces identified in the FIDIC cases and a total of 18 were derived from the NEC cases (see Table 2).

Figure 2 in turn represents a comparison of the top 10 FIDIC and NEC causes of adjudications.

Conclusions and recommendations

In comparing the FIDIC and NEC main causes of contract disputes, the summarised conclusion is as follows:

- There are comparable causes of disputes among the two contracts even though they vary in terms of ranking on each contract.
- Cost and contract management ranked as the highest source or the cause of the disputes.
- Design, poor planning and risk management ranked as the lowest source or cause of the disputes.
- The adjudications or DAB's disputes on the interpretation of the contract terms and conditions of the contract should have been avoided.

The key strategic factor in dispute management is the appropriate knowledge in managing the construction disputes. The formal training of project managers, engineers and contract managers on contract dispute avoidance and management is therefore recommended. In addition, the lessons learnt on the awarded adjudication cases must be published within organisations to ensure common understanding and aligned focus on the primary mandate – namely, optimal infrastructure delivery. [8]

TABLE 1 Dispute-resolution methods endorsed in the standard forms

Contract type	Adjudication/dispute adjudication board	Arbitration
FIDIC	Clause 20.2	Clause 20.6
NEC	Clause W1.1	Clause W1.1
GCC	Clause 10 GCC 2019 Guidelines	Clause 10 GCC 2019 Guidelines
JBB	Clause 30.3	Clause 30.5, Clause 30.7

FIGURE 2 Comparison of the top 10 FIDIC and NEC causes of adjudications

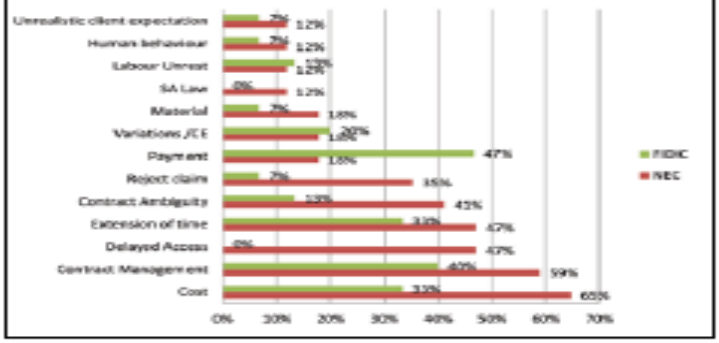


TABLE 2 Main causes and driving forces of disputes in FIDIC and NEC cases

Sources of disputes from the cases	Number of occurrences in NEC	Number of occurrences in FIDIC	Total numbers of occurrences	Ranking
Communication	5	1	6	7
Contract ambiguity	2	7	9	4
Contract management	6	10	16	1
Cost	5	11	16	1
Delayed access	0	8	8	5
Design/scope	0	1	1	11
Dispute settlements	1	1	2	10
Extension of time	5	8	13	2
Human behaviour	1	2	3	9
Labour unrest	2	2	4	8
Material	1	3	4	8
Payment	7	3	10	3
Performance and experience	3	1	4	8
Poor planning	0	1	1	11
Quality	1	1	2	10
Reject claim	1	6	7	6
Risk management	0	1	1	11
SA law	0	2	2	10
Termination	2	0	2	10
Unrealistic client expectation	1	2	3	9
Variations/CE	3	3	6	7
Weather conditions	0	1	1	11

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This article is an edited version of the original paper. Full references are available from the author.

Source: [https://issuu.com/glen.t/docs/imiesa_march_2021?fr=sYWE3ZjMxOTM4NDE]

Appendix G: Summary of DAB/adjudication cases

Contract Name	Form of contract	Dispute	DAB /Adjudicator Decision
KPS001	FIDIC Red	The Contractor raised a dispute requesting payment of reasonable profit on the increased cost imported steel as per two variations instructed by the Engineer due to the steel shortage in South Africa. The Employer disputed this entitlement on basis that the instructed event constituted a force majeure and therefore the contractor is not entitled to any profit.	The Contractor is not entitled to Profit. The Employer must pay actual cost.
KPS002	FIDIC Red	The Contractor requested DAB to give a decision, whether the Contractor's standard letters issued to the Engineer constitute to a valid notice.	The Contractor's standard letters provided for the referral comply with the requirements of Sub clause 1.9 and constitute a valid notice.
KPS003	FIDIC Red	The Contractor raised a dispute stating that the Engineer failed to certify in relation to	Contractor to substantiate resources and the Employer is obliged to make payment to those

		interpretation and implementation of payments that the Engineer ought to certify lump sum on the event that was already incurred prior to issuing of VO and the difference to be paid in equal monthly instalments.	resources. If, as results of the calculations, there is an adjustment to be made to interim payment, interest might become an issue.
KPS004	FIDIC Red	The Contractor disputed responsibility in relation to micro concrete topping delaminating and cracking. Engineer argued that the Contractor was knowledgeable to the materials, good quality and reasonably fit for purpose for the material he uses.	The Engineer issued specific instruction specifying the product to be used. The fact that the Contractor knew the use of this product does not warrant skill and judgement. There is no basis that the Engineer relied on Contractor's skill and knowledge when specifying the material. There is no warrant for fit for purpose that can be implied. The Employer is responsible and liable to the cracking delamination to the micro toppings.
KPS005	FIDIC Yellow	The Contractor raised a dispute, and is requesting a decision based on the consequence of the instruction by the Engineer to implement Project Labour	The contractor is entitled to EOT and cost and conducted an impact of PLA.

		Agreement (PLA) which has trigger of extension of time (EOT) and cost incurred by the Contractor.	
KPS006	FIDIC Yellow	This is the Decision of the Dispute Adjudication Board ("DAB") in relation to the claim referred by the Contractor pursuant to the Referral Notice Re: Additional Labour Costs.	The contractor is entitled to EOT and cost, all other claims are dismissed.
KPS007	FIDIC Yellow	The Contractor raised a dispute, alleging that the Employer did not provide Laydown yard (A, B & C) as per the conditions required by the contract. The Contractor claimed entitled to payment of additional Costs plus reasonable profit and interest. The Employer rejected the Contractor's claims.	The Contractor's claims for sums arising out of the provision of the Laydown Areas have not been proven and they are therefore denied.
KPS008	FIDIC Yellow	The Contractor raised a dispute for cost entitlement and other cost (Profit & Interest) arising out of EOT for delayed access. The Employer rejected the Contractor's claims.	Decision was in favour of the Contractor claim for EOT and DAB made reasonable calculations of the days to be awarded.

KPS009	FIDIC Yellow	The Contractor raised a dispute for cost entitlement and other cost (Profit & Interest) arising out of EOT for delayed access. The Employer rejected the Contractor's claims.	Decision was in favour of the Contractor claim for EOT and DAB made reasonable calculations of the days to be awarded.
KPS010	FIDIC Yellow	The Contractor raised a dispute for cost entitlement and other cost (Profit & Interest) arising out of EOT for delayed access.	Decision was in favour of the Contractor claim for EOT and DAB made reasonable calculations of the days to be awarded.
KPS011	FIDIC Yellow	The Contractor claims entitlement to an Extension of Time ("EOT") arising out of a national Strike by the National Union of Metalworkers of South Africa ("NUMSA") during July 2014 ("the Strike"), which it says constituted Force Majeure under the Contract, plus a period for the re-induction of labour, together with the cost occasioned by the Strike and re-induction of labour, plus interest.	The DAB considers that having recognised the Strike as constituting a Force Majeure event, the Engineer on behalf of the Employer would or should have recognised that an entitlement to reimbursement of substantial Costs would arise.
KPS 012	FIDIC Yellow	The Contractor claims entitlement in principle to payment of additional costs said to have been incurred in respect of storage of plant	The Contractor is not entitled in principle to claim for and payment of additional Costs plus reasonable profit incurred in respect of storage

		and materials, logistics and related costs as a result of delayed access.	of plant and materials, logistics and related costs as a result of delayed.
KPS013	FIDIC Red	The Engineer issued an instruction to the Contractor, to undertake specific work to achieve certain objectives of the Employer. The Contractor was instructed to provide a Variation Order Proposal (VOP) for the resulting Variation, which it did, and proceeded to carry out and complete the work	The DAB agrees that the Works executed by the Contractor under Engineer's Instruction could reasonably have impacted the Contractor's planned costs
KPS014	FIDIC Red	In this dispute, the Contractor contends that the Employer breached the Contract in respect of the latter's obligations to deliver various free issue materials. Those breaches, contends the Contractor, constitute delay events and has resulted in the Contractor suffering losses. As a result, the Contractor claims an extension of time; additional time-related Preliminary and General costs; and additional costs as a result of disruption	The Contractor bears the onus and duty of demonstrating compliance with the requirements of the Contract. It has thus failed to do so at the first hurdle, being its claims submissions. In these circumstances, the Disruption Claim is dismissed

MPS001	FIDIC Yellow	The contractor raised a dispute with the Engineer over the failure and/or refusal to grant the Contractor additional time and costs as a result of Employer's instructions to implement a Project Labour	The DAB - Decision was in favour of the Contractor claim and made reasonable calculations of the days to be awarded.
MPS002	FIDIC Yellow	The Contractor raised a dispute, alleging that the Employer failed to give full access of the site as stated in the contract.	Contractor is not entitled under the provisions of Sub-Clauses 2.1(a) and 8.4 of the Conditions of Contract to an extension of the Time
MPS003	FIDIC Yellow	The Contractor raised a dispute with regards to Force Majeure (strike) that was rejected by the Engineer.	The Contractor was delayed by as a result of the Strike therefore being entitled to an extension of time to complete the whole of the Works
MPS004	FIDIC Yellow	The Contractor raised a dispute with regards to a claim for EOT as a result of the Employer's failure to meet the agreed interface dates. The Employer rejected these claims requested proof that these interface delays was on critical path, that it impacted completion.	The Contractor is entitled to the EOT as detailed in the award:

GCD001	ECC Black	The Contractor referred a dispute due to a deduction by the Project Manager resulting from the Contractor purportedly having caused changes and/or modifications to the Employer's forward cover arrangements derived from Clause Z12 of the Contract.	The deduction by the Employer in the amount of from payment certificate was unlawful; The Employer is directed to make payment to the Contractor
GCD002	ECC Black	The Contractor referred a dispute due to a reversal and/or retraction of a duly issued and accepted Compensation Event.	In particular, Clause 61.2 specifically provides that: "*The Project Manager may instruct the Contractor to submit quotations for a proposed instruction or a proposed changed decision.* ***The Contractor does not put a proposed instruction or a changed decision into effect****."* The Contractor's claim/Dispute is dismissed.
GCD003	ECC Black	The Contractor referred a dispute due to the payment of interest due to the Contractor by virtue of the Employer's failure to make timeous payments.	The Adjudicator has found no provision in the Contract which would allow the Employer to unilaterally amend the payment terms. Nether have he found any reference as to what additional documentation (**COIDA, Tax**

			Clearance Certificate, etc.) the Contractor must provide in order to secure payment. The Contractor's claim to be paid with interest.
GCD004	ECC Black	The Contractor referred a dispute due a deduction by the Project Manager resulting from the Contractor purportedly having caused changes and/or modifications to the Employer's forward cover arrangements derived from Clause Z12 of the Contract.	The deduction by the Employer was unlawful; The Employer is directed to make payment to the Contractor with interest at the contractual rate.
GCD005	ECC Black	The Contractor raised a dispute claiming that the Project Manager failed to assess the amount due for interim payment certificates, failed to pay the Contractor's invoice based on the Contractor's assessed amount due and under paid the invoiced amount. The Contractor also claimed Compensation for standing time, legal cost for mobilisation and demobilisation.	The Project Manager is required to produce a payment certificate under 50.1 clause of NEC3 (ECC) corresponding to the assessed months regardless of whether or not there is a Contractor's application and was instructed to issue one immediately, inclusive of late payment interest. The compensations that were not yet notified and did not follow event implementation as per clause 65.1 were dismissed to form part of a payment certificate.

GCD006	TSC	The Contractor's claims and the alleged basis for these claims are: The Employer has failed to pay the Contractor the agreed amount from the facts that in terms of the agreement between the parties the Contractor was required to service twelve 6m3 Skip bins and the Employer was obliged	The Adjudicator's decision is that all the Contractor's claims must be disallowed except for the admitted rental claim.
GCD007	ECC	The Contractor raised a dispute related to four compensation events that were not paid by the Employer. The Contractor's dispute is that these compensation events were caused by labour unrest and it was outside of his control and he relied on the Prevention clause (19) for this claim. The Employer rejected the claim, mentioning that the Contractor's actions caused labour unrest.	The decision in respect of the dispute which has been submitted to the Adjudicator is therefore that the community unrest detailed in CE 057 (parts 1 to 3) and CE 065 constitute valid Compensation Events, timeously notified and entitles the Contractor to a change to the Prices, Key Dates and the Completion Date, to the extent that the Contractor is able to adequately sustain its motivation for such changes.

GCD008	NEC ECC	The Contractor argues that the Employer is precluded from imposing delay damages by virtue of the entry made by the Employer in the Contract Data against X7.1 in terms of which the computation of delay damages	The Employer is entitled to impose delay damages for each day of delay by the Contractor beyond the Completion Date at the rate as stated in the Contract Data
GCD009	NEC-ECC	The disputes referred to me are encapsulated in Claims 1 and 2, as submitted by the Contractor, which can be broadly described respectively as, first, the under-recovery claim and unpaid acceleration costs and, secondly, as costs due on termination by the Employer	Employer is liable to pay to the Contractor. In respect of the under recovery of scaffolding costs, the Contractor's claims under Claim 1 are dismissed. The Employer is to pay the Contractor interest on the aforesaid sum. For the reasons set out above, the Contractor's claims under Claim 2 are dismissed.
GCD010	NEC ECC	The Contractor lodged the dispute as the employer was not implementing the Adjudicator's decision.	The Adjudicator's awarded amount has been paid. The Sheriff has served Contractors application for the enforcement of the adjudicator's award on Eskom, for interest to be paid on the awarded amount.
GCD011	NEC ECC	The Contractor lodged the dispute as the employer was not implementing the Adjudicator's decision.	The Adjudicator's awarded amount has been paid. The Sheriff has served Contractor's application for the enforcement of the

			adjudicator's award on Eskom , for interest to be paid on the awarded amount
GCD012	NEC ECC	The Employer was not paying the retention money after the defects period had lapsed	Retention amount was paid to the Contractor
GCD013	NEC ECC	The Contractor gave notice to the Employer for the adjudication due to termination of the contract by the Employer	I am accordingly of the view that the termination of the Section B Contract was effected properly and was not premature
GCD014	NEC ECC	The contractor referred as the Employer refused to pay for the community unrest, change to prices, key dates and completion date	The adjudicator ruled that the compensation events are valid therefore the Employer must pay
GCD015	NEC ECC	The Contractor referred for the outstanding payment and termination by the Employer	the Project Manager was not obliged to issue a Termination Certificate and it is accordingly unnecessary for me to review the action of the Project Manager other than to endorse such action