2024 Scienceline Publication

Journal of Civil Engineering and Urbanism

Volume 14, Issue 3S: 172-181; September 25, 2024 ISSN-2252-0430

DOI: https://dx.doi.org/10.54203/jceu.2024.17

Experiences Encountered while Using Construction Contracts during Project Delivery in Botswana

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RESEARCH ARTICLE

PII: S2252043024000017-14

Received: June 25, 2024

Revised: September 11, 2024

Accepted: September 12, 2024

ABSTRACT

Various forms of contracts guide the construction project delivery processes across the world. To make procurement more accessible and faster, various institutions have developed what is known as standard forms of contracts (SFoC). These institutions believe that SFoCs could be used in an adopted or adapted mode to reduce the burden of writing contracts every time a project is procured. This article discusses the results of a study that investigated the effectiveness of identified SFoCs and the experiences encountered by key stakeholders in using the contracts during construction project delivery. Study participants were drawn from contractor, consulting and client organisations and completed a questionnaire with both closed and open-ended questions. 11 attributes synthesised from literature were used to measure the effectiveness of a contract. Three major SFoCs were identified as being used in Botswana: the Joint Contract Tribunal (JCT), the New Engineering Contract (NEC) and International Federation of Consulting Engineers (FIDIC). The FIDIC has a long history of use, but in recent years, the NEC entered the arena. Due to the low usage of the JCT, the discussion centred on the NEC and FIDIC contracts. Some insights were drawn from the study. Respondents did not find a big difference in the effectiveness of the two contracts (WME for NEC =3.3 and FIDIC =3.1). However, there were a few attributes for which the NEC seemed to be a better contract. These were a) simple and non-legalistic language with self-contained clauses and b) a communicative and proactive risk management regime, which respondents identified with a propensity to reduce or avoid disputes. The study had the limitations of having used a small (38) sample of respondents and the fact that NEC has not been used in the country for the length of time as the FIDIC contract.

Keywords: Construction contract, Standard forms of contract, Contract Administration, Construction industry, Botswana

INTRODUCTION

Ever since the pronunciation of the Code of Hammurabi (Urch, 1929), there has been a concerted effort to tame the vagaries of the construction work. Various contracts have been developed to stipulate the scope of construction work, identify events that might affect it, and allocate duties, responsibilities, and rights among the parties during the construction process. This is more so given the uncertainty surrounding project delivery, where risks are the norm rather than the exception. Global construction work affiliated institutions have developed various documents for decades to guide the project contract management process. There are now several pre-written or standard forms of contracts (SFoC) around the world which may be adapted or adopted by the contracting parties. SFoCs contain terms and conditions that may be used for projects within a certain category (e.g. design and build) but give employers a chance to modify the conditions of the contract to suit the project (Murdoch and Hughes, 2007). Some authors (e.g. Gacia, 2005) have noted each has its focus, strengths and weaknesses and hence may be suitable for adaptation, depending on the peculiarities of the project and its environment. Since the formation of a contract involves acceptance of an offer, an intention to have a legally binding agreement, performance and payment, each SFoC has a way of dealing with various aspects of construction, which include, for example, (i) separation and speed of design and construction, (ii) extent of client's involvement, (iii) cost certainty, (iv) capacity for variations, (v) allocation of risk, (vi) clarity of various remedies, (vii) dealing with disputes, and (vii) project complexity (Bralić, 2019). The aim of the differentiation is to provide an appropriate

contract form that caters for various procurement methods (e.g. traditional, design & build, turn-key, etc.), types of clients (e.g. global multilateral development banks), and nature of project work (e.g. design, construction, consulting, dredging, etc.). Essentially, each SFoC provides guidance based on the chosen procurement method and the anticipated risk events to manage them amicably and, where possible, to reduce their effect on the project outcome. Essentially, contracts attempt to reduce misunderstandings and disputes, which may be unpleasant and problematic, eventually creating a dysfunctional environment between the contractor and employer and resulting in undesirable project cost and time overruns.

Given that background, the aim of this article is to present the findings of a study that attempted to answer the following question: What are the effectiveness and the experiences encountered by key stakeholders in the construction industry in Botswana while using construction contracts during project delivery? The article is divided into five sections, including this introduction. The second section briefly reviews the literature relating to three common SFoCs, highlighting their nature and focus in relation to guiding the contract administration processes. The third section describes the research approach used in the study, while the fourth section presents results, discusses the findings that arise and ends with a conclusion.

Literature review

There are several construction contracts used across the world. Some are developed internally by organisations, while others are adopted or adapted as a standard form of contract (SFoC). Due the brevity required in this article, the discussion will centre on three commonly used SFoCs, namely the JCT Contract by Joint Contract Tribunal of the UK, the New Engineering Contract (NEC) by the Institution of Civil Engineers (ICE) of the UK and FIDIC contract by Fédération Internationale des Ingénieurs Conseils' (or the International Federation of Consulting Engineers) based in Switzerland. The choice is also reinforced by findings of a study in Botswana, which indicated these are the most prevalent construction contracts in Botswana, where the study was conducted (Ntshwene, Ssegawa and Rwelamila, 2022). The historical origins, nature and characteristics of each SFoC are highlighted next.

JCT Contracts

In 1931 the Joint Contracts Tribunal (JCT) was formed by the Royal Institute of British Architects (RIBA) as the first JCT standard form of building contract (JCT, 2021). However, it was not until 1977 that it was referred to as JCT. Since its inception, JCT has produced a range of contract families, which has grown over time, adapting to changes in industry practice, new procurement methods, and changes in legislation (JCT, 2021). Its use now accounts for 70% of the projects in the UK (Ladner, 2023). Furthermore, due to the colonial legacy, JCT has been used in many commonwealth countries. Historically, the JCT has been more favourable to the employer, though recent editions (e.g. 1998, 2005, 2011, 2016) have aimed to balance duties, rights and risks by incorporating specific mechanisms to address issues of variations and delays (Chappell, 2017). The latest version of 2016 includes a 13-suite of contracts to cater to various clients, procurement methods, pricing methods, types, sizes, and complexity of projects. To help users select an appropriate contract for their project, JCT published a helpful guide called "Deciding on the appropriate JCT Contract 2016" (JCT, 2017). A summary of key components of a typical JCT Contract is indicated in Table 1.

Table 1. Typical sections of a JCT Contract

Component and aspects addressed
a) *Articles of Agreement:* e.g. party details; context, nature and scope of the of works, specification and pricing documentation;
b) *Contract Particulars*: e.g. completion date, date of possession, defects rectification period, liquidated/delay damages details).
c) *Terms and conditions:* definitions and interpretations; execution of works to completion and defects rectification requirements; control of the works; payment issues, SHE requirements; change control, indemnification, termination, and disputes.
d) *Schedules:* "add-ons" to a construction contract (e.g. insurance options, forms of bonds, etc.)

NEC Contracts

ICE developed the New Engineering Contract (NEC) in 1993 in the UK. Its notable early adopters were major British corporations (e.g., British Airports Authority, National Power, Scottish Hydroelectric) and a South African public electricity utility, Eskom (NEC, n.d.). The latest suite of contracts, NEC4 of 2016, consists of 10 contracts spanning supply, work, and service projects. Table 2 indicates a typical arrangement of the sections of an NEC contract.

Table 2. Typical sections of a NEC Contract

Component and aspects addressed	
a)	General provisions
b)	Responsibilities -contractor, subcontractor & supplier's main responsibilities
c)	Time progress management
d)	Quality testing and defects
e)	Payment
f)	Compensation events,
g)	Title -use of equipment plant and materials
h)	Liabilities & insurance, risks, liability, insurance and indemnities
i)	Termination & dispute resolution.

NEC is gaining international usage because, in its latest version, the NEC4 of 2016, it is being lauded for user-friendliness arising from its features, which include the following: First, it is viewed as being highly adaptable to suit the unique requirements of various procurement strategies, contract types and industry practices (Forward, 2002). Second, NEC4 contracts use clear and straightforward language, minimising ambiguity and potential disputes. They provide a common understanding of project parties' roles, responsibilities, obligations, and duties. This improves communication and reduces the propensity for disputes. Third, the NEC4 contract provides a mechanism for the early involvement of all parties, encouraging cooperation and open communication throughout the project lifecycle. This collaborative atmosphere sets up a proactive problem-solving mindset, leading to more efficient decision-making and improved project outcomes. Fourth, a comprehensive, proactive risk management mechanism allows for a fair allocation of risks among the parties by providing guidance on identifying, assessing, and mitigating risks, ensuring a balanced allocation of responsibilities. Lastly, an emphasis on performance management, with clear mechanisms for monitoring and control, focusing on accountability, quality delivery, and continuous improvement throughout the project duration. The contracts include provisions for performance measurement, regular reporting, and incentivisation based on achieving project objectives.

FIDIC contracts

FIDIC, which stands for International Federation of Consulting Engineers, published its first contract, titled: The Form of Contract for Works of Civil Engineering Construction, in 1957 (FIDIC, 2023). Over the years, FIDIC has become famous for producing standard contracts for the construction and engineering industry. FIDIC‘s broad outreach and the support it enjoys have made its forms the mainly used contract in international construction (Seifert, 2005).

Just like the rest of SFoC houses, FIDIC has added new forms of contract, replaced previous versions with new ones and updated essential terms and clauses to keep in touch with the industry's changes and dynamics (Udom, 2014). The contracts are now famously known as the “Rainbow” edition due to the various colours of the contract suites (e.g. red, green, yellow, silver, pink, etc.) meant for various procurement methods, types of clients and projects. A typical layout of the FIDIC contract is illustrated in Table 3.

Apart from being touted as the universal contract, FIDIC contracts are viewed as having detailed procedural guidelines for managing a project with comprehensive provisions for managing unforeseen circumstances and claims. Furthermore, in recent years, the FIDIC has emphasised an amicable settlement of disputes so as not to jeopardise the progress and cost of a project. As a first step, the process usually provides for disputes to be submitted for adjudication before an Engineer or a Dispute Board. If one (or both) of the parties is dissatisfied, a period is allowed for amicable settlement. If the parties are not able to settle the dispute during the ‘amicable settlement’ period, the final stage is to proceed to arbitration. This way, FIDIC offers a balanced risk distribution with precise mechanisms for addressing unforeseen and exceptional circumstances that lead to delays and cost overruns. Furthermore, FIDIC contracts are adaptable to various legal systems for cross-border projects and are endorsed by global financial institutions.

Table 3. Typical sections of a FIDIC Contract

Component and aspects addressed	
a)	*General Conditions*: definitions and other contractual requirements and data
b)	*Parties*: Roles, rights and obligations of the parties to the contract
c)	*Project Managemen*t: Project resources and project work (e.g. programme, progress, quality, changes, testing, claims suspension, termination and closure)
d)	*Financial Issues*: Project finance and payments
e)	*Risk Management*: Risk allocation and mitigation
f)	*Disputes & Arbitration*

MATERIALS AND METHODS

In answering the research question posited earlier (i.e. what is the effectiveness and the experiences encountered by key stakeholders in the construction industry in Botswana while using construction contracts during project delivery?), a questionnaire with closed and open-ended questions was used. In Botswana, several entities manage public construction projects in the various sub-sectors, such as roads, aerodromes, power, rail, water, and buildings, and they use construction contracts for these projects. Key personnel were identified and selected from the project management entities spanning the above sectors to complete a questionnaire. The study participants were selected based on three aspects: working in the construction industry (as contractors, clients or consultants) for five years and above and a willingness to participate in the research.

Apart from requesting the demographic profile of respondents, the questionnaire sought to ascertain various aspects of the contracts they have used or they are using, e.g. type, version, form, formal training received, etc. Secondly, the questionnaire required respondents to rate the effectiveness of the contract in managing the 11 key attributes identified from literature based on the scale 5 (Excellent; 4: Very Good; 3: Good 2: Poor; 1: Very Poor). From this, weighted mean effectiveness (WME) was computed for each attribute and for each contract based on Equation 1:

$$WME = \frac{5*n5+4*n4+3*n3+2*n2+1n1}{5+4+3+2+1} \qquad \textit{Equation 1}$$

where n1...n5 are the number of rating responses for the attribute. Furthermore, an open-ended question was attached to each close-ended question to solicit respondents' responses as to why they rated the 11 attributes, high (4 &5) or low (1&2), for each SFoC. The responses served as a means of providing their experiences of using such a contract.

RESULTS AND DISCUSSION

This section presents the study's results and discusses the findings relating to the experiences encountered by key stakeholders while using construction contracts during project delivery in Botswana. The section, however, begins with a description of the respondents' demographic profile.

Demographic profile of respondents

Table 4 summarises the profile of 38 respondents who participated in the study. The respondents were given codes for confidentiality, namely R1 to R38. Table 4a indicates that as a standard feature of the construction industry, the majority (66%) of the respondents were male, in middle and lower management positions (95%) in their organisations, as shown in Table 4b. The respondents were a mixed bag: working contractors, consultants and client organisations, with the latter forming the majority (58%) of respondents. Tables 4d and 4e indicate a mix of built environment professions, with engineers forming the majority (29%) of the respondents. Furthermore, all respondents had graduate degrees, and the majority (74%) were registered members of professional bodies. Lastly, Table 4g indicates that the majority (71%) of respondents had an industry experience of 10 years and above.

Table 4 (a-g). Demographic profile of the respondents.

a) Gender	*No.*	*Ratio*
Female	13	34%
Male	25	66%
Total	38	100%
b) Managerial Level	*No.*	*Ratio*
Top	2	5%
Middle	23	61%
Lower	13	34%
Total	38	100%
c) Work sector	*No.*	*Ratio*
Public (Govt. Depart., Local authority &Parastatal)	22	58%
Private client	6	16%
Contractor	5	13%
Consultant	5	13%
Total	38	100%
d) Profession	*No.*	*Ratio*
Engineer	11	29%
Architect	9	24%
Quantity Surveyor	10	26%
Procurement officer	3	8%
Legal officer	4	11%
Other	1	3%
Total	38	100%
e) Educational Level	*No.*	*Ratio*
Dip/Higher/Dip.	0	0%
Bachelor	25	66%
Post Graduate	13	34%
Total	38	100%
f) Professional Membership	*No.*	*Ratio*
Yes	28	74%
No	10	26%
Total	38	100%
g) Experience in Years	*No.*	*Ratio*
under 10	11	29%
10-19	13	34%
20-29	11	29%
30 and above	3	8%
Total	38	100%

Table 5 (a-g). Nature of Contracts used

a)Contract Used	*No.*	*Ratio*
Internally developed	0	0%
SoFC	38	100%
Both	0	0%
Total	38	100%

b) SFoC Type	*No.*	*Ratio*
JCT	6	12%
FIDIC	31	62%
NEC	13	26%
Other	0	0%
Total	50	100%

c) Modification of SFoC	*No.*	*Ratio*
Modified	38	100%
Original form	0	0%
Total	38	100%

d)Procurement used	*No.*	*Ratio*
Traditional	38	63%
Design & Build	11	18%
Turn key (EPC)	5	8%
Others	6	10%
Total	27	100%

e)Nature of Contract Pricing	*No.*	*Ratio*
Lump sum	10	14%
Time and materials	13	18%
Cost-plus	6	8%
Unit price	38	52%
Guaranteed max. price	6	8%
Total	73	100%

f) SFoC Formal training	*No.*	*Ratio*
JCT	2	4%
NEC	13	28%
FIDIC	31	67%
Other	0	0%
Total	46	100%

g)Training providers	*No.*	*Ratio*
None	0	0%
Local private institution	16	31%
Local public institution	13	25%
International individual	13	25%
International institution	10	19%
Author of the SFoC	0	0%
Total	25	100%

Nature of contracts used

Table 5 summarises the nature of contracts that the respondents have used or are using in their organisations. As Table 5a indicates, all (38) respondents who participated in the study stated that they do not use any internally developed contract but use a Standard Form of Contract (SoFC), of which the FIDIC (65%) is the most prevalent (Table 5b) followed by the NEC (23%) and JCT (19%). All (100%) respondents noted that (Table 5c) these contracts have been modified to fit the local context. It should be noted that some indicated that they use more than one contract, especially those in local authorities who use a modified JCT contract for small projects (of less than BWP500,000) as well as the FIDIC Contract for higher valued projects (and this is why in some cases the total responses are more than the total number of respondents of 38). In addition, those dealing with road projects also indicated using a FIDIC contract for Multilateral Development Banks (MDBs) for their 'World Bank-funded projects.

Furthermore, Table 5 d,e shows that the most common procurement route (63%) is traditional procurement, while the most commonly used suite of contracts (38%) is the one with re-measurable quantities with unit pricing, irrespective of the SFoC used. Lastly, respondents further indicated that they have received specific training on the SFoCs from various outlets, by both local and international providers, as shown in Table 5 f,g.

Experience of **using SFoC**

Table 6 summarises the Weighted Mean Effectiveness (WME), which reflects respondents' rating of the 11 attributes that depict an effective construction contract. As noted earlier, some respondents had used only one SFoC while others used or are still using two. Of the three main SFoC, the NEC received the highest overall average rating (WME=3.3), followed by the FIDIC (WME=3.1), while JCT received the lowest (WME=2.9), as shown at the bottom of Table 6. One Respondent (R2) noted, "First of all, it is an old modified JCT contract. However, most of the small local contractors know it well. So, we use it for low-value jobs, especially maintenance. It is easy to understand and follow but cannot guide highly valued and complex projects as it lacks most modern contracting mechanisms. The version is also client-centric, viewing 'the client as the boss" This response focused on results for the NEC and FIDIC contracts about the 11 attributes. Notably, thirteen (13) respondents who appraised the NEC have used the FIDIC contract before, and their comments were insightful. The rest of the sub-sections discuss the effectiveness and experiences of the respondents for the FIDIC and NEC contracts structured around the 11 attributes.

Table 6. Assessment of the contract attributes identified

Contract attribute	*JCT (N=6)*	*FIDIC (N=31*	*NEC(N=13)*
1. Language used	3.1	2.9	3.8
2. Navigation of clauses	3.0	2.3	4.0
3. Contract layout	3.2	3.9	2.7
4. Adaptability to project context	2.9	3.5	3.6
5. Time scales for claim notices	2.7	3.1	3.2
6. Role of contracts manager	4.0	3.1	2.4
7. Management of changes	3.2	3.0	3.4
8. Management of performance	3.1	2.3	3.9
9. Allocation and management of risk	2.1	3.1	3.2
10. Force majeure or prevention events	2.2	2.7	2.8
11. Management of disputes	2.2	3.6	3.6
Average	2.9	3.1	3.3

1) Language used and nnavigation of clauses

Table 6 (rows 1 & 2) shows that in terms of simplicity of language, NEC (3.8) was rated a better contract than FIDIC (2.9). Respondents complained that despite the reduction in the use of legalist language found in the FIDIC version 2017 as compared to 1999, there were vestiges of the earlier version, as one respondent (R14) noted "long sentences and sometimes ambiguous or unclear language and non-objective terms or concepts and often this leads us to situations where the Employer and Contractor arrive at different interpretations leading to misunderstandings. The FIDIC contract should be reduced to simple English to allow construction technical personnel to understand the obligations of a party or what is required instead of requiring lawyers to interpret sometimes technical aspects which they also struggle to understand".

Table 6 also shows that the NEC (4.0) clauses were considered easier to follow than FIDIC (2.3). Respondents (R2 and R4) further noted, "clauses and sub-clauses should be self-contained instead of the requirement to cross-reference a myriad to a get remedy...." On the other hand, those who have used the NEC contract positively touted its use of plain language simplicity and self-containment of the clauses.

2) Contract layout

In terms of the layout, respondents felt that FIDIC (3.5) had a slightly better layout than NEC (3.3) in the sense that it followed a project management approach. As one respondent put it, "The clauses follow the progress of the project from defining the role and obligation of the parties, work needs and progress to closure or termination, but of course, there are hanging clauses like risk, indemnity, and disputes."

3) Adaptability to project context

As to adaptability to project and local conditions, there was no significant difference between FIDIC (3.5) and NEC (3.6) as one respondent noted, "FIDIC has several suites of contracts which favours a particular procurement method and we able to modify it to allow for a change of currency, language and legal regime in which the project is delivered. With NEC, we are also able to do the same." The adaptability of both contracts can be viewed from their broader appeal in the international arena. As Seifert (2005) noted, FIDIC is the world's most widely used international form of construction contract. However, though NEC is a relatively new contract, it has become a popular suite of contracts for public-sector works, services and supplies in the United Kingdom and Hong Kong and beyond; for example, it is taking root in Australia, New Zealand, Ireland, Netherlands, South Africa and UAE (Gerrard, 2005).

4) Time scales for claim notices

Tolson and Glover (2008) observe that under the FIDIC contract if a Contractor fails to give notice of a claim within 28 days, the Time for Completion is not extended, loses the entitlement to additional payment, and the Employer is discharged from all liability in connection with the claim. Under the NEC contract, if the Contractor does not notify of a compensation event within eight weeks (40 days) of becoming aware of the event, he is not entitled to a change in the prices, the completion date or a key date, unless the project manager should have notified the event to the Contractor but did not. Therefore, both FIDIC and NEC provide firm time scales for notices that may require time and/or monetary compensation, and if the contractor fails to give notice, the claim will fail.

Respondents indicated a slight advantage of the NEC contract (3.2) as compared to the FIDIC contract (3.1). One respondent (R10) who presented himself as a contractor noted, "The NEC contract is more practical as it gives a longer period (40 as opposed to 28 days). However, what I decry most is that both contracts do not impose the same obligation to the Employer of giving notices within a time limit."

5) Role of the contracts manager

In FIDIC, the contracts manager is called the Engineer (even if it is an architect), while in NEC, it is called a Project Manager. In both contracts, they are employed by the Employer and play a dual role: overseeing the project work and adjudicating. However, they are expected to be impartial when deciding or determining matters related to, for example, claims or misunderstandings.

One respondent (R22) noted that "... the dual role of the contracts manager can only be effective if there is a high degree of professionalism and ethical conduct...once these are not upheld there can be accusations of employer bias or contractor collusion... a situation we often encounter"

6) Management of changes

Under NEC, variations are merely a category of compensation events (CE) assessed by the Project Manager in the same way as claims. If a variation is envisaged, the Project Manager calls for a quotation from the Contractor, which should indicate the effects of a CE on both time and cost, as these flow automatically once the CE is approved (McKenzie, 2016). The pricing decision is based on CE's effect on a defined cost plus fee. Existing rates do not bind the Project Manager during valuation. Therefore, it is highly unlikely that the Contractor will unfairly benefit or suffer a loss if existing rates are too high or too low. Therefore, if the quotation is accepted, formal instruction to undertake the work follows.

FIDIC, on the other hand, considers claims and variations as separate issues; therefore, the latter is measured and valued in the ordinary course of work. Since FIDIC is a re-measurement contract that assumes the project scope, works, drawings, etc., are well defined prior to letting the tender documents (which often is not true), it limits variations to 10% of the quantity. However, unlike in the NEC regime, entitlement to both time and cost does not automatically flow from a variation instruction - rather, each must be proved separately and is subject to time bar notices (McKenzie, 2016). Valuation of a variation is at the same or by considering rates and prices in the contract. It is noted that existing rates or rates for similar work apply. If neither of the two is available or other criteria are met, new rates are permitted at the so-called reasonable cost plus a reasonable profit.

Respondents rated NEC (3.4) a better contract in managing changes than FIDIC (3.0), and this was buttressed by respondent (R27), who observed by noting "the NEC approach is a good risk management and collaborative approach which may foster less disputes because the quantum of work is first established and pre-priced before it is carried out. However, for the FIDIC contract, since the actual cost incurred and time expended is determined retrospectively, the Engineer has a wide discretion which tends to open up a myriad of disagreements, some of which lead to protracted disputes."

7) Management of performance

FIDIC and NEC require a contractor to provide a programme which will be used to measure time performance. The programme facilitates measuring project progress and determining damages for late completion by the contractor (delay compensation for the Contractor). The contracts define the required outcome or performance based on the Employer's quality requirements (relating to materials and artistry). They further provide for searching for defects and state the Contractor's responsibility for correcting defects and the consequence of the Contractor's failure to correct any defects. Furthermore, NEC goes further in its optional incentive schedule, X20, which may attached to the main contract, to allow the client to state Key Performance Indicators (KPIs) and targets for various aspects of the project's performance, for example, time, quality, cost, disputes, SHE issues and sub-contractor management. The KPIs and targets are meant to incentivise the Contractor with a bonus payment for performing to the targets or above.

Respondents using the NEC contract noted that they had not explored the X20 clause, which allows for inserting incentivising KPIs. Hence, they depend on the traditional project performance measurement of cost, time, and quality.

8) Allocation and management of risk

According to Simon, Hillson and Newland (1997), risk is an event or set of circumstances that, should they occur, will have an effect on the achievement of the project's objective. Effective risk allocation and management procedures are key to any construction contract, for which Abrahamson (1984) proposed a set of five principles for allocating risk. Risk shall be allocated to a party: a) if the risk is of loss due to their willful misconduct or lack of reasonable efficiency or care; b) if they can cover the risk by insurance and allow for the premium in settling the charges, and it is most convenient and practicable for the risk to be dealt with in this way; c) if the preponderant economic benefit of running the risk accrues to the party; d) if it is in the interests of efficiency to place in the risk on the party and e) if, when the risk eventuates, the loss happens to all on the party in the first

instance, and there is no reason under any of the above headings to transfer the loss to another, or it is impracticable to do so. While it is not possible to eliminate all risks, it is now an acceptable and basic principle that a particular risk event should be allocated to the party who can best manage it and bear the risk consequences (Kozek and Hebberd, 1998).

Regarding risk allocation and management, respondents did not differentiate much between FIDIC (3.1) and NEC (3.2) regarding risk allocation. As one respondent (R19), "as a starting point in defining the duties, obligations, liabilities and rights of the Employer and Contractor, both FIDIC and NEC attempt to allocate risks fairly and reasonably" However, another respondent went further to note that "in my opinion I find NEC a slightly better contract in the sense that the requirement to include early warning signals, risk registers and to hold risk reduction meetings are an effective communication tool between the parties which minimises disputes in that way NEC is not reactive but provides a dynamic and proactive risk management regime." This position was buttressed by another respondent (R35) who observed that "FIDIC seems to be saying I have the medicine (clauses) if things go wrong whereas NEC seems to be saying let us not wait for something to go wrong, let us try to mitigate or prevent it before it happens.." Some authors (e.g. Besaiso et al., 2018) have noted that a reactive approach produces more disputes than a proactive approach, as parties will 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.

9) Force majeure or prevention events

An event that occurs to exempt a party from performance on the contract is referred to as force majeure in FIDIC and a prevention event for NEC. Each contract has tests which must be satisfied for an event to be classified as such. For FIDIC, a force majeure event is one which: a) is beyond a Party's control; b) such Party could not reasonably have provided against before entering into the Contract; c) having arisen, such Party could not reasonably have avoided or overcome, and d) is not substantially attributable to the other Party. On the other hand, NEC defines prevention events as those which: a) stop the Contractor from completing the works or by the dates shown on the Accepted Programme, b) neither Party could prevent; c) an experienced Contractor would have judged that the contract dates have such a small chance of occurring that it would have been unreasonable for him to have allowed for it; and d) is not one of the other compensation events stated in the contract. There was a small difference (2.7 for FIDIC and 2.8 for NEC) in rating the effectiveness of handling these events for the two contracts

10) Management of disputes

Cost, delay, and uncertainty of the outcome have made the construction industry move away from litigation and the growing use of alternative dispute resolution (ADR) methods, one of which is arbitration. However, arbitration has suffered a similar fate as litigation, as it was found costly, time-consuming, and the outcome unpredictable. The answer lay in adjudication. Adjudication decides matters as the project carries on, promoting project progress and cash flow. However, the adjudicator's decision is subject to review by an arbitrator if one of the parties is sufficiently unhappy with the outcome of the adjudication (MDA, 2022). In response to the challenges of arbitration, the latest versions of FIDIC (2017) and NEC (4) have both called for a dispute adjudication board (DAB). Perhaps due to this similarity, respondents rated dispute resolution effectiveness of both contracts the same (3.6). However, one respondent (R7) highlighted experiences of using an ad-hoc and standing dispute adjudication board (DAB). She noted, "We used an ad-hoc DAB; it was cheap, and if we did not decide on one set of DAB, we could appoint another set of members. However, often, DAB members required more time to acclimatise with what had gone on at the project in order to adjudicate" She further continued ", We now have a standing DAB who meet with the Parties and conduct regular site visits so they become familiar with the project nitty-gritty. However, they seem expensive. They charge a monthly retainer fee and require the provision of, or reimbursement of, daily travel fees and accommodation costs. Furthermore, when a dispute arises they charge a daily rate to adjudicate the dispute"

CONCLUSION

The study set out to investigate the effectiveness and experiences of key stakeholders in using various contracts for construction project delivery. Three major SFoCs were identified as being used in Botswana: the NEC, FIDIC, and JCT. The local authorities mainly used a modified and old version of JCT. Due to the low usage of the JCT, the discussion centred on the NEC and FIDIC contracts. The FIDIC has a long history of use in the country, but the NEC has entered the arena in recent years. A few

concluding aspects are noted. First, respondents did not find a big overall difference in the effectiveness of the contracts as measured using the 11 identified attributes (WME for NEC =3.3 and FIDIC =3.1). However, from their experience, there were a few attributes where the NEC contract seemed to be a better contract, and these were: a) the use of simple and non-legalistic language with self-contained clauses and b) a communicative and proactive risk management regime, which they thought may result in reducing or avoiding disputes. Despite these accolades, this article ends by noting that there are pros and cons to the use each contract, and which one works best largely depends on the parties involved, the context of the project and the contracting environment. In addition, this study has the limitation of having used a small (38) sample of respondents and the fact that NEC has not been used in the country for the length of time as FIDIC.

DECLARATIONS

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Acknowledgements

The authors would like to acknowledge the study participants for responding to the questionnaire.

Authors' contribution

All authors participated in the study and write-up of the manuscript.

Competing interests

The authors declare no competing interests in this research and publication.

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