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# **Journal of Construction**

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## AIMS AND SCOPE

The Journal Of Construction (JOC) is the official journal of the Association Of Schools Of Construction Southern Africa (ASOCSA). ASOCSA has committed itself to foster excellence in construction communication, scholarship, research, education and practice and the JOC provides the medium to achieve this commitment. JOC is at this stage a bi-annual refereed journal serving all stakeholders and participants in the building construction and civil engineering sectors.

JOC publishes quality papers written in a conversational style aiming to advance knowledge of practice and science of construction while providing a forum for the interchange of information and ideas on current issues. JOC aims to promote the interface between academia and industry, current and topical construction industry research and practical application by disseminating relevant in-depth research papers, reviews of projects and case studies, information on current research projects, comments on previous contributions, research, innovation, technical and practice notes, and developments in construction education policies and strategies. Some issues might be themed by topic.

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## Dear Construction Industry Stakeholders,

This is the last time I pen this short note to you. The 11th successful Built Environment Conference has come and gone. A new President has been elected to lead ASOCSA on this continuing journey forward.

I congratulate Dr. Hendrik Prinsloo of the University of Pretoria on his election as President of ASOCSA. I know that Dr. Prinsloo will lead ASOCSA forward to achieve the goals that we have set ourselves.

These past five years have been challenging, however pleasant and I thank the Council of ASOCSA for allowing me to lead the Association in this time.

To all stakeholders who have supported ASOCSA during this time I wish to say a heartfelt thank you as without you it would have been difficult.

To all our members and staff members of our member institutions I request that you continue to support ASOCSA, the Conference and the Journal.

To all our authors of JoC during the years, thank you Godspeed.

Ferdinand C. Fester  
President  
ASOCSA



# JOURNAL OF CONSTRUCTION



## Volume 10 Issue 2

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# ADDRESSING THE SHORT-TERM INSURANCE PROTECTION GAP FOR RESIDENTIAL BUILDINGS IN SOUTH AFRICA: A SIMPLE YET EFFECTIVE COST MODEL

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## ABSTRACT

### PURPOSE OF PAPER

This paper illustrates how a simple yet effective cost model based on manipulated and refined quantity surveying techniques can assist South African homeowners to improve the accuracy of replacement cost estimates and thus sufficiently insure their residential properties.

### DESIGN/METHODOLOGY/APPROACH

Raw data for 21 residential units was generated through a quantitative process by applying recognised quantity surveying measuring and estimating methods. The data was further processed to derive multipliers for use in the cost model. A two-pronged approach was applied to the analysis of the data, firstly regression and correlation statistical analysis were conducted to illustrate the integrity of the data and secondly the proposed cost model was applied to demonstrate the ease of its use. The data of 15 residential units was used in the comparative analysis while the data of the other 6 units was used as test cases for the cost model.

### RESEARCH LIMITATIONS/IMPLICATIONS

This paper is based on a pilot study limited to a select sample of residential designs varying in size from 56m<sup>2</sup> to 660m<sup>2</sup>. The results and can thus not be viewed as conclusive.

### FINDINGS

The findings suggest that the proposed cost model is fit for purpose and can produce accurate estimated replacement costs based on the input of the seven identified variables. However, the statistical analysis indicates instability due to large variances within the sample. This could be corrected by improved data.

## VALUE OF PAPER

Improved replacement cost estimation of residential buildings based on an understandable, reliable and affordable cost model would place residential property owners and insurance industry role-players in a much-improved situation in the event of an insurance claim and lessen the potential financial damage to be suffered.

## PRACTICAL IMPLICATIONS

Insureds are reliant on building cost information to comply with their responsibility to determine the insured values of their properties. Without readily available, reliable, relevant, understandable and cost effective information in the public domain, insureds are dependent on third parties to supply such information. Developing a cost database through the implementation of the proposed cost model is envisaged in the longer term.

**Keywords: Cost modelling; replacement cost for residential buildings; insurance protection gap.**

## 1. INTRODUCTION

According to Longcore <sup>[1]</sup> insurance makes the world go around in the modern and sophisticated economic environment we live in, because very few people would be able to afford houses, motor cars or any other assets of substantial value without the assurance that the assets and thus their financial interests are protected.

To be or to become a homeowner is a major step towards creating personal wealth. According to McCarthy et al. <sup>[2]</sup> housing is a good financial investment that delivers a decent return that falls in between a higher returns of riskier stock market investments and lower returns of less risky bond investments.

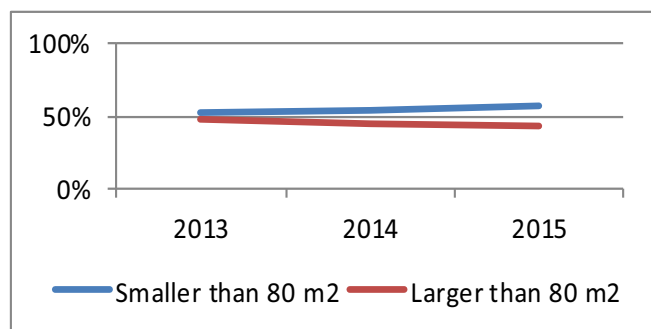
South Africa, as the rest of the world, is experiencing unprecedented levels of growth in urbanisation that is currently at 65% and is expected to grow to 70% by 2030 <sup>[3]</sup>. With this trend comes an increased demand and supply of residential units. South Africans, on average,



spend 32.55% of their annual household consumption on housing, water, electricity, gas and other fuels. In Gauteng and the Western Cape that are the preferred provinces the housing expenditure is respectively 36.71% and 34.25%<sup>[4]</sup> whereas to urbanisation is respectively 97% and 92%<sup>[3]</sup>.

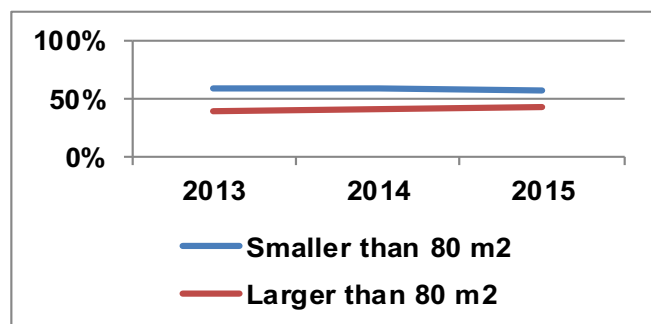
Statistics for residential building plans passed and residential units completed during the past three years show that the majority of new residential units are smaller than 80 m<sup>2</sup>. The trend for building plans passed shows an upward trajectory which is an indication that this trend is to continue in future.

**Graph 1: Residential building plans passed**



Source<sup>[5]</sup>

**Graph 2: Residential units completed**



Source<sup>[6]</sup>

Inadequate short-term building insurance, referred to as underinsurance or a protection gap, is a global phenomenon<sup>[7]</sup>. It is likely that owners of residential units smaller than 80 m<sup>2</sup> are new entrants to the property market. The risk of not being able to respond to and/or recover from the consequences of a non-routine event in a resilient manner should be motivation to ensure adequate insurance cover.

The protection of wealth at the lower end of the insurance market is therefore more vital than the protection of wealth at the higher end of the insurance market.

### 2.1 INTERPRETING RISK

The H W Heinrich's triangle that was devised in 1931, was based on the occurrence of insurance claims for workplace accidents. Thoyts<sup>[8]</sup> maintains that the principles equally apply to many applications, also to property insurance. The tendency shows that the frequency of risks is inversely proportionate to its severity. This principle is illustrated in figure 1 below. The premise is thus that many more trivial events will take place before a catastrophic event does.

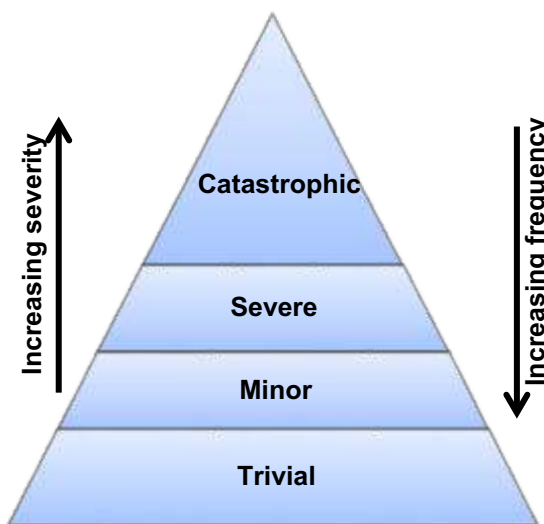


Figure 1: The Heinrich triangle<sup>[8]</sup>

Due to the considerable value of residential properties most damage thereto could be regarded as severe when weighing the homeowner's financial cash flow situation against the repair cost of the damage. Severe damage however rarely occurs.

### 2.2 TRANSFERRING THE FINANCIAL RISK

The primary function of purchasing insurance is for insureds to transfer the financial risk associated with owning high value properties to the insurers. According to Thoyts<sup>[8]</sup> an element of uncertainty, the measurement of the uncertainty (probability), the potential of a loss occurring and the financial quantification of the potential loss are essential ingredients for an insurance policy to come into effect. By measuring the uncertainty, thus determining the probability of a non-routine event happening, it is converted to a risk.

Information about the probabilities of and the severities of possible losses for different perils needed to assess risks are not readily available. Instead, insurance companies aggressively



market their products with an overemphasis on premium price. Reliable information to determine the correct amount of insurance for residential buildings is also not readily available and obtaining it from a reliable source is costly.

The positive theory of demand assumes a world where decisions to purchase insurance are made based on the premise that the risk is accurately perceived, the collection and processing of relevant information is costless and that the amount of insurance purchased would maximise the purchaser's expected utility<sup>[9]</sup>. However, many homeowners are indifferent to or totally oblivious of the risks (the probability and severity of the consequence) that face them until a non-routine event occurs that turns their complacency into chaos<sup>[10]</sup>.

Due to the absence of reliable building cost information in the South African public domain to assist homeowners in obtaining appropriate insurance values of their properties, individuals turn to sources that are available such as neighbours, friends, colleagues, estate agents, etc.<sup>[7]</sup>.

The result hereof is that the entire risk intended to be transferred to the insurer is not transferred and an insurance protection gap develops.

### 2.3 THE SHORT-TERM INSURANCE PROTECTION GAP

Inadequate short-term insurance is often interchangeably referred to as under-insurance or a protection gap. There is however a distinct difference in that under-insurance refers to the balance between the economically viable value of the property and the actual value of insurance purchased, thus indicative of an intentional choice, whereas the protection gap refers to the difference between the economic loss and the insured loss<sup>[7]</sup>. Uninformed or ill-informed homeowners do not intentionally choose an insurance value lower than an economically viable value.

The cost model proposed in this paper is specifically designed to address a protection gap.

## 3. METHODS FOR DETERMINING THE COST OF THE RISK AT STAKE

### 3.1 COST MODELS COMMONLY APPLIED IN THE BUILT ENVIRONMENT

The development of cost models currently applied in the built environment date back to the 1950's and has largely been driven by the Building Cost Information Service (BCIS) of the Royal Institution of Chartered Surveyors (RICS). The use and influence of the BCIS systems are however not available in South Africa hence the databases to support cost models that do exist are developed, maintained and used exclusively within private practices.

Cost models are either deductive, such as the cost per square metre model, or inductive, such as elemental estimates and bills of quantities. Results of deductive models produced via the application statistical techniques are inaccurate. Results of inductive cost models are produced based on exact algebraic equations and are therefore much more accurate<sup>[11][12]</sup>.

Different cost models for application at the different design development stages of projects have been developed. The accuracy of early stage estimating has been indicated as between  $\pm 20$  and 40% and to  $\pm 10\%$  for 50% of the projects in two different studies<sup>[13] [14]</sup>. Several other researchers have reached similar results and indicated an approximate variance of 15% in the accuracy between early stage and later stage estimating<sup>[15]</sup>. The application of the appropriate cost model at the appropriate stage of design development is thus very important. The easier it is to apply a cost model, the less reliable the results are<sup>[12]</sup>.

The deductive models based on the size of buildings incorporate only horizontal measures. Their results are therefore greatly influenced by design variables such as size, shape, height (storey and total), fullness on plan and circulation spaces<sup>[11][16][17]</sup>.

The R/m<sup>2</sup> deductive cost model designed for early stage design development use is however commonly used to determine insurance values for residential properties due to the ease of its use as well as the lack of more detailed information in the public domain. This practice therefore contributes to the insurance protection gap.





## 4. BRINGING THE INSURANCE AND BUILT ENVIRONMENT COST MODEL TOGETHER

Insurance companies have no interest in developing any mechanisms to assist policy holders in obtaining the appropriate values for residential property insurance because the contractual responsibility for determining the correct value vests with the insured. It is evident that cost models designed specifically for application in early stage design development deliver course results and are thus not suited for the calculation of insurance replacement costs.

The research undertaken for this paper aims to investigate the possibility of developing of a cost model that could produce results more accurately than deductive cost models and yet be simple enough to be understood by individual homeowners with limited or no knowledge of calculating building costs.

The BCIS developed a tool called BCIS Rebuild Online in conjunction with the Association of British Insurers that calculates house rebuilding costs. The tool is used by quantity surveyors, valuers, property managers, loss adjusters, insurers and risk management firms (BCIS, 2016). A similar tool is needed for South African circumstances.

## 5. DESIGN AND METHODOLOGY

### 5.1 BACKGROUND

The literature reviewed highlighted the necessity of accessible, relevant and reliable building cost information to assist homeowners in determining accurate replacement cost estimates for insurance purposes. Of the approximately 6.845 million formal dwellings in South Africa<sup>[19]</sup> 83% or 5.681 million are single freehold dwellings, 12% are sectional title units and 5% are estate properties<sup>[20]</sup>.

This research is based on a sample of 21 residential units ranging from 56 m<sup>2</sup> to 660 m<sup>2</sup> in size with varying levels of finishes and designs. The data for sampling was purposively sourced from a private practice's database that specialises in insurance claims based on the completeness of the information per case. The sample does not purport to be representative of the population. The data of 15 of the 21 residential units was used in the application of the proposed cost model. The analysed data of the further 6 residential units was used to test the model.

The distribution of the size of the residential units included in the sample is illustrated in Table 1 below.

Table 1: Distribution of residential unit size included in the sample

Size of dwellings	Number included in sample	Number included in test cases
50 to 100 m <sup>2</sup>	6	1
101 to 200 m <sup>2</sup>	2	2
201 to 300 m <sup>2</sup>	3	1
301 to 400 m <sup>2</sup>	1	2
401 to 500 m <sup>2</sup>	2	0
501 to 600 m <sup>2</sup>	0	0
601 to 700 m <sup>2</sup>	1	0
	15	6

### 5.2 METHOD

The Standard System for Measuring Building Work (7th edition, 2015) was followed to generate the quantitative data. The measured items were then consistently re-arranged for each residential unit into seven elements, namely ground floor construction; external envelope; roof; internal divisions; furniture, fixtures and equipment; plumbing services and electrical services to form the basis for input into the cost model. The unit rates utilised in all the estimated replacement costs that serve as the benchmarks for evaluating the model output represent current rates in the Gauteng area to eliminate the necessity of time and location adjustments. External works was eliminated from the analysis as the components thereof are rather a function of the site than the residential unit itself.

### 5.3 DATA ANALYSIS

A dual approach to data analysis was followed. Firstly, the IBM SPSS Statistics software was utilised to conduct a statistical analysis in the form of a linear regression to establish the significance of the data. Although this process is necessary to test the integrity of the data, the statistical output would not serve the purpose of assisting the general public in understanding the estimating model. Secondly, a mathematical cost model was developed based on mean cost ratios and case specific multipliers.



The proportionate mean cost of the elements to the complete replacement cost is illustrated in figure 1 below

Forty-eight percent (48%) of the mean cost ratios represent horizontal elements while 52% represents vertical elements.

### 5.3.1 STATISTICAL ANALYSIS

Independent variables (predictors) were chosen to explain the dependent variable (replacement cost). The chosen variables are the construction area, the roof area on slope, the area of the external envelope, the area of doors and windows, the length of internal divisions and length of furniture and fixtures.

The  $\beta$  coefficients derived from the linear regression are used to estimate replacement costs for the 6 test cases.

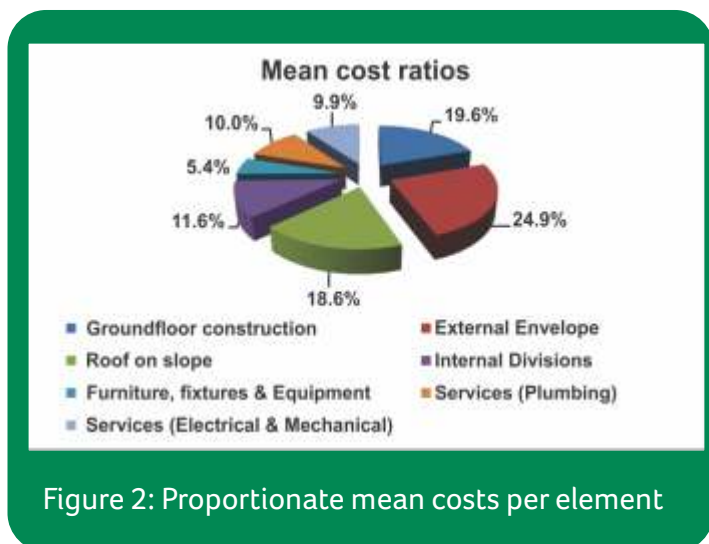


Figure 2: Proportionate mean costs per element

**Table 2** : Descriptive statistics for independent variables

	Mean	Std. Deviation	N
Replacement Cost	1 144 226	847 773	15
Construction area	227	183	15
Roof area	302	254	15
External envelope	218	137	15
Windows and doors	39	27	15
Internal divisions	70	58	15
Furniture, fixtures and equipment	22	20	15

The results produced by the linear regression to explain the relationships between the independent variable are illustrated in table 3 and 4 below.

**Table 3:** Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.996 <sup>a</sup>	0.993	0.987	95 749.18	0.993	181.589	6	8	0.000



The high value for R2, the adjusted R2 and relatively small standard error are an indication that the cost model is fit for the purpose.

The high F-value indicates a large variability in the between-group and with-in group ratios of the predictors.

Table 4: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for $\beta$		Collinearity Statistics	
	$\beta$	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	-51930.338	64 249.44		-0.808	0.442	-200089.8	96229.132		
Construction area	3174.295	2 099.93	0.685	1.512	0.169	-1668.152	8016.742	0.004	225.133
Roof area	-567.724	1 537.85	-0.17	-0.369	0.722	-4114.013	2978.565	0.004	232.516
External envelope	1832.285	492.32	0.297	3.722	0.006	696.991	2967.58	0.143	6.972
Windows and doors	1729.452	2 396.99	0.056	0.722	0.491	-3798.021	7256.925	0.154	6.501
Internal divisions	2740.081	1 522.24	0.186	1.800	0.110	-770.208	6250.371	0.085	11.72
Furniture, fixtures and equipment	-509.039	3 900.91	-0.012	-0.130	0.899	-9504.541	8486.463	0.112	8.908

<sup>a</sup> Dependable variable: Replacement cost

The high t-values imply that the predictors differ in varying degrees from the mean. The wide confidence intervals suggest less accurate estimates. Apart from the predictor for external envelope, all the confidence intervals contain zero which is an indication that there is not sufficient evidence to conclude that the predictors would deliver an accurate estimated replacement cost. The estimated replacement costs are calculated by multiplying the  $\beta$  coefficient by the predictors of test cases.

The collinearity statistics clearly indicate that the predictors are highly correlated. This was not unexpected as it is quite obvious that the roof area for instance would increase as the construction area increases. However, the area of the external envelope would not necessarily increase when the shape of the building changes, but will increase

when the construction area increases. Each of the coefficients estimates the change in the mean in reaction to one unit of change in one of the predictors. The high values of the variance inflation factors (VIF) also indicate that the predictors vary considerably from the linear correlation and could be unstable.

The outcomes of the t-values, f-value and VIF all indicate that the variances within the sample are large. This was expected due to the large range in size combined with the small sample size. The results could and should be improved if the sample size is increased.

The estimated replacement costs obtained by multiplying the  $\beta$  values by the predictor quantities for each test case are shown in table 5 below

Table 5: Estimated replacement costs based on statistical model

Predictors	$\beta$	Test cases											
		1	Rc	2	Rc	3	Rc	4	Rc	5	Rc	6	Rc
Construction area	3174.295	360	1 142 746	56	177 761	140	444 401	152	482 493	340	1 079 260	283	898 325
Roof area	1832.285	290	531 363	74	135 589	179	327 979	166	304 159	386	707 262	236	432 419
External envelope	-567.724	409	- 232 199	68	- 38 605	186	-105 597	217	-123 196	452	- 256 611	462	- 262 288
Doors and Windows	2740.081	87	238 387	19	52 062	43	117 823	42	115 083	162	443 893	71	194 546
Internal divisions	-509.039	68	- 34 615	2	- 916	17	- 8 654	15	- 7 636	48	- 24 434	37	- 18 834
Furniture, fixtures and equipment	1729.452	27	46 695	10	17 295	27	46 695	21	36 318	71	122 791	36	62 260
Constant	-51930.338	-	51 930	-	51 930	-	51 930	-	51 930	-	51 930	-	51 930
Replacement costs			1 640 447		291 254		770 718		755 292		2 020 231		1 254 497



### 5.3.2 THE MATHEMATICAL MODEL

The working of the cost model is demonstrated by extrapolating the mean replacement cost as well as the mean R/m<sup>2</sup>. The estimated replacement costs based on the extrapolation of the mean R/m<sup>2</sup> is obtained by multiplying the mean R/m<sup>2</sup> by the mean cost ratios and the predictor quantities.

The estimated replacement costs based on the extrapolation of the mean replacement cost is obtained by multiplying the mean replacement cost by the mean cost ratios and the case multipliers.

The mean cost ratios are determined by weighting the monetary values for each element in the sample against their replacement costs and then calculating the mean for each element ratio. The case multipliers are calculated by dividing the case predictors by the mean predictors.

The values derived for the six test cases are shown in table 6.

**Table 6 : Mean cost ratios and case multipliers**

Elements	Unit	Mean cost ratios	Case Multipliers					
			1	2	3	4	5	6
Ground floor construction	m <sup>2</sup>	0.196	1.58358	0.24633	0.61584	0.66862	1.49560	1.24487
External envelope	m <sup>2</sup>	0.249	1.33028	0.33945	0.82110	0.76147	1.77064	1.08257
Roof area (on slope)	m <sup>2</sup>	0.186	1.35251	0.22487	0.61508	0.71759	1.49471	1.52778
Internal division	m	0.116	1.24642	0.27221	0.61605	0.60172	2.32092	1.01719
Furniture, fixture & equipment	m	0.054	3.11165	0.04671	0.44118	0.38927	1.24567	0.96021
Services (plumbing)	no	0.100	1.55172	0.40107	0.80214	0.40107	1.44385	0.80214
Services (electrical and mechanical)	m <sup>2</sup>	0.099	1.58590	0.24670	0.61674	0.66960	1.49780	1.24670
		1.000						

The mean replacement cost and the mean R/m<sup>2</sup> for the sample are calculated as R1 144 226.13 and R5 138.41 respectively.

The estimated replacement costs resulting from extrapolating the mean replacement cost as well as the means R/m<sup>2</sup> are contained in table 7 below.

Due to limited space the results are summarised to reflect only the totals for the replacement cost.

The idea is however that homeowners be supplied with the values for each element.

**Table 7: Results obtained by applying the mean cost ratios and case multipliers to the mean replacement cost and the mean R/m<sup>2</sup>**

Test cases	m <sup>2</sup>	Estimated replacement cost utilising the mean replacement cost	Estimated replacement cost utilising the mean R/m <sup>2</sup>
1	360	1 737 358	1 849 828
2	56	312 507	287 751
3	140	773 425	719 377
4	152	781 038	745 293
5	340	1 877 895	1 747 059
6	283	1 340 325	1 454 170
		Average	Average



### 6.1 THE STATISTICAL MODEL

The estimated replacement costs obtained by multiplying the  $\beta$  coefficients by the predictor quantities as shown in table 5 above compared to the benchmark estimates show accuracies varying from 78.06% to 96.48% with an average

accuracy of 86.88%. Although the level of accuracy in four of the test cases seems high, there is still a variance of 18.42% from the lowest to the highest level of accuracy. This supports the interpretation that the coefficients (in this case the  $\beta$  coefficient) are unstable due to the small sample size.

Table 8: Comparison of statistical model results to the benchmark

Test case	m <sup>2</sup>	Benchmark estimate	Estimated replacement cost	Accuracy
		R c	R c	%
1	360	1 990 000	1 640 447	78.69
2	56	281 000	291 254	96.48
3	140	940 000	770 718	78.06
4	152	715 200	755 292	94.69
5	340	1 772 500	2 020 231	87.74
6	283	1 435 000	1 254 498	85.61
			Average	86.88

The importance of the outcome however lies in the fact that a model that requires the input of only eight predictors (construction area, area of the external envelope, area of external windows and doors, roof area on slope, length of internal divisions, length of furniture, fixtures and equipment and the number of sanitary fittings) delivers a replacement cost that is approximately 87% accurate on average.

To explain the process of obtaining these estimated replacement costs could be confusing to individual homeowners as the  $\beta$  coefficient does not relate directly to the units of the predictors. Home-owners would still be in the undesirable position of being presented with a single cost without any supporting detailed information showing exactly how the estimated value was derived.

### 6.2 THE MATHEMATICAL MODEL

The level of accuracy emanating from the mathematical model again seems to be high. The accuracy of the results obtained from the extrapolated mean replacement cost varies between 78.46% and 108.43% with an average accuracy of 91.60% and that of the extrapolated mean R/m<sup>2</sup> between 69.33% and 104.04% with an average accuracy of 94.67%.

These represent variances of 29.97% based on the mean replacement cost and 34.71% based on the mean R/m<sup>2</sup>. This again highlights the instability of the predictions that require improved data.



Table 9: Comparison between replacement cost estimates extrapolated from mean replacement costs and mean R/m<sup>2</sup> and the benchmark estimates

Test cases	m <sup>2</sup>	Benchmark Estimate	Estimated replacement cost utilising the mean replacement cost	%	Estimated replacement cost utilising the mean R/m <sup>2</sup>	%
1	360	1 990 000	1 737 358	85.46	1 849 828	92.42
2	56	281 000	312 507	89.92	287 751	102.35
3	140	940 000	773 425	78.46	719 377	69.33
4	152	715 200	781 038	108.43	745 293	104.04
5	340	1 772 500	1 877 895	94.39	1 747 059	98.54
6	283	1 435 000	1 340 325	92.94	1 454 170	101.32
			Average	91.60	Average	94.67

On average the statistical model produced the least accurate results (86.88%) with the smallest variance (18.42%) whereas the mean R/m<sup>2</sup> extrapolation seemingly produced the most accurate (94.67%) results with the highest variance in results (34.71%).

The mean replacement cost extrapolation rather resembles the results of the extrapolated R/m<sup>2</sup> with an average accuracy of 91.60% with a 29.97% variance.

The high level of accuracy achieved by the mathematical model is deceiving when judged by the high variances in results.

## 7. CONCLUSION

The purpose of this paper was to demonstrate the working of the proposed cost model to address the insurance protection gap. The literature highlighted the existence of an insurance protection gap and the overview of cost models emphasised the importance of applying a suitable cost model to the appropriate level of available design information. The literature further stressed the importance of the availability of reliable cost information.

The key findings show that the proposed cost model could potentially be implemented to assist homeowners with accurate replacement cost estimates based on simple and limited input that could easily be generated by various role-players in the insurance industry that do not necessarily have intimate knowledge of calculating building costs.

The confirmation of the fitness for purpose derived from the statistical analysis is promising. Indications are that the results can be significantly improved by an increased sample size. It is therefore recommended that the data be enhanced and that interim tests be conducted until the accuracy of the cost model is confirmed at a statistically significant level of 95%.



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# AN INVESTIGATION INTO CONTRACT PRACTICES USED IN THE ZAMBIAN BUILDING SECTOR

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## RESEARCH LIMITATIONS/IMPLICATIONS

The research focusses only on building sector contracts.

## PRACTICAL IMPLICATIONS

This paper highlights some of the consequences of current contract fluidity and recommends how these can be overcome in current practice to be initiated by the client.

## What is original/value of paper

Clients need to engage in contracts which are flexible but predictable.

**KEYWORDS:** Contracts, building sector, Practices, Zambia

## ABSTRACT

### PURPOSE OF THIS PAPER

Contracts are used to formalise agreements of various natures. They set out the management regime and risk liability of parties involved. However, in the construction industry how suitable a contract is and the perception on the favourability of its terms affects project delivery. This research aimed to discover how current contract practice is affecting project delivery.

### DESIGN/METHODOLOGY/APPROACH

A mixed method approach was employed using semi-structured interviews with 15 purposive heterogeneously sampled respondents and questionnaire survey comprising of 198 usable questionnaires from consultants, clients and contractors in the construction building sector.

### FINDINGS

The study revealed that standard contracts are in most cases unfavourably modified to the detriment of the contractor; and the endemic non-compliance and general disregard of contractual stipulations by clients' results in contractors over-pricing or abandoning work prematurely to protect the survival of their businesses

## 1. INTRODUCTION

Contracts are widely used in various industries such as the construction, financial sector, manufacturing, medicine, and others. Nevertheless, contract practice in each sector or industry varies.

The construction industry uses standard forms or bespoke contracts to show what has been agreed and this fundamentally influences performance of a project as it determines the risk liability and management responsibility to be borne by the parties<sup>[1]</sup>

Reports from the auditor general's office show that the Zambian construction industry has been underperforming from 2003 to-date as it has exhibited quality shortfalls, cost and time overruns, and project abandonment on occasion on a number of projects regardless of magnitude.

The construction contract by default is supposed to prevent the aforementioned. While other contributing factors for the above-mentioned are lack of skill and poor management of risk during the construction phase<sup>[2, 3]</sup>, it is unclear the extent to which contract practice is contributing to the unsatisfactory delivery parameters as the contract is in fact a management manual.

The building sector is used as it is exhibiting quality shortfalls, cost and time overruns and





occasional project abandonments<sup>[4]</sup>. Notwithstanding, social infrastructure such as residential housing, education and health facilities in the form of buildings are inadequate in the country<sup>[5]</sup>.

Contract practice is understood at different levels according to the Royal Institute of chartered surveyors<sup>[6]</sup>. At level 1 : the demonstration of knowledge and understanding of the various forms of contract used in the construction; At level 2: Application of the knowledge in the use of the various standard forms of contract at project level, including the implications and obligations that apply to the parties to the contract and At level 3 : Provision of evidence of reasoned advice, preparation and presentation of reports on the selection of the appropriate form of contract and warranties for a chosen procurement route.

This includes advising on the most appropriate contractual procedure at the various stages of a project. Therefore, different contract types should be matched with specific project types and owner requirements<sup>[7,8]</sup>.

This paper addresses the following objectives;

- To determine the selection criteria for contracts in the building sector
- To identify contract practices affecting project performance.

## 2. CONSTRUCTION CONTRACT

A contract is a legally binding agreement, which is a bargain and each side or party to the contract, must contribute something for it to be valid<sup>[1]</sup> known as consideration.

In the construction industry, contracts are used firstly to specifically allocate the duties between the parties, secondly to recognize and allocate the risk to the different parties<sup>[9]</sup>, and lastly reduce the uncertainty surrounding the project and allow the parties to plan for the project and the future<sup>[10]</sup>.

Construction contracts can be used for a new building, road, bridge, and railway or for alterations an existing structure, which could involve demolition, rebuilding, refurbishing or extensions<sup>[11]</sup>. Eight levers of business levers are identified and shown in in Figure 1<sup>[12,13]</sup>.

These can be reduced to 4 components<sup>[12]</sup>; namely relational safeguards (protect parties' interests e.g. intellectual property rights); transactional safeguards (protect specific transaction e.g. arbitration clause); service and warranty safeguards (protect buyer from faulty service e.g. defects liability clause) and product and price safeguards (determines technical specifications and price and its changes).

Therefore it is imperative that any chosen contract should fulfil the levers to safeguard the parties to a contract.

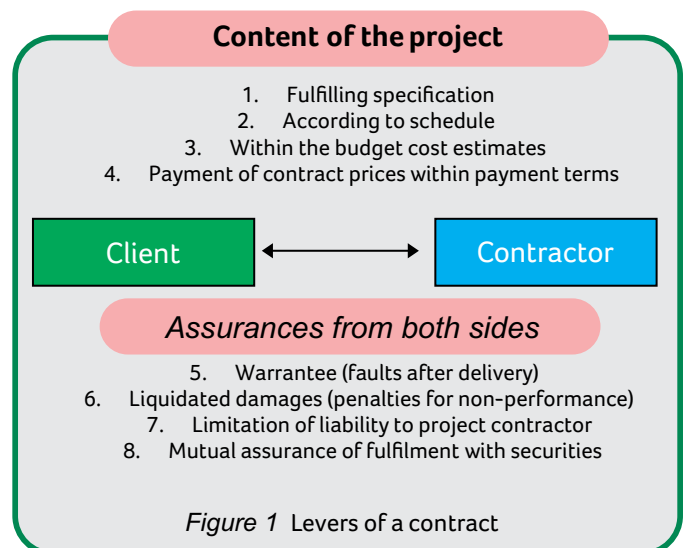


Figure 1 Levers of a contract

A construction contract by nature could be termed as traditional or/and relational. One school of thought argues that these two substitute each other while another posits that they complement each other<sup>[13]</sup>.

Traditional contracts are a common method of contracting where the client chooses service providers for design of work and asks for bids on construction work<sup>[1]</sup>. Relational contracting has emerged due to the shortcoming of the traditional contracting. It is somehow regarded as compliment to traditional contracting<sup>[14, 15]</sup> yet others<sup>[16]</sup> suggests that traditional contracts do not support effective cooperation. However, trust and communication are found as relational practices in traditional procurement<sup>[17]</sup> additionally information sharing, communication of risks and joint risk solving are highlighted as relational approaches utilised in public projects to aid risk management in the traditional system<sup>[18]</sup> This therefore suggests that contract selection should be done with care to achieve the intended practices.



### 3. CONTRACT SELECTION AND PREPARATION

The choice of contract between bespoke and standard form mainly depends on the nature of the project. Bespoke contracts are drafted from scratch and are mainly used in cases where no existing standard form depicts the intentions of the parties or used in the absence of a generally suitable standard form in a jurisdiction where the contract portfolio is limited<sup>[19]</sup>.

Most construction industries make use of standard forms of contracts mainly for reasons associated with economy, certainty, and familiarity<sup>[20]</sup>. However, the reasons of certainty and familiarity are normally altered by modifications during the preparation process of contract documents based on standard forms<sup>[1]</sup>. Various researchers note that standard forms are rarely used without modification<sup>[20,21,22]</sup>

Modifications are made by clients to include their own requirements and project specific conditions<sup>[21,22]</sup>. It is pointed, that clients modify contracts to alter the balance of risk toward the contractor<sup>[23]</sup> who shifts it to sub-contractors<sup>[24]</sup>. However, it is unclear the criteria used to modify clauses in relation to appropriate risk allocation; given that most standard forms of contracts in the public sector favour clients and allocate most risks to contractors<sup>[25]</sup>.

Construction contracts are of various types. Some are contractor friendly, while others are designed to protect the client's interests<sup>[26]</sup>. The type of contract chosen depends on a range of factors, such as the degree of price competition in the procurement process, the type and complexity of the requirements<sup>[27,7]</sup> and the method of payment<sup>[19]</sup>. In addition to client's objectives, the type of client, the type of work to be undertaken, the status of the design, the size of the project and the method of price determination<sup>[19, 28]</sup> can be considered in contract selection. In affirmation they can be summarised as<sup>[1]</sup> identity of client, method of procurement, source of design, size of the project, allocation of risk, type of work and development of design and documentation as selection factors. The more certainty and relatively less complex a project is; the more sensible it is to procure using the traditional contract based on firm price contract and when the opposite is true an integrated system or management oriented system normally based on cost plus or target cost is preferred<sup>[19]</sup>

### 4. CONTRACT EXECUTION

Contract execution starts by the signing of contract document by the parties concerned for it to take effect. This is normally after a tendering process, which could be negotiated or done through competitive bidding. It has been suggested that before contracts are signed they are normally negotiated<sup>[1,28]</sup>. It is suggested that contracts that are not negotiated are to some extent unfavourable. It is during the execution phase that the clauses included in contracts during the preparation phase are implemented.<sup>[29]</sup> Different types of contract clauses exist and have different implications. Below are some of the types of clauses that may be implemented during the contract execution phase.

Penalty clause mandates a financial fine in the event that one party breaches the contract. In construction, a good example of penalty clause is the liquidated and ascertained damages (LAD) clause where contractors are charged for late completion. These are used to protect specific investment and ensure efficient trade<sup>[30, 29]</sup>. Penalty/punitive clauses should be avoided in contracts<sup>[29]</sup>. It would appear that drafters of construction contracts find such clauses effective and as a consequent have continued to use them.

An exclusion clause or waiver clause is a clause that excuses a party to the contract of liability in situations covered by the exclusion clause such as an indemnification clause in construction contracts. This can sometimes be referred to as a disclaimer or exculpatory clause. It usually attempts to transfer a parties risk to another contractually. This in turn increases the cost of a project<sup>[31]</sup>. In the construction industry, this could cover delaying events, uncertainty of work conditions and sufficiency of contract documents<sup>[31]</sup>

Escalation clause is a provision within a contract that makes it possible to adjust the price given within the contract, on condition that specified events that are beyond the control of the parties involved in the contract take place. The escalation clause helps to ensure that providers of goods and services do not encounter unreasonable financial difficulty such as fluctuation of material prices<sup>[32]</sup>.

Force majeure clause is generally defined as "risks beyond the reasonable control of a party, incurred not as a product or result of the negligence of the afflicted party, which have a materially adverse effect on the ability of such party to perform its obligations"<sup>[10]</sup>. Certain events and occurrences,



beyond the control of client and their representatives; the contractor and their representatives, may inhibit the parties from fulfilling their duties and obligations under the project agreements. Such events include natural events (floods, earth quarks, natural disasters, acts of God, fire); political and special events (terrorism, riots, civil disturbances).

Therefore, force majeure clause should provide a sophisticated mechanism for dealing with the consequences of events and prescribe a range of remedies available to the parties as a result<sup>[33]</sup>. However, the drafting of force majeure clauses is rarely consistent throughout standard and bespoke forms of contract<sup>[33]</sup>.

Confidentiality clause or non-disclosure clause may be included in a wide range of agreements where the parties do not want to disclose or provide access to confidential information. These may be applied in an instance where liability is taken by one party which is necessarily not the norm<sup>[32]</sup>. It may include (a) whether the obligation is mutual or unilateral; (b) the scope of the information included (and excluded); (c) the exceptions to the obligation covering permitted disclosure to employees and representatives and required disclosure by law; (d) the extent of the obligation covering non-disclosure and optionally affirmative obligations to protect the information; and (e) the term of the obligation, if any<sup>[32]</sup>.

Severability/savings clause refers to a provision in a contract which states that if parts of the contract are held to be illegal or otherwise unenforceable, the remainder of the contract should still apply. This is commonly used for dispute resolution provisions<sup>[37]</sup>. This entails that the dispute resolution criteria stipulated within the contract should be used for disputes associated with a particular project.

Choice of law or forum clause is a provision in a contract in which the parties stipulate that any dispute between them arising from the contract shall be determined in accordance with the law of a particular jurisdiction<sup>[37]</sup>. This is normally useful for international projects where several laws might apply.

Termination clause allows the termination of a contract under certain circumstances. This could be non-payment for a given duration by the client or non-performance by the contractor<sup>[19]</sup>. This clause is a safeguard for both parties provided the termination events occur.

Additionally, to contract clauses and conditions, is the stipulation of the mechanisms for the management responsibility such as insurance, levels of subcontracting, use of joint ventures, tests and inspections to be carried out, methods of construction, mode of communication etc. All these depend on what is required on a given project and how they are managed, which ultimately has an impact on the project outcome.

## 5. METHODOLOGY

The study used both a qualitative and quantitative approach using face-to-face semi-structured interviews and self-administered questionnaire survey in a sequential manner to garner an understanding of contract practices used in the building sector. Therefore, the approach was abductive as it was both inductive and deductive. A mixed method approach was adopted to understand the contract practices and how widespread they are<sup>[34]</sup>.

For the semi-structured interviews, the sample comprised of 15 heterogeneously sampled respondents sampled purposively. These had at least 10 years' experience in the building sector each from the public and private sector namely: consulting firms – 2 Quantity Surveyors, 2-Engineers, 2- Project Managers and 2-Architects] and 3-contracting firms (building category grade 1-3). The participants selected for interviews had engaged in various building construction types; residential, commercial, industrial and others, thus providing a good mix for the study. The interviews ranged between 30 minutes and 70 minutes. An interview protocol was used with 4 main sections only two sections are reported in this paper. Firstly demographic information, secondly contract information (contracts used, preparation and deficiencies noted and contract). Other 2 sections were on risk practices an area outside the scope of this paper.

Respondents for the questionnaire survey were randomly selected when the population was more than 30 and a census was done for populations less than 30<sup>[35]</sup>. Contractors were sampled using stratified random sampling as they are of varying capacities from group 1 to 3 in the building category. Random selection was achieved through the assignment of the population various numbers selected at random. The questionnaire survey used closed and open-ended questions addressed to randomly selected respondents or a census depending on the population. Contractors registered with the National Council for Construction (NCC) as at 14 August 2014 in the building category and registered consultancy firms (See Table 1) were used in the survey. The list



of registered consultants by various respective registration boards (Zambian Institute of Architects, Engineers Registration board and Quantity surveyor's registration board) as at 1 July 2015 was used.

The questionnaire had similar format for questions as the interview protocol.

The qualitative data from the open-ended questions from the questionnaire and the semi-structured interviews were analysed thematically (using themes to identify, analyse and report patterns). In some instances verbatim quotations have been used.

The structured questions were analysed using statistical package for social sciences (SPSS) version 20.

From the statistical package quantitative data such as frequencies, means, standard deviations and principal component analysis were conducted<sup>[36]</sup>.

Additionally, for the questionnaire a cronbachs alpha was calculated and found to 0.916 for consultants' questionnaire and 0.935 for the contractors' questionnaire. These are acceptable rates of reliability<sup>[37]</sup>, therefore the instrument was a reliable measure.

The population and sample size for clients was less than 30 therefore the sample and population were too small to produce a reliability result for the Cronbach Alpha<sup>[38]</sup>. Nevertheless, the response rate for clients was 60%. This demonstrates the validity of the results as built environment research normally has a response rate of less than 40%<sup>[39]</sup>.

**Table 1** Respondents profile (questionnaire survey)

Category/ Selection criteria ()	Firms	Population	Responses	Response rate %
Contractors medium to large scale (stratified random sampling)	Building Category	150	80	53.3
Clients (government ministries and registered developers engaged in construction (Census)	6-Ministries	11	6	54.5
	5-Developers			
Consultants (firms) engaged in buildings projects (census for projects managers and randomisation for the rest of the sample)	Quantity surveyor	36	32	88.9
	Engineers	32	28	87.5
	Architects	54	38	70.4
	Project managers	17	14	82
<b>Total</b>		<b>300</b>	<b>198</b>	<b>66</b>

## 6. RESULTS AND DISCUSSION

This section presents the findings and the discussion of current contract practice in the Zambian building sector.

### RESPONDENT PROFILE

The respondents for the interviews had an average of 17 years' in experience and a mode of 10 years' experience.

The minimum qualification was first degree except for procurement officers who had training at advanced diploma level.

The respondents have been involved in various types of projects with a mix of small to large-scale building projects such as hospitals, clinics, health centres, schools, universities, banks, markets, shopping malls, fire stations, offices, residential houses etc.



For the questionnaire, survey respondents in terms of qualifications were as follows; for clients all had minimum of first degree with over 80% having 6-10 years' experience.

For project managers the majority (79%) had first degree while 21 % had qualification at master's level. For consultants' first degree qualification (70%), Master's degree (20.4%), Diploma (5%) and certificate (1%). Lastly, contractors' academic qualifications were as follows first degree qualification (74%), Master's degree (6%), Diploma (13%) and certificate (6%). Average years in experience were 10 years for project managers, clients 9 years, contractors 9 years and 9 years for consultants. The respondents are of acceptable

experience levels. Thus, this adds to the validity of findings.

### Contracts Used

The contract portfolio in a given legal jurisdiction influences the contracts that are applicable for a specific project. Figure 1 shows the standard forms of contract that are used in the Zambian building sector based on the questionnaire survey.

The high F-value indicates a large variability in the between-group and with-in group ratios of the predictors.

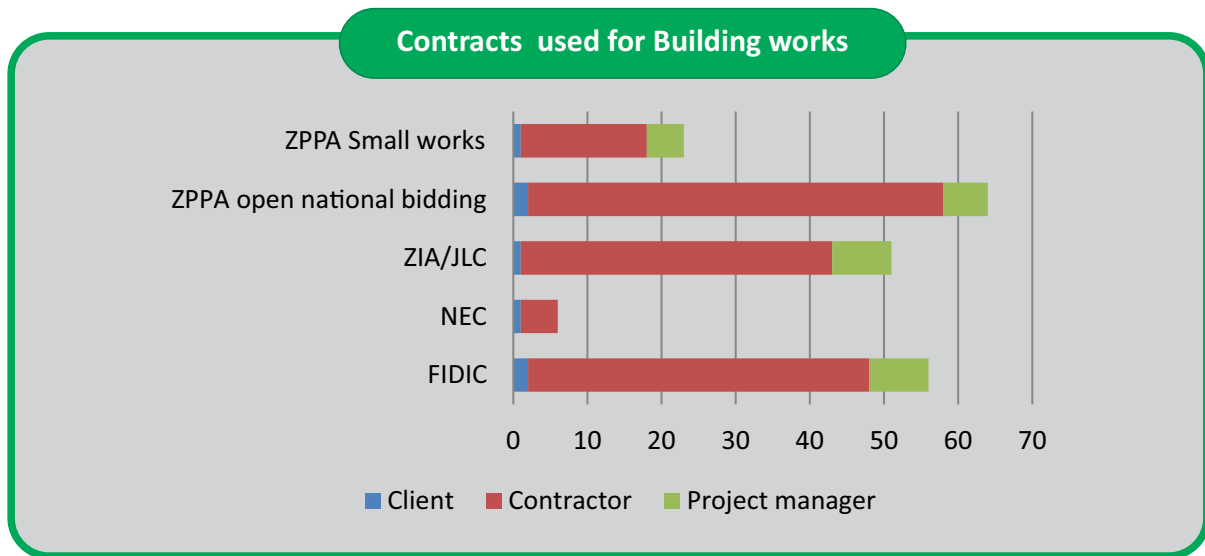


Figure 1. Contracts used in ZCI

The interviews revealed that the majority (93%) of the respondents use Zambia Public Procurement Agency contracts (ZPPA), almost half (47%) of the respondents use the Federation of Consulting Engineers (FIDIC) (redbook-all adopted as ZPPA open international bidding document), 40% use the Joint Liason Committee –(JLC) Commonly known as the ZIA (Zambia Institute of Architect) contract. The ZPPA formats have three suits ZPPA- small works (used on small sized projects to the value of below K500,000 (US\$ 50,000) for projects open to local bidders only; ZPPA open-national used for medium sized projects to a value of between K500,000 (US\$50,000) and K 20,000,000 (US\$200,000) for projects open to local bidders only; and the FIDIC red book based on the 2005 harmonised version also known as the ZPPA international used for large scale projects and is normally open to both local and

international bidders for works up to a value of over K20,000,000 (US\$ 20,000) based on an exchange rate of 1US\$ - K10 as of 31 January 2017. The ZPPA suits are used on fixed price/lump sum contracts except for the international contract that can also be used as an admeasurement contract. The ZIA/JLC is used for building works which are small and medium scale in the private sector. New Engineering Contract (NEC-2005) is mostly used in the private sector mainly for engineering projects using mostly Option A- priced contract. The public client only uses ZPPA forms (Open International, Open national and Small works) and Africa Development Bank (ADB) contract is also based on FIDIC for most internationally funded projects. The private clients are more diverse in contract use such as the American contracting system contracts, and Joint Building Contracts



Committee (JBCC - South African contract) indicated as other contracts used by 20% of the respondents. This shows that the client has a pivotal role in choosing contract types for use on construction projects.

However, the nature of contracts used is best suited for separated procurement, while integrated procurement was seen to be practiced as highlighted by at least 52% of the respondents in the interviews. This implies that the current contract portfolio is inadequate as the respondents indicated that there is a need to formulate a contract for

integrated procurement as modifying traditional forms is time consuming and on occasion is ill managed as some risks on occasion are not correctly documented in terms of liability. Moreover, Likhitrungsilp and Ioannou,<sup>[7]</sup> find that use of contracts used for different kind of work and procurement normally result in incomprehensive risk allocation and inappropriate allocation.

Therefore, the construction client should consider adopting or drafting contracts suitable for the procurement method under use.

## CONTRACT SELECTION CRITERIA

**Table 2 Factors considered for contract selection**

Selection Factors	N	Mean	Std. Deviation	Rank
Type of work undertaken	118	4.178	1.010	1
Financiers preference	118	4.093	1.102	2
Complexity of the requirements	118	4.017	1.155	3
Method of price determination	118	3.788	1.154	4
Client objectives relating to time, cost & quality	118	3.780	1.1333	5
Degree of price competition	118	3.746	1.163	6
Flexibility of design	118	3.737	1.180	7
Type of contract documentation	118	3.653	1.277	8
Status of design	118	3.644	1.251	9
Size of project	118	3.424	1.417	10
Risk preference	118	3.220	1.347	11
Public benefit (benefit - community/ contractor)	118	3.161	1.254	12
Type of development	118	3.102	1.516	13
Procurement method	118	2.958	1.323	14
Incentives	118	2.754	1.227	15

Various factors should be considered for contract selection as reflected in Table 2. The interviews revealed that the traditional procurement system is highly utilised with occasional use of non-traditional procurement. In both instances the contract selection is conducted by consultants and clients. Therefore, only consultants and clients (N-118) indicated the selection factors considered for contracts. The questionnaire survey was used to find out from clients and consultants the factors considered to select contracts the results are shown in Table 2.

The average mean score for the respondents was 3.550 which imply that factors that are prioritized

in contract selection in order of priority are items 1 to 9. However, procurement and size of the project are not one of the factors prioritised; contract forms in the contract portfolio are design-bid-build and size matters<sup>[19]</sup>. Additionally, public benefit from the interview results is mostly a public client criterion for contract selection used mainly for contracts suitable for works carried-out by medium and small size contractors. Offering incentives motivates the contractor to perform better<sup>[1,19]</sup> yet it is the lowest consideration in contract selection in the ZCI. Interviewees further pointed out that even when incentives such as bonuses are provided for in the contract; these are never implemented due to non-compliance by the



client. Therefore, it is up to the contractor to find ways of motivating their employees.

Additionally, the fixed price contract on which most construction projects are based is not designed to offer incentives more so on public sector projects<sup>[18]</sup>.

**Table 3** Total variance of the selection factors for contracts

Component /Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.682	31.215	31.215	2.698	17.988	17.988
2	1.467	9.778	40.994	2.279	15.192	33.180
3	1.307	8.713	49.707	1.835	12.232	45.412
4	1.151	7.674	57.381	1.795	11.969	57.381
5	.964	6.428	63.810			
6	.834	5.563	69.373			
7	.790	5.268	74.641			
8	.752	5.013	79.654			
9	.618	4.123	83.777			
10	.561	3.743	87.520			
11	.496	3.304	90.824			
12	.437	2.911	93.735			
13	.361	2.410	96.144			
14	.316	2.106	98.251			
15	.262	1.749	100.000			

Extraction Method: Principal Component Analysis.

Table 3 shows principle component analysis results used to address the problem of analysing, the structure of the correlations among many variables.

This was employed to explore the groupings that might exist among the contract selection factors. The analysis results show that the Bartlett test of sphericity is 500.107 and the associated significance level is 0.000, demonstrating that test is significant.

The value of the Kaiser–Mayer–Olkin measure of sampling adequacy is 0.782 showing that the sample meets the requirements for factor analysis<sup>[40]</sup>. The principal component analysis generated a four-factor solution with eigenvalues greater than 1.0.

Table 3 shows the total variance from which the four components (Type of work undertaken, Financiers preference, Complexity of the requirements and Method of price determination) account for 57.38% of the variance based on the 15 identified factors in the selection of contracts.

The identified 4 heavily influence the contracts selected in the ZCI. These do not represent the priority factors considered by others such as status of design, size of the project and procurement method<sup>[19, 10]</sup> as they influence factors such as price determination and complexity of requirements.



Table 4 Rotated Component/Factor Matrix <sup>a</sup>

	Component			
	1	2	3	4
Complexity of the requirements (3)	.686	-.011	.023	.120
Procurement method (14)	.639	.310	-.058	-.112
Status of design (9)	.625	.092	.424	-.105
Risk preference (11)	.571	.164	.065	.429
Size of project (10)	.515	.065	.302	.429
Flexibility of design (7)	.498	.162	.282	.096
Degree of price competition (6)	.383	.276	.212	.375
Financiers preference (2)	.005	.716	.149	.286
Method of price determination (4)	.361	.714	.204	-.297
Type of contract documentation (8)	.078	.686	.191	.379
Type of development (13)	.267	.577	-.178	.210
Type of work undertaken (1)	.135	-.074	.833	.100
Client objectives relating to time, cost & quality (5)	.104	.336	.756	.123
Incentives (15)	-.066	.150	.140	.718
Public benefit (benefit - community/ contractor) (12)	.448	.270	-.119	.584

Extraction Method: Principal Component Analysis. , Rotation Method: Varimax with Kaiser Normalization, . Rotation converged in 8 iterations.

Table 4 shows the correlations between factors with the 4 factors that had an Eigenvalue of above 1. Clearly there are various correlations that are close to 1 signifying strong correlations. For instance type of work has a strong correlation with complexity of the requirements, procurement method, status of design. While method of price determination is correlated to incentives. Contract Preparation - modification

Contract modification is a feature of contract practice in the ZCI, which was indicated by 83% of client respondents and 43% of project managers. It is notable that lawyers in most cases modify the contract document to suit the needs of their clients and to reduce the clients' risks as pointed out by one of the respondents below.

"...Sometimes but mostly lawyers do not like the wording of certain clauses and hence modify. This is very annoying because they make us feel as if we do not know what we are doing....sometimes the modification is extensive they modify up to 3 whole pages. This is annoying". Respondent X

The modifications have two sources according to 72% of the interviewees 1. Client and their representatives and 2. The financiers of project.

The modifications from the semi-structured interviews are in form of changing the wording of clauses or removal or waiving of clauses altogether as demonstrated in the comment above. It could be argued that the modifications change the risk allocations as pointed out by respondent Y and this view is upheld by others, <sup>[1, 10]</sup>. Apart from the expected modifications of project and issues to do with securities, payment and others; fluctuation and escalation clauses are modified mainly to the detriment of contractors who on occasion abandon projects when their very survival is threatened. Furthermore, it is clear that contractors feel forced into contracts because the clients make most of the decisions on the conditions of contract see comment below:

"...because they know if those clauses are there, their risks will be high and they would be found wanting and because they are the ones who have the sole privilege of coming up with the form of contract that they want to have. Us as contractors have no input in that if anything those contracts that we use are just shoved down our throats...."- Respondent Y

Contract modification is a common feature on construction contracts <sup>[22]</sup> meant to provide





relevant information on a project not to change the risk allocation. Therefore, modifications should be done in a way that does not shift risk unless an opportunity is provided to the other party to negotiate these modified conditions.

## NEGOTIATION OF CONTRACT CONDITIONS

Slightly above half (52%) of the building contractors in grades 2 to 3 and 69.4% of grade 1 contractors in the survey indicated that public sector clients only entertain negotiations on project conditions before the tender submission. From the literature, this form of contracting maybe referred to as contract of adhesion “take it or leave it”<sup>[41]</sup>. This has resulted in contractors entering into contracts which they know are risky and normally result in exceptionally high bids. The private clients are more open to negotiation.

By default, contracts are supposed to be entered into an agreement<sup>[27,42,1]</sup> this does not seem to be the case in public sector contract practice.

Therefore, the client should be more open to negotiation to ensure that the risk liability and the contract conditions are generally mutually agreed upon.

## SHORTCOMINGS OF CONTRACTS USED

The shortcomings listed in Table 5 are those impacting on performance or cannot be realistically achieved in the construction phase in the ZCI and may not be shortcoming in other construction industries as some of the contract forms highlighted here are used in the ZCI only. The following shortcomings were pointed out during the interviews.

Some deficiencies are common to all contracts (e.g. payment period) while others are only common to the individual contract forms (Table 5). This could be a possible reason why contracts are modified. This further raises the question of the need for standard forms of contract. It could further be argued that in certain cases the standard forms should be used as a baseline while in other cases they should

**Table 5. Perceived shorting comings in contracts used in ZCI**

Standard Form of Contract	Items presenting shortcomings
JLC -ZIA	<i>Payment period</i> , <i>Interest on late payment</i> , Variation limits, retention, statutory approval, <i>Insurance options (defects liability period)</i> , Insurance Sectional Completion, Compensation events, Termination
FIDIC/ZPPA international	<i>Payment period</i> , <i>Sub-contracting threshold</i> , Escalation/Fluctuation clauses, Payment guarantee clause (removal), <i>Provision of risk assessor</i> , Monitoring/supervision guide lines, Use of nominated contractors, Appointment of arbitrator, <i>Place of arbitration</i>
ZPPA -Open national and Small works	<i>Payment period</i> , <i>Interest on late payment</i> , <i>Insurance options (defects liability period)</i> , Site possession/commencement period requirements, Period for release of advance payment, Provision of security by contractor (time limit), safety, <i>Sub-contracting threshold</i> , <i>Provision of risk assessor</i> , Monitoring/supervision guide lines, Appointment of arbitrator, <i>Place of arbitration</i>

### Adequacy of clauses used and compliance

Various types of clauses as outlined earlier are used in contracts. However, in this study only escalation, exemption and penalty clauses are reported on.

Penalty clauses are rarely utilised because the client is normally late in making payment as indicated by 60% of the respondents. This is

congruent with the finding of the questionnaire survey. While penalty clauses are effective, they are difficult to implement due to non-compliance to contractual provisions by the client according to interviewees.

Results further revealed that penalty clauses are generally effective by 100% of the clients, 78.6% of the project managers, 87.8% of the consultants and 77.2 % of the contractors the avoidance of



penalty clauses has been advocated for<sup>[29]</sup> even though this clause type acts as a safeguard, Majority (73.3%) of respondents indicated that the escalation clause is generally removed or waived especially when dealing with fluctuations of material prices and exchange rates. Interest on delayed payment is normally maintained.

On the other hand, escalation clauses were rated as effective by 83% of the clients, 78.6% of project managers, 50.6% of the contractors and 79.6% of the consultants in the survey. Almost half (49.4) of the of contractors pointed out that this clause is not effective. Interviewees suggest that clients are not always compliant when in default of such clauses. It could explain why nearly 50% of contractors in the survey indicated that this type of clause is ineffective. Most of the respondents (86.7%) did not seem to know what an exculpatory clause is. Nevertheless, half (50%) of the clients in the survey indicate that exemption clauses are not effective , 71.4% of the project managers point out that the clause is effective 80.6%, while 58.2% of contractors suggest the clause is effective. It is clear that clients do not entirely affirm to the effectiveness of this clause. This could be because the clause type does not allow them to escape liability for risk. Though it has been , argued that exemption clauses add to transaction costs<sup>[31]</sup> it is unclear to what extent this applies to the ZCI as the application of this type of clause is rare.

## 7. CONCLUSION AND RECOMMENDATIONS

Contract practice to an extent has an effect on project performance as it results in project abandonment on occasion and unnecessarily high bids. It has been demonstrated that the contract portfolio used in the Zambian building sector is inadequate as there is need to include contracts for integrated procurement. Additionally, contracts in use have some shorting comings due to the practicability in application such as non-compliance by the client unfavourable contract modifications and occasional negotiations of contract conditions; as the later qualifies contracts in use to be termed as contracts of adhesion. The biggest client, the public sector rarely accords contractors' opportunities for negotiation of issues of concern before signing contracts such as modifications made to standard forms. Notwithstanding, when terms are agreed upon the client is not always fully compliance to contract provisions.

Therefore, the construction client could strive to formulate mutually agreed contracts through negotiation and this can result in the drafting of

contracts with favourable conditions to both parties.

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# A THEMATIC ANALYSIS OF EXPERTS' PERCEPTIONS OF CRITICAL CHALLENGES TO EFFECTIVE STATUTORY ADJUDICATION IMPLEMENTATION

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## PURPOSE

Default payment either in the form of delayed payment or non-payment remains a lingering issue affecting the construction industry supply chain. The payees', which are mostly contractors and subcontractors at the lower rung of the contractual chain face financial difficulties from main contractors who delayed or refused payment in the knowledge that court and arbitration proceedings are often too expensive and a slow remedy for, particularly, the smaller contractors. These oppressive acts have led to insolvency of many lower-chain players and as such generated serious concerns within the construction industry. Consequently, several countries around the globe have introduced payment and adjudication legislation to provide parties with the right to payment and further allow a swift and cheaper means of resolving construction disputes by way of adjudication.

Similar legislation is about to be promulgated in the South African (SA) construction industry. However, previous studies revealed that the effectiveness of statutory adjudication could be undermined when there are challenges. Thus, this paper reports the experts' perceptions on the critical challenges that can impair the effective statutory adjudication implementation, highlights the causes of those challenges and finally suggests potential approaches to prevent the identified challenges.

## DESIGN/METHODOLOGY

The study which is reported upon in this paper generated open ended questions which require novel answers from the experts that are directly involved in the adjudication implementation process. Thus, the study employed a qualitative research approach in both the collection and analysis of data.

Data for the study were collected through Skype TM interviews with 15 experienced and seasoned professionals who have had direct interaction with the statutory adjudication implementation in four selected jurisdictions namely: (i) The United Kingdom, (ii) Australia, (iii) Singapore, and (iv) Malaysia.

## FINDINGS

The study revealed that challenges which could impinge the effectiveness of the legislation supporting statutory adjudication ranges from lack of familiarity with the legislation itself, to issues relating to the contents of the legislation, cost of adjudication and adjudicator's fees, inadequate knowledge of process and procedure of adjudication by the users, jurisdictional challenges, capacity challenges and legal technicalities challenges.

The perception of the participants is that some of these challenges arise from poor drafting, court interference and adverse court decision, drafting inconsistency and low level of knowledge.

The study finally highlighted the possible ways of avoiding the identified challenges such as raising awareness of different industry stakeholders, adequate training for adjudicators and institutional interventions.



## ORIGINAL/VALUE OF PAPER

This study adds to the body of knowledge by providing empirical evidence which addresses some of the gaps identified in the literature regarding the issue relating to effective implementation of statutory adjudication. The application of proposed means of avoiding the identified implementation challenges would positively lead to the effective operation of statutory adjudication practice in the SA construction industry and may also serve as a guide to other jurisdictions contemplating introducing statutory adjudication.

**Keywords:** Statutory adjudication, legislation, implementation challenges.

### 1. INTRODUCTION

All over the world, the occurrence of disputes in the construction industry continues to plague all stakeholders such as clients, contractors, subcontractors, professionals and suppliers. In addition, disputes have had different consequences for those involved in construction projects. These consequences range from delays in project progress to utter abandonment of construction projects. In fact, disputes have also been associated with severe health challenges to injured contracting parties, poor construction work, delay and consequent loss of money used in securing the services of legal representatives, etc.<sup>[1] [2]</sup> Hence, contracting parties have always had cause to remediate disputes. Litigation through the formal courts has been the oldest means of resolving disputes<sup>[2][3][4]</sup>. While it has been noted that formal courts have over the years played a significant role in the construction industry's dispute resolution and have provided succour and redress to contracting parties, the process of litigation is nonetheless being less appreciated by contractors in the presence of alternatives<sup>[5][6]</sup>. In effect, many experts believe that litigation is currently becoming especially inappropriate for resolving disputes in the construction industry<sup>[7]</sup>.

Several reasons have been given for the current disinterest in litigation for dispute resolution within the construction industry. The most prominent of these reasons were: delay in the court protocols, which affect execution and completion of the project and serious cash flow problems which lead to lack of survival of many contractors and subcontractors. Similar consequences have been recorded about arbitration. For instance,

arbitration as an alternative disputes resolution (ADR) method, which was initially introduced to be inexpensive, prompt, private, and non-adversarial, has been fraught with challenges relating to cost, speed and procedural complexities<sup>[7]</sup>. As such, a much better ADR method has been advocated<sup>[8]</sup>. In the recent times, there has been an increased preference towards adjudication as an (ADR) mechanism over the other disputes resolution methods<sup>[9]</sup>. The fundamental motivation behind the introduction of statutory adjudication is to improve cash flow within the construction industry and also to improve the efficacy of dispute resolution in terms of cost and time<sup>[10]</sup>. Whilst cash flow is widely regarded as the lifeblood of the construction industry<sup>[11][12]</sup>, unfair payment practices remain a lingering issue affecting the delivery chain<sup>[13]</sup>. Most often, contractors and subcontractors at the lower rung of the contractual chain face financial difficulties from main contractors who delayed payment in the knowledge that court and arbitration proceedings are often too expensive and a slow remedy for, particularly, the smaller contractors. These oppressive behaviours, at many instances, have led to insolvency of the lower-chain players and as such generated serious concerns within the construction industry<sup>[14]</sup>. Consequently, the idea of statutory adjudication was conceived to offer a swift relief to the financially squeezed and cash-starved subcontractors. Statutory adjudication is simply an "accelerated and cost-effective form of dispute resolution that, unlike other means of resolving disputes involving a third party intermediary, the outcome is a decision by the third party which is binding on the parties in disputes and is final until reviewed by either arbitration or litigation"<sup>[15]</sup>. The United Kingdom introduced statutory adjudication first through section 108 of Housing Grants, Construction and Regeneration Act, 1996 (HGCRA). Since then several other countries have shifted to adjudication as their principal mode of construction disputes resolution mechanism [16].

The discovery is that, in many of these countries where adjudication has been employed as the means of resolving disputes, it has both timeously and satisfactorily settled disputes and pacified the parties involved. Further, adjudication has proffered acceptable solutions such that litigation was not necessarily required<sup>[17] [18] [3]</sup>. Having gained popularity and wide acceptance in several other countries due to its effectiveness, adjudication seems to have come through as the desired alternative in SA. Notwithstanding, some earlier studies have illustrated in clear terms that,



certain challenges must be overcome and a lot of effort should be made before an effective implementation of statutory adjudication can be achieved in SA <sup>[13] [19] [20] [21]</sup>. Thus, this paper investigates the critical challenges that can impair the effective statutory adjudication implementation, the causes of those challenges and potential approaches to prevent the identified challenges.

## 2. DEFAULT PAYMENT AND MOVE TOWARD STATUTORY ADJUDICATION IN SOUTH AFRICA

The SA construction industry is large, diverse and complex in nature <sup>[22]</sup>. The industry plays very important roles in the national economic and social development. Nevertheless, the industry has been fraught by a series of practical payment problems which has been recognised as a chronic problem affecting the delivery chain <sup>[13]</sup> and the fundamental cause of construction disputes <sup>[23]</sup>. The unpredictability of payments has, in certain instances, resulted in an extremely negative contracting environment <sup>[24]</sup> and as such, disputes are not uncommon within the industry.

The annual Construction Industry Development Board (CIDB) survey of contractors, clients, consultants and other stakeholders that assess the industry performance in the form of construction industry indicators (CII) has reported continuous and increasing deterioration in both payment culture and management of disputes within the SA construction sector <sup>[25] [26]</sup>. Similarly, the report of CIDB entitled “Subcontracting in the South African construction industry; opportunities for development” shows that 65% of the subcontractors in SA faced financial difficulties as a result of payment-delay <sup>[23]</sup>.

In addition, numerous complaints about late payment, contractual disputes between clients and contractors, main contractors and subcontractors as well as dissatisfaction on management of variation orders has continued at high level within the SA construction industry <sup>[26]</sup>. This has generated serious concern within the industry because of its significant negative effect on growth and performance of the industry. Unfortunately, the traditional means of resolving construction disputes have not helped, in that, the time and cost associated with litigation makes the process undesirable. Regrettably, arbitration does not provide a better solution either. Thus, there have been increased concerns on how to

strengthen the industry to face the present and future challenges with regards to payment problems and resolution of construction disputes within the industry, of which the subcontracting sector of the industry usually bears most of the brunt.

In recognition of the negative consequences of default payment and the fact that the problem of dispute resolution within the construction industry in SA is an acute reality that requires a timely and durable solution, Prompt Payment Regulations and Adjudication standards were proposed by the CIDB for the SA construction industry. The recommendation of the proposed regulations was premised on the need to facilitate payments, outlaw unfair payment terms and establish a cheaper, swifter and binding ADR mechanism. Once enacted, the regulations are expected to ensure that the lifeblood of the construction industry - cash flow - flows <sup>[12]</sup>.

However, past studies in some of the countries where similar regulations have been in place revealed that the initial take-up of statutory adjudication faced a lot of teething problems and certain challenges which threatened its efficiencies and undermined its usage. Thus, to achieve effective implementation of the statutory adjudication in the SA construction industry this study investigates the critical challenges that can impair the effective statutory adjudication implementation. The paper further highlights the causes of those challenges and suggests an approach to prevent them.

## 3. RESEARCH METHODOLOGY

This study adopted a qualitative research approach due to the richness of information and clarity of meaning that the approach usually provides. Data were collected from the professionals that have direct interaction with the adjudication implementation in four selected jurisdictions namely: The United Kingdom (UK), Australia, Singapore and Malaysia. The adjudication experts from the UK and Australian state of New South Wales (NSW) were selected because both the UK and NSW were regarded as the leaders of the practice of statutory adjudication <sup>[10]</sup>, having being the first and second jurisdictions to enact legislation in support of statutory adjudication practice. The adjudication professionals in Singapore were contacted because their adjudication regime is somewhat different from the two leading models.



The Singapore adjudication regime is an amended version of the NSW Acts, which was purposely modified, to suit their own industry structure. Thus, consulting experts in Singapore revealed how the improvement in their legislation aided effective implementation. Adjudication experts from Malaysia were selected since it was the latest country (as at 2015) that brought into force legislation providing for the mandatory adjudication of construction payment disputes. Moreover, the Malaysian Acts is considered a hybrid of multiple adjudication systems and cannot be grouped into either of the other two leading models (i.e. the UK and NSW)<sup>[27]</sup>. Malaysia is also the only country that named an independent institution called The Kuala Lumpur Regional Centre for Arbitration (KLRCA) as an implementing authority in charge of adjudication administration in their legislation. Thus, specific contributions from the experts working in that institution were regarded as what are needed to meet the objectives of this study.

Considering the nature of this study, a purposive and snowballing sampling method was used to identify the potential interviewees in the four selected countries. The choice of purposive sampling method was based on the recognition of the fact that it is the most important kind of non-probability sampling to identify suitable participants who have had experience relating to the phenomenon under consideration<sup>[28]</sup>. Thus, the participants for this study were selected on the basis of their specific involvements and experiences with adjudication. In addition to the purposive technique, snowballing methods were also employed. The rationale behind the inclusion of the snowballing technique is that the participants selected through purposive sampling would volunteer information on other personnel or individuals who meet the set criteria for selection, and as such, more useful data would emerge that might lead to greater discovery of additional information. The institution in charge of adjudication implementation in Malaysia was the first to be contacted in September 2015.

Thereafter, individuals who have been involved in adjudication processes and implementation from other selected countries were also contacted. Access to the interviewees was negotiated through a letter of request and interviews were arranged with the identified individuals. In all, twenty seven (27) adjudication experts were contacted. Fifteen (15) adjudication experts agreed and participated in the interviews. A typical sample size for interviews of this nature is

from 5 to 25 individuals<sup>[29] [30] [31]</sup>. The selected participants are regarded as experienced and leading adjudicators in their countries. Most of these participants (53%) have more than 20 years of experience while 47% have between 10-19 years of experience. These professionals have engaged in adjudication as legal advisers, legal representatives, adjudicators, trainers and construction lawyers. In addition, most of these participants (73%) have also written books, conference papers and journal articles on adjudication and payment legislation in their countries and internationally.

Data were collected through interviews via Skype™ in accordance with the Patton's general qualitative interview guide approach<sup>[32]</sup>. The interview guide was developed to enable uniformity in the manner at which questions are asked throughout the interview exercise and to facilitate consistency in the trajectory of the interviews. The interview guide comprised of eleven open-ended questions, excluding demographic questions. The questions were to probe the individual's viewpoint regarding the subject matter and the structure of the questions allowed reciprocal two-way communication arrangement with the interviewees' thereby giving room for exploratory and clarification purposes<sup>[33]</sup>. The interview that lasted on average of 38 minutes were audio-recorded with the kind permission of the interviewees. The recordings were transcribed and were sent back to the interviewees for validation.

The thematic analysis of data was based on general principle of qualitative analysis, to comprehend interviewees' contributions on effective statutory adjudication practices. The analysis followed the qualitative principles of analysis which include: transcribing, coding, constant comparison and diagramming<sup>[34][35]</sup>. The process was done manually by the researcher for getting comprehensive ideas of the data. During this process, key ideas were identified and highlighted.

Thereafter, the transcribed data were coded, then the coded data were categorised and relationships were built among the categories. A total of 412 codes, 41 subcategories, 11 categories and four main themes were generated in the study. This paper presents only one of the main themes, tagged "The critical challenges to effective statutory adjudication implementation". The main theme is further discussed under three sub-themes namely (i) critical challenges to effective statutory





adjudication implementation; (ii) factors that cause challenges to effective implementation and (iii) avoidance strategies and preventive measures to adjudication implementation challenges.

## 4. RESEARCH FINDINGS

**MAIN THEME:** Critical challenges to effective statutory adjudication implementation and how they can be prevented

This theme is focused on the critical challenges that could impair the effectiveness of statutory adjudication process, their causes and the possible ways by which they can be prevented.

As aforementioned, the theme will be discussed under three sub-themes.

### SUB-THEME 1: CRITICAL CHALLENGES TO EFFECTIVE STATUTORY ADJUDICATION IMPLEMENTATION

Based on the analysis of the interview data, the interviewees identified several challenges that could impair the effective implementation of the legislation supporting statutory adjudication. The challenges identified are grouped under seven categories namely: (i) challenges relating to change process issues; (ii) challenges relating to technical provisions and contents of the legislation; (iii) challenges relating to the issue of procedure and process; (iv) challenges relating to legal technicalities; (v) challenges relating to cost of adjudication and adjudicator's fees; (vi) capacity challenges; and (vii) jurisdictional challenges.

#### (i) CHALLENGES RELATING TO CHANGE PROCESS ISSUES

The challenges relating to change process refer to the difficulties that arise during the initial stages of the implementation process. The data analysis revealed that, industry's slow acceptance of the legislation, ignorance about the provisions of the legislation and the failure to understand the requirements and operation of the new legislation, lack of understanding by the users, users' ignorance of their entitlement under the new legislation, lack of awareness and low level of knowledge of the legislation were identified as change process challenges.

These teething problems are viewed by the participants as potential factors that could undermine the effectiveness of the Act if not properly handled.

Participant 7 from Australia explained that: "The two most significant reasons for the teething

problems are: lack of training/understanding by users, adjudicators, lawyers etc. and drafting inconsistencies within the legislation". In line with participant 7 submission, participant 9 from Singapore also noted that: "Teething problems also arose in the way Acts were drafted and the technical provisions in the Act". The perception from the interviewees' comments is that, where these challenges exist, the usability and the level of invocation of the legislation may be low.

(ii) Challenges relating to technical provisions and contents of the legislation

Majority (75%) of the participants independently observed that problems relating to the contents of the Act are critical. According to the views expressed by the participants, challenges relating to the technical provisions and contents of the Act usually arise when there is a lacuna in the legislation. It was revealed from the analysis that the manner in which a particular legislation is drafted has a way of influencing the outcome of that legislation. The majority of the interviewees stressed that drafting inconsistencies and ambiguities in legislation have led to critical interpretation problems in many jurisdictions.

According to participant 6: "The major teething problem, in my view, is the interpretation of some of the provisions of the Act and this has to be sorted out by the High Court. To date, there are more than 15 cases that have been referred to the High Court".

Similarly, participant 2 is of the view that there would always be confusion whenever the Act is silent on how some issues should be carried out. According to her, the way the Act is worded can influence the interpretation and understanding of the contents of the legislation. Gaps/lacunae in the legislation and lack of clear guidance on the implementation procedures usually give rise to uncertainty.

This will not only undermine the effectiveness of legislation but increase litigation.

#### (ii) CHALLENGES RELATING TO ISSUE OF PROCEDURE AND PROCESS

The challenges identified from the interviews under these categories are mainly (i) ignorance of subcontractors, suppliers and other intended beneficiaries of the various provisions of the Act, and their entitlements under the Act, (ii) procedural complexity and



### **(iii) THE LEVEL OF ACCESSIBILITY.**

Participant 5 explained that one major contributing factor to procedural challenges is when there is provision of only a general framework within a legislation without detailed procedure as to how and what implementation process to be followed. The lack of clear process and procedure within a given legislation is being capable to cause implementation problems.

### **(IV) LEGAL TECHNICALITIES CHALLENGES**

The opinion of the interviewees on what constitutes legal technicalities challenges include: (i) The strict interpretation of the rules of adjudication, (ii) the introduction of complicated issues that is applicable to arbitration, and (iii) adverse court decisions. Participant 9 explained that lawyers tend to approach adjudication with a strict interpretation of the rule of adjudication. This has resulted in many technical breaches thereby giving room for applications to be rejected and in some situations, good claims are dismissed. This has not only been a waste of time and resources, but also a failure of claimants to meet the justice of the claim when a good claim is dismissed due to technicalities challenges. Adverse court decisions have their share in defeating the objective of the legislation. Participant 7 explained that the courts' decisions which nullify the effect and efficiency of how adjudication is intended to operate can stultify the significance of adjudication and bring the system to a standstill, thereby circumventing the objects of the legislation.

### **(v) CHALLENGES RELATING TO COST OF ADJUDICATION AND ADJUDICATOR'S FEES**

The challenges relating to issues of cost and fees are viewed from two perspectives. On one hand, a large proportion of the interviewees agreed that if the cost of adjudication is excessively high, this may be a limiting factor to its wider usage and thus affect the impact of the legislation. In this regard, one of the interviewees explained that the excessive cost of adjudication may be a significant barrier to subcontractors in pursuing adjudication. On the other hand, two interviewees raised concern that, if the adjudicators' fees are too low, it could discourage the experienced adjudicators and lead to inadequate capacity, as they may not want to practice adjudication.

### **(vi) CAPACITY CHALLENGES**

The issue of quality is fundamental to an effective

adjudication process. The analysis of the interview data revealed that capacity challenge could come in the form of:

- Inadequate resources in terms of number of adjudicators available to kick-start the adjudication process;
- Inadequate resources in terms of the quality of the available adjudicators; and
- Inadequate resources in terms of the discipline and experience of the available adjudicators.

Some of the interviewees believe that, for an adjudication regime to be successful, it requires highly experienced adjudicators that can produce quality decisions. This implies that the quality of decisions produced by such adjudicators is likely to be high, and unlikely to be reopened at other levels of dispute resolution, such as arbitration and litigation. Some of the interviewees also assert that when there is availability of adequate capacity, then careful assessment of which adjudicator is available and can deal with the complexities of a case would be possible. Thus, matching the right sort of adjudicator with the right sort of dispute would not be too difficult.

### **(vii) JURISDICTIONAL CHALLENGES**

Data analysis revealed several grounds on which a jurisdictional challenge might be brought into adjudication. The grounds for challenging an adjudicator's determination include (i) jurisdictional errors by the adjudicators (ii) breach of natural justice (iii) where one of the parties feels that the adjudicator was not validly appointed (iv) where either of the parties feels that he has not been given a fair hearing. The study further revealed that all these factors are fundamental grounds at which adjudicators' decisions would not be enforced. This challenge, according to the participants can defeat the very objective of the legislation of making adjudication a summary, simple, fast and relatively cheap process.

### **SUB-THEME 2: CAUSES OF TEETHING PROBLEMS AND CRITICAL CHALLENGES TO EFFECTIVE IMPLEMENTATION** **THE INTERVIEWEES PROVIDED A LOT OF INFORMATION ON THE VARIOUS CAUSES OF IMPLEMENTATION CHALLENGES. THESE INCLUDE:**

(i) poor drafting style and drafting inconsistency within the legislation; (ii) unnecessary judicial interference or adverse court involvement in the adjudication process; (iii) ignorance or lack of familiarity with the process and procedure; and



(iv) lack of clarity on the provisions of the legislation (ambiguities) As revealed by the data, the drafting inconsistencies within the legislation provide a basis for interpretation problems with parts of the legislation. One of the participants observed that, in his country, the ambiguities within the legislation have led to considerable confusion in pursuing the contractual remedies stated in the legislation.

In addition, some of the interviewees observe that failure by the court to understand the intended nature of adjudication had in some instances led to adverse interpretation and setting aside of adjudication decisions. In fact, this action had in some instances resulted in a flood of jurisdictional challenges. Thus, it was observed that the losing party in adjudication may use this avenue to challenge the adjudication determination with the hope of delaying or avoiding payment to the winning party.

The interviewees also observed that the user’s (contractors/subcontractors) low level of knowledge, users’ ignorance of the legislation provision and degree of accessibility to the legislation are the factors that are responsible for some of the problems associated with the implementation process.

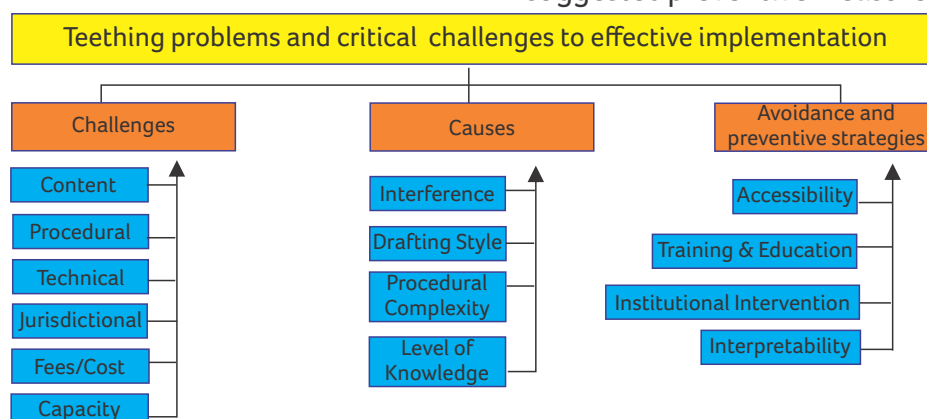
### SUB-THEME 3: AVOIDANCE STRATEGIES AND PREVENTIVE MEASURES TO THE IDENTIFIED IMPLEMENTATION CHALLENGES

The participants suggested certain strategies that could be used as a measure to prevent various challenges identified in this study. Some of the suggested preventive measures include: raising awareness of different construction stakeholders through different means, such as road shows, seminars, workshops and conferences etc. Some of the participants also advised that the high court judges should be informed about the intended nature of adjudication to avoid any misconception in relation to statutory adjudication policy objectives.

Participant 12 noted that: “I think, it is by creating awareness in the judges of how arbitration is different from adjudication, it will be good when a country who wants to introduce legislation should check the experience of judges to be involved in the consultation process as well, so that the judges may be well informed of what adjudication is and what the legislation wants to achieve when it is introduced in the future. Thus, it will be good to create and increase awareness to let the judges be involved from the very beginning”. The implication of the statement of participant 12 is that all industry stakeholders, that would be involved in adjudications whether as a user or as implementer, should be properly informed. In addition, education and training was suggested as one of the significant factors that can enhance effectiveness. For instance, participant 3 advises that adjudicators should be properly trained to fully understand ethical, technical and substantive legal standards. According to him: “Training is very important. A core focus of the training programme has to be directed at the pool of individuals who will serve as adjudicators. Ethical, technical and substantive legal standards, knowledge, and principles ought to be communicated and the candidates for inclusion in the pool of adjudicators tested for an adequate understanding of the relevant standards, knowledge and principles”.

Some interviewees also suggested that institutional interventions will go a long way in preventing the identified challenges. These interventions include: (i) the regulation of adjudication fees, (ii) information dissemination, (iii) good accessibility to the legislation, (iv) clear interpretation (v) using simple and clear languages in the wording of the legislation to avoid misinterpretation and ambiguities and (vi) maintaining a high standard of adjudicators through the introduction of a quality control system and rigorous training and assessment programs.

Figure 1 presents the critical challenges to effective statutory adjudication, its causes, and suggested preventive measures.



## 5. DISCUSSION

Challenges are not uncommon to an implementation process. Every policy maker expects to see that the policy objectives behind their legislation is achieved. However, implementation problems do occur and create a gap between policy conceptions and outcomes. While it has long been recognised that the existence of systemic problems usually make the gap between policy theory and practice hard to close<sup>[36]</sup>, the lack of adequate preparatory arrangements to influence transformation initiatives and implementation process usually compounds implementation problems. As indicated in this paper, one of the major challenges to effective implementation is the degree of ambiguity of the policy. The challenge of ambiguity consequently leads to diverse interpretation, multiple perspectives and interpretative flexibility<sup>[37]</sup>. These challenges have in some instances led to jurisdictional challenges, rejection of adjudication determination and thus defeat the purpose of the legislation to provide quick and cheap resolution process.

The lack of awareness and insufficient knowledge of the new legislation, procedural complexity, low level of accessibility, lack of understanding of the contents of the legislation, inadequate information dissemination, insufficient resources, unavailability of the required combination of resources, lawyer attitudes, and excessive high cost of adjudication were recognized as potential impediments to the effective implementation of the legislation supporting statutory adjudication. All these require adequate attention if the purpose of introducing the legislation is to be achieved.

## 6. CONCLUSION

This paper has identified the critical challenges that can impair the effectiveness of statutory adjudication implementation based upon a qualitative interview involving experts drawn from the UK, Australia, Singapore and Malaysia. The paper also highlighted the causes of those challenges and suggested approach to prevent them.

The study revealed seven critical challenges that can undermine the effective implementation of statutory adjudication in the resolution of construction disputes. These challenges are relating to: (i) the technical provision and contents of the legislation; (ii) change process issues; (iii)

procedure and administration issues; (iv) legal technicality issue; (v) cost of adjudication; (iv) capacity; and (v) jurisdictional issues. Drafting inconsistency, adverse court decisions, ambiguities in the legislation content, ignorance and lack of familiarity with the adjudication process and procedures are revealed as factors that can occasion failure in the implementation process.

Thus, the study suggested possible ways to prevent the identified challenges, these include, awareness raising, education and training and institutional interventions. Based on these findings, this paper concludes that, if priority is given to proper drafting of the legislation supporting adjudication practice, in a clear, simple and understandable manner, and the issues of ignorance is dealt with through rigorous publicity and creation of awareness, adjudication becoming the most effective dispute resolution in the SA construction industry has great possibilities.

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**Table 1** Components of expenditure

<b>Component</b>	<b>Expenditure (%)</b>
Cleaning works	40,9
Mechanical services	37,7
Building works	13,6
Civil works	7,8
Total	100,0

Source<sup>1</sup>

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