

# Minimizing construction dispute in the Swaziland construction industry

Nokulunga Mashwama<sup>1</sup>, Aigbavboa CO<sup>2</sup>, Thwala WD<sup>3</sup>

<sup>1,2,3</sup>Department of Construction Management @ Quantity Surveying, University of Johannesburg, South Africa

[dubenomfundo599@gmail.com](mailto:dubenomfundo599@gmail.com), [caigbavboa@uj.ac.za](mailto:caigbavboa@uj.ac.za), Tel No +27-11-559-6398

## Abstract:

Construction Projects are often delivered under a complex and uncertain environment, with claims and conflict being an inevitable part. It is vital to manage claims and conflict as soon as possible, in order not to turn into disputes. The intent of this paper is to investigate dispute causation in construction projects in Swaziland, and to examine the methods to minimize construction disputes in construction projects in Swaziland. The data used in this study were derived from both primary and secondary sources. The secondary data for the study was derived from the review of literature. The primary data was obtained through the use of a questionnaire which was distributed to client (government), contractor and consultant representatives (quantity surveyor, civil engineer, architects, project managers and mechanical and electrical engineers). Only organizations registered with the ministry of public work and transport in Swaziland and other professional bodies were surveyed. Findings from the survey revealed that the major factors contributing to the causes of construction dispute in construction projects of Swaziland can be classified into: client related factors, contractor related factors, design related factors, contract related causes, project related factors and external related factors. Finding on ways to minimize dispute in the Swaziland construction projects, it was found that supply chain management, partnering, and alliancing are the effective way to minimize dispute in the construction industry.

## Keywords:

Construction projects, Dispute causation, Swaziland

## 1. Introduction

The construction industry has become very complex, high risk and has become a competitive environment. Hence, there is a great deal of dispute that exist within the construction industry since the participants have different views, talents and level of knowledge of construction process work together (Sinha & Wayal, 2008; Cakmak & Cakmak, 2013 and Semple et al., 1994). Therefore, the difference in perception among this various stakeholders is very high, hence disagreement about something is inevitable. Disputes are the main factors that contribute to delays, disruption of construction schedule, increased projects cost and badly influence relationships between projects participants. Moreover, disputes are the main factors which prevent the successful completion of the construction project (Cakmak & Cakmak, 2013).

Construction dispute materialise if construction claims are not settled in an effective, economical and timely manner. Hence dispute does not exist until a claim has been submitted and rejected (Sinha & Wyal, 2008; Semple et al., 1994). For example, when one party feels that they deserve monetary or extension of time or compensation, they then submit a claim. Therefore, a claim is the assertion of a right to money, property or remedy (Sinha & Wyal, 2008).

There are very few projects that do not give rise to some form of dispute during the construction stage. Dispute can be very disruptive and expensive, particularly if allowed to escalate and proceed to formal determination by court of law (Chapman, 2006). Hence resolving disputes can be expensive and time consuming, it is therefore, crucial to manage disputes proactively to ensure that early settlement is achieved. Any stakeholders in the construction projects can generate dispute (Jahren, et al., 1990). Disputes can be minimized or mitigated by some key strategies such as proper project management techniques including minimization of scope changes, communication and policy (Sinha & Wyal, 2008; Jahren et al., 1990).

There has been a considerable research done to determine the causes of dispute in construction industry and consistently the same variables are identified and continue to manifest in projects. However, there has been a gap in investigation of professional opinion within the construction industry of the root causes of disputes in construction projects. Disputes have become an endemic feature of the Swaziland construction industry. Hence, this paper aims to investigate the causes of disputes and the strategies to minimize dispute in construction projects in Swaziland.

## **2. Swaziland construction industry**

The construction industry (CI) in many countries is a key component of economic growth (Ofori, 2002). For the developing countries the construction industry plays even a greater role in development and poverty alleviation by providing access to basic services and transport facilities (Odediran et al., 2012). The construction companies operating in Swaziland range from small local contractors to major companies with the capability to carry out highly specialised projects. The large contractors employ about 20,000 people. The range of work undertaken in the construction industry covers small buildings, multi-level projects, roads, dams and infrastructure. Therefore, the CI is a key source of work and income in the Kingdom. The overall contribution to the Gross Domestic Product (GDP) by the construction industry was 5.8% in 2002, but it has dropped down to 2.8% in 2013 (Swaziland Business year book 2002, Central bank of Swaziland).

Government is the major client in the construction industry of Swaziland. The ministry of Public Works and Transport is the Government's implementing agency on behalf of all ministries with regard to all construction capital projects (Mvubu & Thwala, 2009). The Swaziland Government through the ministry of Public Works and Transport also has a responsibility to educate contractors and subcontractors about government's expectations of the quality of work; the process of tendering and the information required (Mvubu & Thwala, 2009). The Government of the kingdom of Swaziland, through its 25-year National Development Strategy has identified the construction

sector as a priority area to provide the impetus on improve the social and economic development of the country. However, the Agriculture industry is the one that leads by contributing more to the economy of the country.

### **3. Literature review**

#### **3.1 Dispute**

Dispute is defined as an assertion of opposing views or claims or disagreement as to rights (Merriam- Webster's Dictionary of law, 1996). Dispute can be caused by negligence in understanding the terms in the contract, for example disputes on misunderstanding and also payment (Thomas, 1992 &1994). Reid and Ellis (2007), in a paper titled 'Common sense applied to the definition of a dispute' make the argument that there is no definitive meaning of dispute and a dispute according to Reid and Ellis doesn't not exist until a claim has been submitted and rejected, a claim being a request for compensation for damages incurred by any party to the contract. The definition of Dispute is a problem or disagreement between the parties that cannot be resolved by on jobsite or on-site project managers. Moreover, the definition carries the emphasis on jobsite or on-site disputes are firstly seen as occurring on site then escalating upwards through the organisational hierarchy (Love, et al 2007).

#### **3.2 Causes of construction dispute**

A literature review has been conducted to identify the causes of construction disputes in the construction industry. According to Conlin et al. (1996), the causes of dispute are payment and budget; performance; delay and time; negligence; quality and administration. Skyes, (1996), claims that the cause of disputes is misunderstandings ad unpredictability. While Kumaraswamy (1997), state that variation due to site conditions, variations due to client changes; variations due to design errors; unforeseen ground conditions; ambiguities in the contract document; variation to due to external events; interferences with utility line; exceptional inclement weather; delayed design information and delayed site possession are the major cause of dispute in the construction industry. Also Al Momani (2000), claims that delays in payment to contractor and resulting cash problems during construction is a major cause of dispute; inferior quality of design and drawing also causes major conflict which result into disputes that may lead to abandonment of construction project.

#### **3.3 Strategies of minimizing construction dispute in construction projects**

One goal of construction project management is to solve problems and disagreements at the lowest possible in project management structure. It is widely recognised that resolution at the lowest level is the cheapest and most effective manner to resolve issues. Hence, construction disputes can be minimized or prevented using the following strategies:

##### *3.3.1 On site prevention method*

On site prevention method is when an onsite project manager is preventing conflict from becoming a disputes. However, in the event where an issue cannot be solved

between the onsite parties and it becomes a dispute, then an Alternative Dispute Resolution (ADR) technique of dispute resolution should be implemented (Tucker, 2009).

### *3.3.2 Project partnering*

The construction industry institute (1995), advocate that project partnering can aid in dispute prevention by solving problems and disagreement. Since, project partnering is a formal commitment between the contracting parties to achieve. Tucker, (2009) states that partnering should create an atmosphere whereby both parties are able to discuss and work out their issues to the benefit of all. Moreover, partnering is a process for improving relationships among those involved on a construction project. It also, creates a win-win situation for stakeholders by creating an environment of mutual trust, thus avoiding dispute from occurring (Love et al., 2007).

### *3.3.3 Alliancing*

Alliancing adheres to the basic philosophy of partnering whilst at the same time attempting to guarantee a win-win situation for stakeholders by the creation of a virtual cooperation with an independent management structure and board. However, alliancing is a relationship between two parties, large or small, domestic or foreign, with shared goals and economic interest (Love et al., 2007). Hence, organisation with capabilities and needs come together to do business and add value to the other partner, at the same time working to provide a product which enhances society and the capabilities of the ultimate client (Love et al. 2007).

### *3.3.4 Stakeholders Management*

Stakeholder's involvement and the alignment of goals is clearly a concept to which most would subscribe, the translation of stakeholder theory into practice is challenging. Therefore, stakeholders are those groups without whose support cease to exist, also stakeholders are those that contribute voluntary or involuntary to the organisation wealth-creating activities, hence they are potential beneficiaries and / or risk takers. The differentiation of stakeholders into groupings is a key part of the stakeholder management approach (Love, et al, 2007 & McGeorge, Palmer, 2002).

### *3.3.5 Constructability*

Constructability encourages information management and also managing the deployment of resources to their optimum effect. Builders (contractors and subcontractors) must be empathetic to the views of architect and vice versa (McGeorge, Palmer, 2002). This concept is concerned with how decisions are taken during the procurement process facilitate the ease of construction and quality of the completed project. According to the construction industry institution (CII), they believe that constructability is a system for achieving optimum integration of the construction knowledge and experience in planning, engineering, and procurement and field operations in the building process and balancing the various project environmental constraints to achieve overall project objectives and the quality of the completed project. (McGeorge, Palmer, 2002).

### *3.3.6 Early contractor's involvement*

This is a contract delivery method innovative contract delivery method and is a new two staged approach similar to a project alliance during the first stage and a D&C contracting during the second. It involves putting additional resources into the crucial early planning phase in order to maximise the benefits and cost savings that can be achieved during construction. ECI is one of partnering principle or benefit especial at the design stage. ECI helps to ensure that optimum buildability is inherent in the design. Its innovation comes from the selection process, the interaction between the client, contractor and designers during stage one, and strong relationship-based interaction between the parties (Love et al., 2007). Therefore, there is strong connection between partnering, alliancing and constructability.

### *3.3.7 Lean construction/supply chain intergration*

Supply chain management is the process of strategically managing the movement and storage of material, parts and finished inventory from suppliers, through the firm to customers (Love, 2004). SCM is a strategy to improve the performance of the industry. The fragmented nature of the construction industry and perceived poor performance in productivity prompted many to look significantly better performing industries such as the automotive, retailing and information technology sectors to adopt better management. SCM has been used with good result on construction product companies (McGeorge, Palmer, 2002). SCM aims to increase the transparency and alignment of a supply chains coordination and configuration, regardless of functional or organisational boundaries (Love, et al., 2004)

## **4. Research Methodology**

The data used in this paper were derived from both primary and secondary sources. The primary data was obtained through the survey method, while the secondary data was derived from the review of literature and archival records. The primary data was obtained through the use of a structured questionnaire survey. This was distributed to a total of 90 construction professionals that included; client (government), contractors, consultants' representative's quantity surveyors, civil engineers, architect,etc who are currently involved in construction of public projects in Swaziland. Out of the 90 questionnaires sent out, 63 were received back representing 70% response rate. This was considered adequate for the analysis based on the affirmation of McNeill & Chapman, (2005) since the result of a survey could be considered as biased and of little value if the return rate was lower than 30 to 40%. The data presentation and analysis made use of frequency distributions and percentages of all the respondents. The research was conducted between the months of June to August, 2014.

### **4.1 Analysis**

In this study, the analysis employed a simple statistical methodology, which is descriptive statistics (mean, mode, median, number, percentage, range, standard deviations). The data was precoded by listing different numerical codes against different responses, transforming the data format from textual to numerical was done by coding and inputing data on SPSS so as to enable anlysis using the relevent statistical techniques (Henn, Weinstein & Foard,2006).

A five point Likert scale was used because it allows a range of responses to be generated including neutral answers and does not force a decision as in the case of “yes” or “no” type of questions. The question sought to establish the critical success factors that contribute to cost of poor quality work, with regard to the identified problems and factors from the reviewed literature. The adopted scale allowed individuals to express their opinion on how much they strongly agreed or strongly disagreed with a particular statement.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly agree

The calculation of scores was also done to establish the level of significance of factors to the level of quality in the construction industry in Swaziland. A score was given to each factor as assessed by the respondents. The score made it possible to compare how much the respondent agree with the factors or statement. The five-point scale was transformed to a Mean Item Score (MIS) for each of statements. A weight was assigned to each response. The indices were then used to determine the rank of each item. These rankings made it possible to cross compare the relative importance of the statements as perceived by the respondents. The Mean Item Score (MIS) is ranked in descending order (from the highest to the lowest). The Mean Item Score (MIS) was derived from the following formula (Lim and Alum, 1995).

$$MIS = \frac{1n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5}{\sum N}$$

Where;

- $n_1$  = number of respondents for strongly disagree
- $n_2$  = number of respondents for disagree
- $n_3$  = number of respondents for neutral
- $n_4$  = number of respondents for agree
- $n_5$  = number of respondents for strongly agree
- $N$  = Total number of respondents

## 5. Findings and Discussion

Findings from the 63 respondent revealed that 63% were males and 37% were female. Further findings revealed that 19% of the respondents were civil engineers, 18% of the responded were quantity surveyors, 11% were construction managers, 10% were project manager and construction project manager, 7% were electrical engineers, site managers and health and safety. Most of the respondent had a working experience of more than 5

years, 60% of the respondent had 5 or more years, 32% had 4years experience, 13% had 3 years' experience, 3% had 2 years and lastly 2% had 1-year experience in the construction industry. Respondent who were involved in civil and building projects were 44.6%, 27.7% of the respondent were involved in buildings, 10.8% were involved in civil work only, 9.2% were involved in electrical work, 6.2% were in Mechanical work and lastly 1.5% were involved in other projects. Respondent on the value of work executed were 37% who had executed 100-200million, 200 million were 24%, 21% had executed 10-20million,18% of the respondent had executed20-100 million and 2% had executed 2-5million. 59% Respondent had 5 or more construction dispute, 19% had encounter 3 dispute, 10% had encountered 2 & 4 dispute, and 3% had encounter one dispute

### 5.1 Causes of construction dispute in construction project in Swaziland

The respondents were asked based on their experience as to which factor has been the cause of dispute in construction project in Swaziland. Generally the causes were divided into six groups and under the client related, payment delays by the client was ranked the first and had the mean score of 4.68 and standard deviation (SD) = 0.594; change of scope was ranked the second with a mean score of 4.44 and SD = 0.876; variation initiated by the client was ranked third with a mean score of 4.35 and SD = 0.744; unrealistic expectation of the client was ranked fourth with a mean score of 4.29 and SD = 1.099; Acceleration/fast tracking project and late giving of possession of the site were ranked least with a mean score of 4.13 and 3.98 and SD= 1.085 and 3.98 respectively (Table 1).

Table: 1 Causes of dispute- client related

Client related	Causes of disputes	$\sigma X$	$\bar{x}$	R
	Payment delays by the client	0.594	4.68	1
	Change of scope by the client	0.876	4.44	2
	Variation initiated by the client	0.744	4.35	3
	Unrealistic expectations of the client	1.099	4.29	4
	Acceleration/ Fast tracking project	1.085	4.13	5
	Late giving of possession of the site	1.274	3.98	6

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

Contractor related factors group, Poor quality of the works by the contractor was ranked first with a mean score of 4.46 and SD= 0.779; Unrealistic tender pricing was ranked second with a mean score of 4.32 and SD= 0.964; Time extension and financial failure of the contractor was ranked third with a mean of 4.21 score and SD= 1.002 and 0.901 respectively, Technical inadequacy was ranked second last with a mean score of 4.19 and SD= 0.901 and delays in work progress caused by poor planning by the contractor was ranked last with a mean score of 4.18 and SD= 0.94( Table 2).

Table: 2 Causes of dispute – contractor related

Contractor related	Causes of dispute	$\bar{x}$	$\sigma X$	R
	Poor quality of the works by the contractor	4.46	0.779	1
	Unrealistic tender pricing by contractor	4.32	0.964	2
	Time extensions by the contractor	4.21	1.002	3
	Financial failure of the contractor	4.21	0.901	3

	Technical inadequacy of the contractor	4.19	1.030	4
	Delays in work progress caused by poor planning	4.18	0.940	5

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

Under the design related group factors design errors was ranked the first with a mean score of 4 and SD= 1.273; Unavailability of information and Inadequate/incomplete specification were ranked second with a mean score of 3.92 and SD= 1.067 and SD= 1.091; lastly poor quality design was ranked last with a mean score of 3.79 and SD= 1.279 (Table 3)

Table: 3 Causes of dispute- Design related

Design related	<b>Causes of disputes</b>	$\bar{x}$	$\sigma X$	<b>R</b>
	Design errors by the design team	4	1.273	1
	Unavailability of information	3.92	1.067	2
	Inadequate/incomplete specifications	3.92	1.091	2
	Poor Quality of design	3.79	1.279	3

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

Under the contract related group factors; ambiguities in the contract document terms was ranked the first with a mean score of 3.79 and SD=1.280; breach of contract by one or more project participants was ranked second with a mean score of 3.69 and SD= 1.478; different interpretation of the contract clause was ranked third with a mean score of 3.63 and SD= 1.371; exaggerated claims was ranked fourth with a mean score of 3.62 and SD= 1.442 and lastly Risk allocation was ranked last with a mean score of 3.29 and SD= 1.337 (Table 4).

Table: 4 Causes of dispute – contract related

Contract related	Causes of dispute	$\bar{x}$	$\sigma X$	<b>R</b>
	Ambiguities in contract documents terms	3.79	1.280	1
	Breach of contract by one or more project participants	3.69	1.478	2
	Different interpretations of the contract clause	3.63	1.371	3
	Exaggerated claims	3.62	1.442	4
	Risk allocation (e. g financial risk)	3.29	1.337	5

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

Project related factors, unforeseen changes was ranked first with a mean score of 3.86 and SD = 1.189 and poor site conditions was ranked last with a mean score of 3.76 and SD= 1.289 (Table 5).

Table: 5 Causes of dispute – Project related

Project related	Causes of dispute	$\bar{x}$	$\sigma X$	<b>R</b>
	Unforeseen changes	3.86	1.189	1
	Poor Site conditions	3.76	1.289	2

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank



Under the external related factors, Weather was ranked first with a mean score of 4.08 and SD=1.029, legal and economic factors was ranked second with a mean score of 3.95 and SD=1.128 and fragmented structure in the sector was ranked least with a mean score of 3.84 and SD= 1.190 (Table 6).

Table 6: Causes of disputes- External factors

External factors	Causes of dispute	$\bar{x}$	$\sigma X$	R
	Weather (Rainy, frosty)	4.08	1.029	1
	Legal and economic factors	3.95	1.128	2
	Fragmented structure of the sector( Lack of consistency policy in the sector)	3.84	1.190	3

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

## 5.2 Strategies of minimizing construction dispute in Swaziland construction projects

Respondents were asked on the strategies to minimize construction disputes in construction projects in Swaziland. Most respondents, ranked supply chain the highest with a mean score of 3.6 and standard deviation (SD) = 1.251; partnering was ranked second with a mean score of 3.51 with SD= 1.413; lean construction was ranked third with a mean score of 3.5 and SD=1.12; alignment was ranked fourth with a mean score of 2.86 and SD= 1.342; Relation contracting was ranked second last fifth with a mean score of 2.63 and SD= 1.209 and lastly Stake holder management was ranked least with a mean score of 2.42 and SD= 1.235 (Table 7).

Table 7: Strategies of minimizing construction disputes

Strategies of minimizing disputes	$\sigma X$	$\bar{x}$	R
Supply chain management	1.251	3.6	1
Partnering	1.413	3.51	2
Lean construction	1.12	3.5	3
Alignment	1.342	2.86	4
Relational contracting	1.209	2.63	5
Stakeholder management	1.235	2.42	6

$\sigma X$  = Standard deviation;  $\bar{x}$  = Mean item score; R = Rank

## 6. Conclusion and Recommendation

From literature review we have seen the dominant causes of dispute in construction projects which are the client related causes; Contractor related causes; Design related causes; Contract related causes; Project related causes and External factors related causes. Findings from the current study prove that there is higher incidence of dispute in the construction project caused by client and the contractor. Client related causes are (payment delays by the client, change of scope, variations initiated, unrealistic expectation, acceleration or fast tracking of the project and late possession of the site by the client) and contractor related causes which are (poor quality of the work by the contractor, unrealistic tender pricing by contractor, time extension by the contractor, financial failure of the contractor and delays in work progress caused by poor planning).

In terms of dispute minimization or dispute avoidance strategies have been identified, hence the industry has been admonished and encouraged to embrace modern management concepts or management strategies such as supply chain management, partnering, alliancing with the emphasis being placed on an early involvement in the decision making process by the key stakeholders including the clients, contractors and building users. The fundamental premise with respect to dispute avoidance being that the likelihood of disputes occurring will be significantly reduced if a pro-active project environment can be created in which change management is an acceptable tool.

The study has revealed research gap which might be fruitfully pursued, such as the strategies to avoid dispute. From the discussion above, it is recommended that the strategies of avoiding construction disputes should be emphasis by the government as the major client for public project, by way of having workshops annually with an emphasis on to dispute avoidance strategies, especially alliancing and partnering. The industry has been repeatedly admonished and encouraged to embrace modern management strategies such as partnering and alliancing with an emphasis being placed on an early involvement in the decision making process by the key stakeholders including clients, contractors and building users. The relatively recent emergence and rapid uptake of alliancing is testament to the movement towards the creation of dispute adverse relationships. The fundamental premise with respect to dispute avoidance being that the likelihood of dispute occurring will be significantly reduced if a pro-active project environment can be created in which change management is an acceptable tool.

## References

Baarda, D.B., de Goede, M.P.M & van Dijkum, C.J. (2004). *Introduction to Statistics with SPSS: A guide to the processing, analyzing and reporting of (research) data*. Wolters-Noordhoff BV: Netherlands.

Cakmak, P.I. & Cakmak, E. (2013). An analysis of causes of disputes in the construction industry analytical hierarchy process (AHP). *AEI. ASCE*. 93-101

Chapman, P.H. (2006). *Dispute boards on major infrastructure projects. Paper presented to the dispute resolution board foundation conference*. Budapest, Romania.

Collins (1995). *Collins Cobuild English Dictionary*. Harper Collins, London

Jahren, C.T. & Dammeier, B.F. (1990). Investigation into construction disputes. *Journal of management in Engineering*. 6 (1):39-46.

Kumaraswamy, M.M & Yogeswaran, K. (1998). Significant sources of construction claims. *International construction law review*. 15(1):144-160

Kumaraswamy, M.M. (1997). Conflicts, claims and disputes in construction. *Engineering, Construction and Architectural Management*. 4(2):95-111.

Love, P., Davis, P., Jefferies, M., Ward, P., Chesworth, B., London, K. & McGeorge, D. (2007). Dispute avoidance and resolution a literature review Report No.1. *Cooperative research center for construction innovation*. 3-62

Maturana, S., Alarcon, L, & Vrsalovic, M. (2004). Achieving collaboration in the construction supply chain: An onsite subcontractors' evaluation methodology

Odediran, S.J., Adeyinka, B.F., Opantunji, O.A. & Morakinyo, K.O. (2012). Business structure of indigenous firms in the Nigerian construction industry. *International Journal of Business Research & Management*. 3(5): 255-264

Semple, C., Hartman, F.T & Jergeas, G. (1994). Construction claims and disputes: Causes and cost/ Time Overruns. *Journal of construction engineering and management*. 120 (4) 785-795

Sinha, M & Wayal, A.S. (2008). Dispute causation in construction projects. *Second International conference on Emerging Trends in Engineering (SICETE)*.

The Swaziland National Construction Industry Bill (1<sup>st</sup> draft) October. (2010). the Ministry of Public Works and Transport

Thwala, W.D. & Mvubu, M. (2009). Problems facing small and medium size in Swaziland. *Journal service science & management*. 2: 353-36