

The Sources of Dispute in Construction Projects in the Mpumalanga Province

Nokulunga Mashwama¹, Didibhuku Thwala² and Clinton Aigbavboa³

¹Department of Construction Management and Quantity Surveying, University of Johannesburg/Johannesburg, South Africa
SARCHI in Sustainable Construction Management and Leadership in the Built Environment, Faculty of Engineering and the Built Environment, University of Johannesburg/ Johannesburg, South Africa
nokulungam@uj.ac.za

Abstract. Construction projects are frequently held in a complex and uncertain nature, alongside claims being unavoidable. Construction projects involve processes that are complex and dynamic which at most result in disputes between the stakeholders. The study investigated the sources of disputes in construction projects in the Mpumalanga Province. The data used in this paper were derived from both primary and secondary sources. The secondary data was collected via a detailed review of related literature. The primary data was collected through a survey questionnaire which was distributed to project participants. Out of the 90 questionnaires sent out, 80 were received back representing 89% response rate. Data received from the questionnaires were analysed using descriptive statistics procedures such as Ms Excel and SPSS software. Findings from the study revealed that; payment delays, poor supervision financial incapable of contractors, change of scope, delay in work progress, poor workmanship, incomplete specification design errors, delay in providing information and extension of time were the main sources of construction disputes. Therefore, client should minimise changing scope to avoid cost overrun and extension of time which contribute to dispute. Respondent believed that dispute avoidance strategies such as stakeholders management, alliancing, lean construction and partnering will reduce dispute drastically. Hence, the industry is encouraged to embrace modern management concepts and to avoid the effects of construction disputes such as loss of production, delays, profitability.

Keywords: Construction Industry, Claims, Disputes and Mpumalanga Province.

1 Introduction

Disputes are prone during the construction process due to the problem of contractual terms such as payment, variation, and extension of time and the unavailability of information[1]. Construction Projects are often delivered under a complex and uncertain environment, with claims being an inevitable part[2]. Construction disputes

38 materialise when construction claims are not settled in an effective, economical and
 39 timely manner[3].

40 However, resolving disputes can be expensive and time consuming. It is therefore,
 41 crucial to manage disputes proactively to ensure that early settlement is achieved [4].
 42 Any stakeholders in the construction project can generate dispute (including client,
 43 professional consultants, contractors, subcontractors) through their level of knowledge
 44 of the construction process. Furthermore, the more complex the project is, the higher
 45 the probability of dispute causation [5]. Disputes have become an endemic feature of
 46 the Mpumalanga construction industry. Hence, this research aims to investigate the
 47 causes of disputes in construction projects in the Mpumalanga Province of South
 48 Africa.

49 **2 Construction Industry**

50 The construction industry (CI) in many countries is a key component of economic
 51 growth. Furthermore, the construction industry plays even a greater role in development
 52 and poverty alleviation by providing access to basic services and transport facilities in
 53 the developing countries. The CI is an important sector of the economy because of the
 54 outputs of its activities[2]. It contributes to national socio-economic development by
 55 providing the buildings which are used in the production of all goods in the economy.
 56 The CI is one of the most diverse and unstable sectors within the economy[1]. However,
 57 anything that impacts on construction industry has potential to affect the whole
 58 economy. Since its unique and complex to other industries as it involves many
 59 participants in all trends, due to this, conflict and disputes can easily occur for example;
 60 through changes in plans, quantities, or details of construction which are inherent in the
 61 nature of construction [6].

62 **3 Disputes in the Construction Industry**

63 Carelessness and negligence in construction has risen to greater prominence[1]. The
 64 occurrence of construction disputes can lead to negative impact towards client
 65 organisation. The construction work progress will be slow due to disputes between the
 66 contractor and client, subsequently, the cash flow suffers terrible[3]. Furthermore,
 67 during the construction process personnel will change, the economy will change and
 68 technology will change. With almost 100% certainty, that won't change is the fact that
 69 something will not go according to plan during the project and dispute will arise [7].

70 **4 Disputes Defined**

71 Dispute according to [1] does not exist until a claim has been submitted and rejected, a
 72 claim being a request for compensation for damages incurred by any party to the
 73 contract. Dispute is a problem or disagreement between the parties to a contract, that
 74 cannot be resolved by on jobsite or on-site project managers. Dispute can be caused by

negligence in understanding the terms of the contract for example dispute on misunderstanding and interpretation of clauses[8].

5 Claim

The relationship between disputes and claim has been discussed by a number of scholars[9], hence there is ample evidence from standards forms of contract that, in a contractual sense, dispute only comes into being after a claim has been made and rejected. However, a differentiation should be made between claimed entitlement within the contract such as extension of time and a claim for breach of contract by one or several parties to the contract. [1], infers that a claim is a request for compensation for damages incurred by any party to the contract. An all-important point on the nature of claim is the question of timing, hence when a claim is submitted it must be timely resolved to avoid dispute[2].

6 Sources of Disputes in the Construction Industry

In the study the sources of dispute would be classified into three categories which is uncertainty, contracts and behaviour and are discussed below:

6.1 Contract issues

The procurement method adopted or used is very vital since it can have negative or positive influence to the contract[10]. Moreover, in order to avoid construction dispute proper contract documentation is required, furthermore, [11] state that getting it right needs a proper and good procurement method with apportionment of risk, complying with the contract requirement and monitoring delays should be chosen.

6.2 Behaviour

Construction performance may be affected by dispute which leads to low friendliness, low trust, low respect. Conflict which mostly lead to dispute are caused or started by people or projects and process criteria. According to [12] people criteria followed by process criteria has the most effect in causing construction dispute. Hence team work approach is ideal for a project success to avoid opportunistic behaviour by promoting cooperation and establishing good relations, and effective problem solving mechanism [13].

6.3 Project uncertainties

According to [14], risk are also the main causes of dispute. Risk such as related risk, defective works, project funding, economic risk, labour forces, subcontractor, physical risk, act of God, latent defect, impractical/ impossibility, latent site condition, taxes,

insurance, suspension of works, quantity variation, supplier failure, site access, time related risk, economic disaster, failure to pay, project funding, changes, contractor furnished equipment/material, acceleration, bonding, means and methods of construction just to name a few. The above mentioned risks have been associated with the causes of dispute, therefore, this suggest that when risk surface in a project and not dealt with properly, somehow dispute does arise [13].

7 Methodology

7.1 Research Area

Mpumalanga means the place of the rising sun and people are drawn to the province by its magnificent scenery, fauna and flora. The province is the second smallest province in South Africa yet it has fourth –largest economy. It's situated mainly on the high plateau grasslands of the middleveld. Mpumalanga has network of excellent roads and railway connections thus making it highly accessible [15]. Mpumalanga is very rich in coal reserves. The province house the country three major power stations, of which are the largest in the southern hemisphere [15].

7.2 Research approach and design

Quantitative approach method was adopted to investigate a stakeholder's perspective on the sources of disputes in the construction industry of Mpumalanga Province of South Africa. The study was carried out in Mpumalanga Province of the Republic of South Africa. 90 Questionnaires were distributed and 80 were brought back which were all valid and usable. A well-structured questionnaire was distributed to different construction companies in Mpumalanga Province, amongst construction professionals such as civil engineers, project managers, directors, quantity surveyors, construction managers and contractors who are register on the CIDB data base. The questionnaires were sent via e-mails, some were delivered to the known construction companies by the researcher and some were distributed during site clarification meetings of contractors and consultants bidders in Mpumalanga Province. The study was conducted from reliable scholarly sources such as articles, journals, books, publications, websites and site experience on the field.

7.3 Statistical package for the social science (SPSS)

The quantitative data collected was analysed with Statistical Package for the Social Science (SPSS) a computer programme which is used for analysing data concerned with social phenomena. The software was used to generate various statistical, including descriptive statistic, which provides a basic summary of all variables in the data [16]. 5- point linkert scale was adopted for the study which gave a wider range of possible scores and increase statistical analyses that are available to the researcher.

The computation of the mean item score (MIS) was calculated from the total of all weighted responses and then relating it to the total responses on a particular aspect. The mean item score was adopted to rank the factors from highest to lowest. The Mean Item Score (MIS) is expressed and calculated for each item as follows:

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

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

8 Findings

8.1 Sources of disputes in Construction Projects

The respondents were asked based on their experience as to which factor has been the sources of dispute in construction projects in Mpumalanga Province. Generally the sources were divided into six groups. Under the client related, Acceleration/ Fast tracking project was ranked first with (MIS=4.33; STD=1.085); Variation initiated by the client was ranked second with (MIS=4.31; STD=0.744); Payment delays by the client was ranked third with (MIS=4.24; STD=0.594); Change of scope by the client was ranked fourth with (MIS=4.20; STD=0.876); Unrealistic expectations of the client was ranked fifth with (MIS=4.18; STD= 1.099) and Late giving of possession of the site was ranked last with (MIS=4; STD=1.274).

Table 1: Sources of dispute- Client related

Client related factors	Causes of disputes	\bar{x}	σX	R
	Acceleration/ Fast tracking project	4.33	1.085	1
	Variation initiated by the client	4.31	0.744	2
	Payment delays by the client	4.24	0.594	3
	Change of scope by the client	4.20	0.876	4
	Unrealistic expectations of the client	4.18	1.099	5
	Late giving of possession of the site	4	1.274	6

σX = Standard deviation; \bar{x} = Mean item score; R = Rank

Table 2 represent the contractor related factors group, Technical inadequacy of the contractor was ranked first with (MIS=4.26; STD=0.679); Financial failure of the contractor was ranked second with (MIS=4.12; STD=0.864); Unrealistic tender pricing by contractor was ranked third with (MIS=4.01; STD=1.102); Time extensions by the

contractor was ranked forth with (MIS=3.99; STD=0.980); Poor quality of the works by the contractor was ranked fifth with (MIS=3.85; STD=1.240); Delays in work progress caused by poor planning was ranked last with an (MIS=3.65; STD= 0.940)

Table 2 Sources of dispute – contractor related

Contractor related factors	Causes of dispute	\bar{x}	σX	R
	Technical inadequacy of the contractor	4.26	0.679	1
	Financial failure of the contractor	4.12	0.864	2
	Unrealistic tender pricing by contractor	4.01	1.102	3
	Time extensions by the contractor	3.99	0.980	4
	Poor quality of the works by the contractor	3.85	1.240	5
	Delays in work progress caused by poor planning	3.65	0.940	6

σX = Standard deviation; \bar{x} = Mean item score; R = Rank

Table 3 below represent contract related group factors respondent; Risk allocation (e. g financial risk) was ranked first with (MIS=3.49; STD=1.170); Breach of contract by one or more project participants was ranked second with (MIS=3.45; STD=0.998); Exaggerated claims was ranked third with (MIS=3.38; STD=1.042); Ambiguities in contract documents terms was ranked fourth with (MIS=3.17; STD=1.089); Different interpretations of the contract clause was ranked last (MIS=3.08; STD=1.112).

Table 3 Sources of dispute – contract related

Contract related factors	Causes of dispute	\bar{x}	σX	R
	Risk allocation (e. g financial risk)	3.49	1.170	1
	Breach of contract by one or more project participants	3.45	0.998	2
	Exaggerated claims	3.38	1.042	3
	Ambiguities in contract documents terms	3.17	1.089	4
	Different interpretations of the contract clause	3.08	1.112	5

σX = Standard deviation; \bar{x} = Mean item score; R = Rank

Table 4 is representing the design related group factors respondent, Inadequate/incomplete specifications was ranked first with (MIS=3.87; STD=1.085); Design errors by the design team was ranked second with (MIS=3.68; STD=1.174); Unavailability of information was ranked third with (MIS=3.65; STD= 1.077); Poor Quality of design was ranked last with (MIS=3.45; STD=1.079).

Table 4 Sources of dispute- Design related

Design related factors	Causes of disputes	\bar{x}	σX	R
	Inadequate/incomplete specifications	3.87	1.085	1
	Design errors by the design team	3.68	1.174	2

	Unavailability of information	3.65	1.077	3
	Poor Quality of design	3.45	1.079	4

193 σX = Standard deviation; \bar{x} = Mean item score; R = Rank

194 Table 5 present the external related factors, Fragmented structure of the sector (Lack
 195 of consistency policy in the sector) was ranked first with (MIS=3.90; STD=1.109);
 196 Legal and economic factors was ranked second with (MIS=3.65; STD=1.021); Weather
 197 (Rainy, frosty) was ranked last with (MIS=3.46, STD=1.130).

198 **Table 5 Causes of disputes- External factors**

	Causes of dispute	\bar{x}	σX	R
External factors	Fragmented structure of the sector(Lack of consistency policy in the sector)	3.90	1.109	1
	Legal and economic factors	3.65	1.021	2
	Weather (Rainy, frosty)	3.46	1.130	3

199 σX = Standard deviation; \bar{x} = Mean item score; R = Rank

200 Lastly Table 6 represents the Project related factors, unforeseen changes was ranked
 201 first with (MIS=4; STD=1.081) and poor site conditions was ranked last with
 202 (MIS=3.87; SD= 1.089).

203 **Table 6 Causes of dispute – Project related**

Project related factors	Causes of dispute	\bar{x}	σX	R
	Unforeseen changes	4	1.081	1
	Poor Site conditions	3.87	1.089	2

204 σX = Standard deviation; \bar{x} = Mean item score; R = Rank

205 8.2 Strategies to minimize construction disputes

206 Respondents were asked on the strategies to minimize construction disputes in
 207 construction projects in Mpumalanga Province. Most respondents, ranked Stakeholder
 208 management and alliancing first with (MIS=3.45; STD=1.151 and 1.203 respectively);
 209 Lean construction was ranked second with (MIS=3.38; STD=1.058); Partnering was
 210 ranked third with (MIS=3.22; STD=1.213); Supply chain management was ranked
 211 fourth with (MIS=3.20; STD=0.989) Relational contracting was ranked fifth with
 212 (MIS=3.05; STD=1.015); Lastly Alignment with (MIS=2.98; STD=1.249).

213 **Table 7: Strategies of minimizing construction disputes**

Strategies of minimizing disputes	\bar{x}	σX	R
Stakeholder management	3.45	1.151	1
Alliancing	3.45	1.203	1
Lean construction	3.38	1.058	2

Partnering	3.22	1.213	3
Supply chain management	3.20	0.989	4
Relational contracting	3.05	1.015	5
Alignment	2.98	1.249	6

σX = Standard deviation; \bar{x} = Mean item score; R = Rank

9 Conclusion

Findings from the current study proves that there are higher incidences of construction dispute caused by Client and the contractor related causes. Others emanating from the contract, design related causes, external related causes and lastly was Project related causes. In terms of dispute minimization or dispute avoidance strategies have been identified, hence the industry has been cautioned and encouraged to embrace modern management concepts or management strategies such as stakeholders management, alliancing, lean construction, Partnering, 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. It is also recommended that every stakeholder in the construction industry be knowledgeable about the strategies that minimize construction dispute in order to avoid the effects of construction disputes such as loss of production on site, delays, profitability, loss of business viability, loss of company reputation.

References

1. Cakmak, P.I. & Cakmak, E. An analysis of causes of disputes in the construction industry analytical hierarchy process (AHP). *AEI. ASCE*. 93-101(2013).
2. Mashwama, N.X, Aigbavboa, C.O & Thwala D.W. Investigation of construction stakeholders' perception on the effects & cost of construction dispute in Swaziland. *Procedia Engineering*. 00:91-99 (2016).
3. Love, P., Davis, P., Jefferies, M., Ward, P., Chesworth, B., London, K. & McGeorge, D. Dispute avoidance and resolution a literature review Report No.1. *Cooperative research center for construction innovation*. 3-62 (2007)
4. Bvumbwe C & Thwala DW. An exploratory study of dispute resolution methods in the South African Construction industry. *International conference on information and finance IPEDR. IACSIT Press Singapore*. 21(2011)
5. Sinha, M & Wayal, A.S. Dispute causation in construction projects. Second *International conference on Emerging Trends in Engineering (SICETE)*(2008).
6. U.S. Army Corps of Engineers, Professional Development Support Centre & U.S. Naval Facilities Engineering Command (NAVFAC). *Construction quality management for contractors: student study guide*. (784): 1-22, 2-4, 3-15, 4-6, 5-5, 6-37, 7-5, 8-13, 9-5(2004).
7. Latham, M. (1994). Constructing the team: Joint review of procurement and contractual arrangement in the United Kingdom Construction Industry(1994).
8. Jannadia, M.O., Assaf, S., Bubshait, A.A and Naji, A. Contractual Methods for dispute avoidance and resolution (DAR). *International Journal of Project Management*. 18 (1): 41-49 (2000)

- 251 9. Semple, C., Hartman, F.T & Jergeas, G. Construction claims and disputes: Causes and cost/
 252 Time Overruns. *Journal of construction engineering and management*. 120 (4) 785-
 253 795,(1994).
- 254 10. Ng, S.T., Luu, D.T., Chen., S.E & Lam, K.C. Fuzzy Membership function of procurement
 255 selection criteria. *Construction Management and Economics*. 20: 285-296(2002).
- 256 11. Carnell, N.J. (2005). *Causation and Delay in Construction Disputes*. (2nd Edition),
 257 Blackwell Publishing, Oxford, UK(2005).
- 258 12. Diekmann, J.E., Girard, M.J. Are contract disputes predictable? *ASCE Journal of*
 259 *Construction Engineering and Management*, 121(4): 355-363 (1995).
- 260 13. Kartam, N.A & Kartam, S.A. Risk and its management in the Kuwait construction industry:
 261 a contractor's perspective. *International Journal of Project Management*. 19(6):325-
 262 335(2001).
- 263 14. Zack, J.G. (1996). "Risk-sharing" good concept, bad name. *Cost Engineering*. 38
- 264 15. Mpumalanga provincial government <https://mpumalanga.gov.za> (last accessed 11/2018).
- 265 16. SPSS. A guide to the processing, analyzing and reporting of (research) data. Wolters-
 266 Noordhoff BV: Netherlands.(2004).