

A Conceptual Framework for Managing Employers' Claims in Mega Construction Projects

Makgopa Tshehla

Graduate School of Business Leadership University of South Africa

Abstract

Mega construction projects are often associated with high-cost overruns. Most of these costs are associated with construction claims. The contractors mostly submit these claims against the employer. Contractors can successfully defend their claims. Some of these claims are supposed to be apportioned between the two parties. However, in most cases, the Employer's claims are not submitted. The purpose of this study was to determine the effect of employers' claims on the reduction of construction cost overruns. The study employed a quantitative research approach. The study adopted a purposive sampling technique with a sample size of 50 respondents. Data was collected with a survey questionnaire from professionals involved in the design and execution of projects within the construction industry, based in Gauteng province in South Africa. The respondents include Construction Project Managers and Quantity Surveyors. Results of the survey were analysed using the relative importance index statistical method, which resulted in the identification of the cost overrun factors that could lead to construction claims for a multi-contractor construction project. These factors include contract management, constructability, access to the site, coordination of the work of the contractors, incompetence of contract managers responsible for claims and poor planning. The findings of the study reveal that there is a lack of effort from the employer's side to mitigate the risk associated with the identified cost overrun factors. The study recommends that construction management companies should work together with the employer to develop practices to manage construction activities to avoid claims.

Keywords: Employer's claims, Constructability, Construction claims, Contracts management

1. Introduction

More than one contractor executes mega construction projects. This multiple-contractor set-up is complicated by the sub-contracting of some of the construction scope by the main contractors. The employer (project owner) has a contract with each of the leading contractors. The employer may enter a different contracting arrangement with each of the leading contractors. The employer is responsible for ensuring well-coordinated access to the construction site by these contractors. A well-coordinated access is required for the successful completion of the project scope without going through the claims process. Some of the contractors' access to the construction site is dependent on the completion of the works by other contractors.

An example would be Civil works to be completed before Mechanical works can commence. A delay by a Civil contractor forces a Mechanical contractor to file an access-related claim against the employer. In turn, the employer is compelled to file an access-related claim against the Civil contractor. The employer must find a mechanism to pass through the Mechanical contractor's claim to the Civil contractor. In most cases, the Civil contractor's claim cannot offset a Mechanical contractor's claim, and the employer would not be absolved from the claim. The employer is expected to manage and coordinate all the work on the construction site. The merit of the construction claim would be based on the extension of time due to late access to the construction site by other contractors. The other

problem with multiple contractors working on-site at the same time is the coordination of construction work. The main aim of this study was to determine the effect of the employer's claim on the reduction of construction cost overruns. Factors contributing to cost overruns need to be evaluated to determine the extent to which they lead to employers' claims.

2. Literature Review

The process of managing claims can be complex if there are no mechanisms to manage them, and this could lead to wasteful consumption of resources like time and money (Shahhosseini & Hajarolasvad, 2021). Several factors contribute to construction claims for a mega construction project. The literature review for this study identified several factors that could lead to construction claims. These factors are grouped into the following seven categories:

2.1. Poor procurement preparation

Procurement is important for contracting and sourcing of goods and services. Poor procurement planning leads to construction claims (Lal & Mathew, 2022). A delay in procuring goods and services results in a delay in providing access to the construction site (Amoatey & Ankrah, 2017). Procurement-related claims are due to the contractors not sourcing the construction materials on time. For the employer's side, it could mean the contract was awarded late, and the construction schedule is not aligned with the delivery time of the

¹ Corresponding Author

Email address: tshehlmf@unisa.ac.za

material. Poor procurement planning affects the construction schedule, and this could lead to construction claims due to an extension of time. The delays in executing construction activities are due to the late delivery of construction materials (Ajibike et al., 2022; Namous & Al Battah, 2021; Oluwajana et al., 2022; Tahmasebinia & Song, 2022). Procurement planning requires adequate knowledge of the lead times of the construction materials. Shortage of materials in the market and lack of knowledge of the lead times of the construction materials are some of the factors that contribute to the late delivery of construction materials on site (Enshass et al., 2009; Habibi & Kermanshachi, 2018).

2.2. Inadequate planning

Construction projects are expected to be executed as planned. However, the reality is that most projects experience inadequate planning, which leads to a negative impact on project cost and schedule (Oluwajana et al., 2022; Ammar et al., 2022). If the poor planning is on the side of the contractor, then the employer is entitled to the Employer's claim, and if the poor planning is on the side of the employer, then the contractor is entitled to the Contractor's claim. Most construction projects are not adequately prepared for planning and execution (El-Maaty et al., 2017). Inadequate planning leads to poor contract planning (Asiedu & Adaku, 2020; Arantes & Ferreira, 2020). Poor contract planning leads to unrealistic contract duration (Albtoush et al., 2022; Badawy et al., 2022; Shashikanth & Prasad, 2021). The consequence of unrealistic contract duration imposed by the employer would be project cost overrun (Famiyeh et al., 2017; Arantes & Ferreira, 2020). The affected contractors would be entitled to a claim for an extension of time. The employer must file the Employer's claims. Poor planning could result in a delay of the delivery of materials on site (Ajibike et al., 2022; Namous & Al Battah, 2021; Oluwajana et al., 2022; Tahmasebinia & Song, 2022) and inadequate sourcing of equipment (Oluwajana et al., 2022). The delay will impact the construction schedule, and the contractor will not be entitled to the extension of time claim.

2.3. Inaccurate cost estimation

Cost estimation is one of the factors that contribute to construction claims. There is a tendency for some of the contractors to underestimate their construction costs to get a construction tender (Famiyeh et al., 2017). Underestimation of the construction cost leads to change orders, and this results in construction claims (Ammar, Abdel-Monem & El-Dash, 2022; Fashina et al., 2021; Oluwajana, Ukoje, Okosun, & Aje, 2022). The contractor should file the construction claim due to poor cost estimation. It is the responsibility of the employer to check if the estimate complies with the scope of work and the specifications. If the scope is poorly defined, then the contractor will be entitled to a

claim. Poor scope definition of work contributes to poor cost estimates (Famiyeh et al., 2017).

2.4. Design changes, Change orders, Scope changes

One of the factors contributing to design changes is poor scope definition. Poor scope definition leads to inaccurate project specifications. Design changes result in changes in scope, and this has a negative impact on project cost and schedule (Ammar et al., 2022; Albtoush et al., 2022; Lal & Mathew, 2022; Rustandi et al., 2022; Ajibike et al., 2022; Ahmed & Arocho, 2021; Oluwajana et al., 2022; Tahmasebinia & Song, 2022; Alekhya et al., 2021). Scope changes lead to a substantial increase in project costs, and they can also lead to extensive delays in the project schedule (Amoatey & Ankrah, 2017; Asiedu & Adaku, 2020; Mahamid, 2017; Prasad et al., 2019). If the contractor is responsible for the designs, then the employer is entitled to file for the Employer's claim against the contractor. However, if poor specifications provided by the employer inform the design changes, then the contractor is entitled to file a claim.

2.5. Project experience of the contractor

Construction contracts for mega projects require the contractors to be competent in the scope of work that they are contracted to execute. This requires substantial construction experience in similar or related construction works. The inexperience of the contractor affects the construction activities in terms of the quality of the work and completion time (Namous & Al Battah, 2021; Oluwajana et al., 2022; Tahmasebinia & Song, 2022; Alekhya et al., 2021). Inadequate contractor experience leads to project cost overruns (Amoatey & Ankrah, 2017). Contractor experience is also demonstrated in the coordination of construction activities. Poor project coordination is associated with the inexperience of the contractor in executing the construction activities (Mahamid, 2017). The employer is entitled to file an Employer's claim because of poor project coordination. The contractor should be responsible for the extension of time, and the employer should not entertain an extension of time claim.

2.6. Site management and supervision

Managing construction claims requires proper site management and supervision of construction activities (Radzi et al., 2022; Tahmasebinia & Song, 2022; Alekhya et al., 2021). Poor construction site management is mainly caused by inadequate management skills (Namous & Al Battah, 2021; Tahmasebinia & Song, 2022; Alekhya et al., 2021). Other contributing factors to the inadequate management skills include the lack of management and technical skills of the project personnel, human capacity, and a lack of understanding and knowledge of the local context (Santoso & Gallage, 2019; Durdyev & Hosseini, 2020).

Other factors contributing to poor site management include supervision and control (Asiedu & Adaku, 2020), poor inspection and supervision of projects by contractors (Famiyeh et al., 2017; Habibi & Kermanshachi, 2018), poor project coordination (Mahamid, 2017), and project site management (Famiyeh et al., 2017; Habibi & Kermanshachi, 2018; Durdyev & Hosseini, 2020; Arantes & Ferreira, 2020). Most of these factors are under the control of the contractor. Therefore, the employer is entitled to the Employer's claim. The performance measurement must be stipulated in the contract to ensure a smooth claim process.

2.7. Project construction complexity

A mega construction project is associated with multiple contractors working on-site. This means access to the site should be properly coordinated. Therefore, contractors must understand project construction complexity due to the timing of different construction scopes (Oluwajana et al., 2022; Famiyeh et al., 2017). Contractors are expected to coordinate common activities relating to health and safety. Contractors are expected to familiarise themselves with the project environment to plan their activities in line with the schedule and access to the construction site. Lack of timely access to the site affects construction planning, resulting in a claim for an extension of time. The claim management for the lack of access is complex, as some of the claims are employer-related and others are contractor-related. A precise coordination of construction contractors by the employer would assist in apportioning the claim to the relevant contractor.

Several factors contribute to construction claims for a mega construction project, including poor procurement preparation, Inadequate planning, Inaccurate cost estimation, Design changes, Change orders, Scope changes, Project experience of the contractor, Site management and supervision, and Project construction complexity.

3. Research Methodology

The study adopted a quantitative research approach. Data was collected through a survey research design using a questionnaire. A purposive sampling of fifty respondents across the built environment industry formed part of this study, mainly professionals (Construction Project managers and Quantity surveyors) with more than three years of experience, both in the public and private sectors, who worked in a mega construction project. The questionnaire is composed of Section A: Biographical Information and Section B: Factors causing cost overruns and construction claims. A total of thirty-nine factors that could lead to cost overrun claims in a mega construction project were listed for respondents to rank. A five-point Likert scale was used to measure the relative importance of the cost overrun factors

responsible for construction claims (1- very low to 5 - very high), where 1 represented 'no influence' and 5 represented a 'very serious influence'. The rationale for using the scale was to establish the level of agreement among the professionals on which factors expose the projects to the risk of construction claims. The contribution of each of the factors to construction claims was examined, and the ranking of the attributes in terms of their criticality as perceived by the respondents was done by using the Relative Importance Index (RII), which was computed using the equation below:

$$RII = W / A * N \quad (0 \leq RII \leq 1)$$

Where:

W – Is the weight given to each factor by the respondents and ranges from 1 to 5 (where "1" is "1" "Minor Influence" and "5" is "Major Influence")

A – Is the highest weight (i.e., 5 in this case) and. N – Is the total number of respondents

The RII method was used to assess the relative importance of factors that contribute to cost overruns and construction claims. The method has been used in similar studies, such as Fallahnejad (2013).

4. Findings and Discussion

Table 1 provides the biographical information of the respondents, and the results of the analysis of the RII factors are presented in Table 2.

4.1. Biographical data

The results show that respondents are highly educated (70%), with extensive project experience of more than 10 years (67%), and the majority are in senior management (73%).

4.2. Descriptive of the results

The results of the RII ranking in Table 2 show the top ten cost overrun factors contributing to construction claims. Incomplete design during the tender stage (ranked 5 and RII = 0.6945), and this factor is related to poor procurement preparation. The factor related to design changes was ranked number two (RII = 0.792) by Ammar et al. (2022) as a contributing factor to cost overruns for road network projects in Egypt during the implementation phase. If the scope is properly designed and the contractor is responsible for designs, then a construction claim related to design changes should be filed as the Employer's claim.

Inaccurate cost estimation (Insufficient planning and Inaccurate cost estimation) is ranked number one (RII = 0.729). The study by Ammar et al. (2022), for road network projects in Egypt, ranked this factor as number one (RII = 0.824). Inaccurate cost estimation is the responsibility of the contractor. Should the project run

Table 1: Demographic profile of respondents

Respondents' characteristics	Frequency (%)
Highest Educational Level	
Degree (Bachelor, Honours and Master's)	35 (70%)
National Higher Diploma	13 (27%)
College Certificate	2 (3%)
Work Experience	
More than 10 years	33 (67%)
2 - 6 years	17 (33%)
Roles in the project	
Middle, senior and executive management level	37 (73%)
Intermediate level	10 (20%)
Entry level	4 (7%)

Table 2: RII Ranking

No	Cost Overruns factors leading to construction claims	RII	Ranking
1	Lack of a project risk governance structure	0,7290	1
2	Insufficient planning and inaccurate estimates	0,7290	1
3	Incompetent contractors	0,7150	3
4	Poor project controls (cost and schedule)	0,7085	4
5	Incomplete designs at the tender stage	0,6945	5
6	Lack of knowledge about the project and its complexity	0,6875	6
7	Inadequate communication and slow decision-making	0,6805	7
8	Lack of appropriate planning	0,6805	7
9	Corruption during the procurement stage	0,6735	9
10	Payment delays by clients	0,6705	10

out of funds, the employer would be entitled to the Employer's claim. The Employer's claim would be categorised as a standing claim and an extension of time claim for the affected contractors. If the inaccurate cost estimate is due to a poorly defined scope by the employer, then the Contractor would be entitled to a contractor claim, and the employer would be liable to source additional funds to allow affected activities to continue. Project construction complexity is ranked number six (RII = 0.6875). The study by Famiyeh et al. (2017) found that inappropriate construction methods used by contractors lead to construction claims. Inappropriate construction methods cause delays in construction completion. The inappropriate construction methods are subject to quality assurance. Any noncompliance with quality assurance results in rework, and the cost of rework should be the responsibility of the contractor responsible for the work. The Employer's claim would be the costs associated with rework and the extension of time.

Inadequate planning is ranked seven (RII = 0.6805). Inadequate planning causes project cost overruns and extended schedules (Oluwajana et al., 2022; Ammar et al., 2022). If the inadequate planning is from the contractor's side, then the Employer's claim should be filed. If the inadequate planning is from the Employer's side, then the Contractor's claim should be filed. Project experience of the contractor (Incompetent contractors)

is ranked number three (RII = 0.7150). These results are consistent with the literature that inexperience of contractors contributes to poor coordination of construction activities (Namous & Al Battah, 2021; Oluwajana et al., 2022; Tahmasebinia & Song, 2022; Alekhya et al., 2021). Poor coordination of construction activities among contractors on-site affects construction activities and would result in construction claims. The construction claims would be costs associated with access to the site for the contractors, interface-related costs, and an extension of time for all affected contractors. The construction claims management becomes complex with multiple contractors. This means that there would be a combination of the Employer's claims and the Contractor's claims. The employer could pass some of the contractor claims to contractors responsible for those specific claims. At the same time, the employer could file the Employer's claims against defaulting contractors.

Poor procurement (corruption during the procurement stage) is ranked number nine (RII = 0.6735). Procurement planning should take into consideration the lead times of the construction material. Poor procurement could lead to late delivery of construction material (Ajibike et al., 2022; Namous & Al Battah, 2021; Oluwajana, Ukoje, Okosun, and Aje, 2022; Tahmasebinia & Song, 2022). The procurement of

construction materials is the responsibility of the contractors. The Employer's claim should be filed for the late delivery of construction material. The claim should be for delayed damages and an extension of time.

5. Conceptual Framework for managing employers' claims

Table 3 categorises the cost overrun factors responsible for construction claims. The cost overrun factors could lead to both the Employer's claim and the Contractor's claim. The framework in Figure 1 will assist in the apportionment and management of these claims. The framework will assist in reducing cost overrun by reallocating some of the contractor's claims to the Employer's claim.

conditions. The employer needs to assign a resource to manage construction claims. Once claims are received, they need to be categorised into the Employer's claim and the Contractor's claim. The Contractor's claim must further be probed. In the event of concurrent claims because of concurrent delays, the Contractor's claim should be apportioned between the two parties. Where there are Contractor's claims from other contractors, the employer will pass through some of these claims to the responsible contractor, and the claims will be categorised as Employer's claims. The Employer's claims should further be categorised into delay damages and extension of time.

6. Conclusion and Further Research

Management of construction claims requires proper

Table 3: Categories of construction claims

Factors	Employer's Claims	Contractor's Claims
Poor procurement preparation	X	X
Inadequate planning	X	X
Inaccurate cost estimation	X	X
Design changes, Change orders, Scope changes	X	X
Project experience of the contractor	X	X
Site management and supervision	X	X
Project construction complexity	X	X

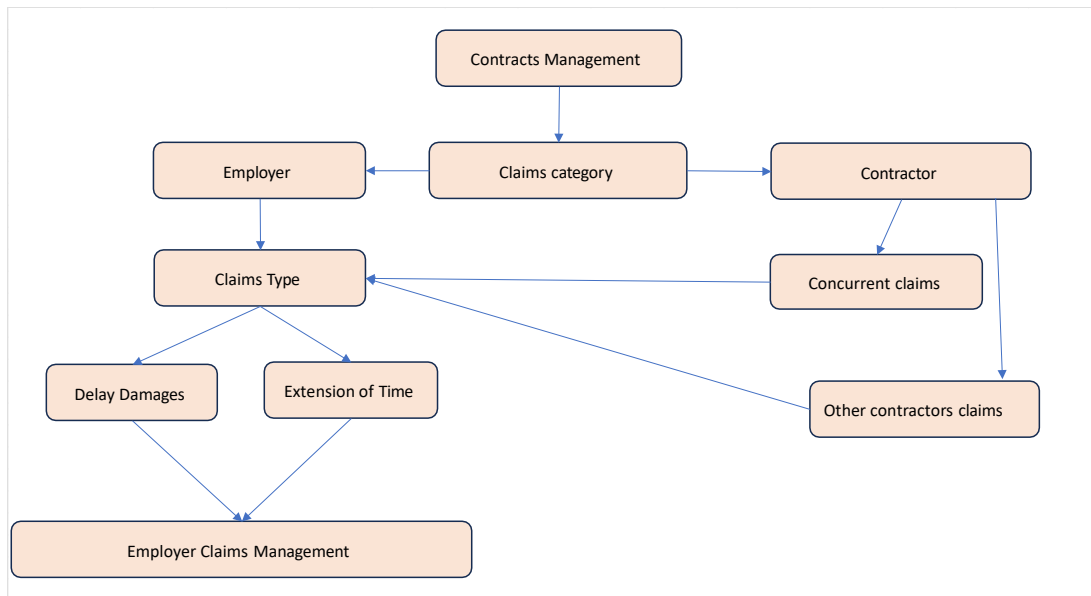


Figure 1: Conceptual Framework for Employer's Claims

Employer's claim management process starts with contract management. It requires resourcing and skilling of the contract management portfolio. Contract management requires both parties, the employer and the contractor, to be familiar with contract clauses and contract conditions. The parties will execute the construction works in compliance with the contract

coordination to apportion the claims to the relevant party. There are claims that the employer is liable for, and those that the contractor is liable for. There are several cost overrun factors responsible for construction claims. This study identified the following cost overrun factors responsible for construction claims: Poor procurement preparation, Insufficient

planning and inaccurate estimates, Incompetent contractors, design changes, Lack of knowledge about the project and its complexity, and poor site management. Proper coordination of construction claims will significantly reduce cost overruns by apportioning claims to the responsible party. Filing the Employer's claims will ensure that the contractors responsible for the delays are held accountable.

The contribution of this study is that a proper construction claims management framework will reduce cost overruns by filing Employer's claims.

References

- Ahmed, S. & Arocho, I. (2021). 'Analysis of cost comparison and effects of change orders during construction: Study of a mass timber and a concrete building project', *Journal of Building Engineering*, 33 (2021) 101856.
- Ajibike, W.A., Adeleke, A.Q., Muuka, G.N., Bamgbade, J.A., & Darun, T.D. (2022). 'Impacts of Oil and Gas Internal Risk Factors on Project Success: Moderating Role of Government Support', *Construction Economics and Building*, 22(1), pp. 47–69.
- Alekhyia, G.B.S., Shashikanth, K., & Prasad, M.A. (2021). 'Risk assessment of cost overrun using fuzzy logic model', *Materials Today: Proceedings*.
- Ammar, T., Abdel-Monem, M., & El-Dash, K. (2022). 'Risk factors causing cost overruns in road networks', *Ain Shams Engineering Journal*, 13 (2022), 101720.
- Durdyev, S., Ismail, S. & Bakar, N.A. (2012). 'Factors causing cost overruns in construction of residential projects: Case Study of Turkey', *International Journal of Science and Management*, 1(1), pp.3–12.
- Fallahnejad, M.H. (2013). 'Delay causes in Iran gas pipeline projects', *International Journal of Project Management*, 31(1), pp. 136–146.
- Famiyeh, S., Amoatey, C.T., Adaku, E., & Agbenohevi, C.S. (2017). 'Major causes of construction time and cost overruns: A case of selected educational sector projects in Ghana', *Journal of Engineering, Design and Technology*, 15 (2), pp. 181–198, © Emerald Publishing Limited 1726-0531.
- Fashina, A.A., Omar, M.A., Sheikh, A.A., & Fakunle, F.F. (2021). 'Exploring the significant factors that influence delays in construction projects in Hargeisa', *Heliyon*, 7 (2021). <https://doi.org/10.1016/j.heliyon.2021.e06826>.
- Lal, N. & Mathew, A.M. (2022). 'Identification of risk factors leading to cost and time overrun in B-O-T projects', *Sustainability, Agri, Food and Environmental Research*, (ISSN: 0719–3726), 10(X), 2022.
- Namous, E.A., & Al Battah, M. (2021). Evaluating the Factors That Cause Cost and Time Overrun in the Residential Construction Projects in the UAE: Project Manager Perspective. ZEMCH 2021 International Conference | 26-28 October | Dubai | UAE
- Oluwajana, S.M., Ukoje, J.E., Okosun, S.E. & Aje, I. O, 'Factors affecting time and cost performance of road construction projects in Nigeria', *African Journal of Applied Research*, 8(1), (2022), pp. 72–84.
- Radzi, N.M., Alauddin, K. & Derus, M.M. (2022). 'Improving the Effectiveness of Risk Management Among Sub-Contractors in the Northern State of Malaysia', *Built Environment Journal*, 19(1), pp.23-31.
- Rustandi, M. A., & Srimindart, C. (2022). 'Cost overruns on Railway Signalling Project: Qualitative case study on lrs company', *Jurnal Riset Bisnis dan Manajemen*, 15(1), February 2022.
- Shahhosseini, V. & Hajarolasvadi, H. (2021). A conceptual framework for developing a BIM-enabled claim management system, *International Journal of Construction Management*, 21:2, 208-222.
- Tahmasebinia, F. & Song, V. (2022). 'Significant Factors Causing Delay in the Cambodian Construction Industry', *Sustainability*, 2(14), 3521.