Triggers of Disputes within the Ghanaian Construction Industry

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ABSTRACT AND KEYWORDS

Purpose

The purpose of this study was to identify the factors that cause disputes within the Ghanaian construction industry and their relative importance from the perspectives of clients, consultants and contractors and to recommend possible ways of preventing or reducing them.

Design/Methodology/Approach

To achieve the study objectives, a comprehensive literature search and interviews of the main stakeholders in the Ghanaian construction industry were conducted to identify the factors that cause or have the potential of causing disputes within the construction industry. A questionnaire was subsequently designed to collect information from clients, contractors and consultants on the relative importance of these factors in causing disputes in the Ghanaian construction industry. The field survey conducted included 20 clients, 27 contractors and 57 consultants.

Findings

The results suggest that the ten most important triggers of construction disputes in the Ghanaian construction industry from the collective view point of the three categories of respondents were: (1) poor financial arrangements by clients leading to late payments; (2) failure of the client to honour payments as and when due; (3) unclear and incomplete description of items in the bills of quantities; (4) ineffective communication between the parties on the project; (5) contractor’s failure to read the contract documents; (6) design and specification oversights; (7) award of contractors to incapable contractors; (8) contractors’ failure to price properly for the works; (8) disruptions and delays by the contractor that
create deviation from initial programme of works; and (10) Government policy which encourages low evaluated tenders followed by claims.

Research limitations/implications

The survey was done on samples from two regions of the Ghana. An expanded sample covering the other eight regions would have generated an increased understanding of the nature disputes in Ghana.

Practical implications

The study increases the awareness of stakeholders of the causes of construction disputes and provides concepts that contribute to minimising the factors that trigger them.

Originality/Value

This study provides a basis for reducing construction disputes and thereby minimising the incidence of costly disputes. The findings are of value for clients, contractors and consultants.

Keywords

Construction industry, Disputes, Ghana

1. INTRODUCTION

Construction disputes happen fairly often; they are a reality on every construction project and could happen at any point in time during the design or construction phase of the project (Hall 2002). Disputes occur because construction projects by their nature bring together a wide variety of people with different set of objectives and who are often unfamiliar with one another. These individuals or groups of individuals are expected to mesh hurriedly to get a specific job done in a short-term and afterwards get disbanded. These project participants rarely have any opportunity to align their interests before the project begins; their roles and obligations are often predetermined and cut out in conditions of contract which seek to apportion risks, sometimes disproportionately. This ad hoc arrangement provides a hot bed for disputes prompted by mistrust and the predictable attempt by each party to make the most of its position while minimising its risk.

Construction disputes vary in nature, size, and complexity, but they all have a common thread; they are costly both in terms of time and money and are often accompanied with the destruction of individual and good working relationships. Indeed, it is this tendency to destroy relationships
and increase time and cost of construction projects, that has provoked a common interest of researchers in different countries to understand the nature of the causes of construction disputes in order to formulate measures to prevent or minimise their occurrence or resolve them swiftly, efficiently and in a cost effective manner if they happen.

In Ghana there is no published literature or statistics regarding construction disputes, but there is sufficient anecdotal evidence to suggest that they occur in numbers that should justify a research in the area.

2. OBJECTIVES OF THE STUDY

The main objectives of this study are the following:

- To identify from the literature and interviews the factors that cause disputes on construction projects;
- To evaluate and rank the importance and frequency of the factors responsible for disputes on Ghanaian construction projects from the viewpoint of clients, contractors and consultants and
- To suggest ways to prevent or minimise the occurrences of disputes on Ghanaian construction projects.

3. LITERATURE REVIEW

The literature on conflicts and disputes in construction reveals that conflict and disputes are sometimes used interchangeably but “conflict should be distinguished from dispute” (Murdoch and Hughes (2000, p.337). According to Murdoch and Hughes, conflict occurs when objectives are incompatible. On the other hand, disputes arise when conflict becomes an altercation.

Similarly, Fenn et al (1997) submit that “conflict exists where there is an incompatibility of interest. When a conflict becomes irreconcilable and the mechanisms for avoiding it are exhausted, or inadequate, techniques for resolving the dispute are required.” (cited in Poh, 2005, p. 10)

A number of articles and studies on causes of disputes on construction projects internationally were reviewed. Poh (2005) reported that disputes in the construction industry in Malaysia are attributable to actions or inactions by all parties. Some of these causes include incompleteness of drawings and specifications, design and specification oversights, poor management and supervision of projects, failure to provide design information in a timely manner and underestimation of the cost of the works.

Levy (2007) reported that the principal reasons for misunderstandings leading to disputes on construction projects in the USA were:

- Plans and specifications containing errors, omissions and ambiguities or which lack proper degree of coordination;
• Incomplete or inaccurate responses or non-responses to questions or resolutions of problems presented by one party in the contract to another party in the contract;
• The inadequate administration of responsibilities by the client, architect/engineer, contractor, subcontractors, or suppliers;
• An unwillingness or inability to comply with the intent of the contract or to adhere to industry standards in the performance of work;
• Site conditions which differ materially from those described in the contract documents;
• Unforeseen subsurface conditions;
• The uncovering of existing building conditions which differ materially from those indicated in the contract drawings situations that occur primarily during rehabilitation or renovation work;
• Extra work or change order work;
• Breaches of contract by either party in the contract;
• Disruptions, delays or acceleration to the work that creates any deviation from the initial baseline schedule and
• Inadequate financial strength on the part of the client, contractor or subcontractor.

Campbell (1997) also revealed that in the UK, construction disputes generally occur due to:
• Adversarial nature of contracts;
• Poor communication between the parties;
• Ineffective communication on site;
• The inability to understand terms of contract and expectations of the parties;
• Proliferation of subsidiary contracts and warranties including those with consultants;
• Fragmented nature of the industry;
• Improper contractual documentation;
• Tender systems and government policy on tendering encouraging low tenders followed by claims; the inability or reluctance to pay;
• Erosion of contract administrator’s role as quasi-arbitrator in contracts and
• Unforeseen effect of third party interests.

Soekimo et al. (2007) studied the causes of disputes on construction projects in Indonesia and grouped the causes into the following categories:
• External conditions (26.79%);
• Change of drawings document (21.43%);
• Condition of the field (19.64%);
• Change of technical specifications (16.07%);
• Others (e.g., cost estimates, professional ethics and licensing) (16.07%)

It is evident from these studies that the causes of disputes are varied. As suggested by Kumaraswamy (1997) and supported by Younis et al. (2008), a direct comparison of the results is “neither possible nor useful, because of the diverse industry cultures and differing methodologies and terminologies used in data collection, analysis and outcome presentations.” This observation notwithstanding, these researchers support the suggestion by Kumaraswamy (1997) that these factors could be categorised into three broad causes: external factors, contract, and project teams. Consistent with this opinion, others (Vorster, 1993 and Mitropolous, and Howell, 2001) have similarly classified them under project uncertainty, process problems and people issues.

4. SAMPLING TECHNIQUE

A total of 97 respondents including 20 clients, 50 consultants and 27 large scale contractors (D1 contractors) in the Greater Accra and Ashanti Regions of Ghana were interviewed. These two regions have the highest population of contractors and consultants and these researchers believe that they are representative of the population of interest. Again, the researchers assumed that D1 contractors were the most likely to be involved in construction disputes since they handle more complex projects involving many parties.

The lists of D1 contractors and consultants were obtained from the Building and Civil Engineering Contractors Association of Ghana, Ghana Institution of Surveyors (GhIS) and Ghana Institute of Architects (GIA). The total number of registered D1 contractors and the combined total of registered quantity surveying and architectural firms in both regions at the time of the study (2008) were 30 and 65 respectively.

Stoker (1985) (cited by Strydom and De Vos, 1998, p.192) suggested that for a population size of 30, at least 24 (80%) ought to be the sample size. Nevertheless, the questionnaire was sent to all the contractors listed.

The sample for the consultants was determined using the Kish’s (1965) formula. The calculation produced a sample size of 39. However, in order to overcome problems of non-response, wrong answering of questionnaire, and to achieve the desired confidence level, the questionnaire was sent all the 65.

Clients in the study consisted of both public and private institutions. A snowball sampling was used to select the number of clients for the study. Contractors and consultants interviewed were asked to suggest clients they had worked for having the characteristics been required. This resulted in 30 respondents.
5. QUESTIONNAIRE DESIGN

Questionnaire was designed to determine the importance and frequency of occurrence, of the identified causes of construction disputes. The questionnaire was divided into two main parts. Part 1 related to general information for both the company and respondent. Respondents were asked to give a brief background of the company and their experience. Part 2 included questions related to the potential causes of disputes. A 5-point ranking system and a three-level scale of low, moderate, and high were utilised and the respondents were asked to indicate from the list of 56 potential causes of construction disputes, how important each cause was and how frequent it occurred.

6. DATA COLLECTION

Sixty-five (65) questionnaires were issued to the consultants and a total of 50 were returned representing 77% rate of return. Thirty (30) questionnaires were issued to the D1 contractors and a total 27 were received representing 90% rate of return. Finally, 20 answered questionnaires out of 30 were received from the clients’ organization representing 67% rate of response. The total response rate was 78% which is acceptable for analysis.

7. RESEARCH FINDINGS AND RESULTS

7.1 General characteristics of respondents

The respondents were quantity surveyors (56.7%), project managers (9.3%), architects (7.2%), project engineers or clerk of works (6.2%) and directors of firms or companies (26.8%). Majority (77.3%) of the respondents had more than 5-years experience in the construction industry.

7.2 Ranking of potential causes of disputes

The relative importance of each variable was calculated using the formula:

\[
\text{Relative Importance Index (RII)} = \frac{\sum W}{A \times N}
\]

where,

W = the weighting given to each cause by respondents, ranging from 1 to 5,
A = the highest weight (i.e. 5 in the study)
N = the total number of samples

Clients consider ‘disruptions and delays by the contractor that create deviation from initial programme of works’ the most important factor
causing delay. On the other hand, contractors believe that the most important factor causing disputes is ‘unconfirmed oral instructions.’ Consultants think that the most important cause of disputes is ‘Failure of clients to honour payments as and when due.’ However, from the combined perspective of the respondents, the most important cause of disputes is ‘Failure of the client to honour payments as and when due.’

7.3 Frequency of causes of disputes

The frequency index formula was used to rate the frequency of occurrence for each cause according to three ordinal scales: high (3), medium (2), or low (1).

\[F.I = \frac{3n_1 + 2n_2 + n_3}{3(n_1 + n_2 + n_3)}\]

where \(n_1\) is the number of respondents who answered ‘high’, \(n_2\) the number of respondents who answered ‘medium’ and \(n_3\) the number of respondents who answered ‘low’.

From the collective point of view, the most frequent cause of disputes is ‘Poor financial arrangements by the clients leading to late payments.’

7.4 Severity of Causes of Disputes

This is an overall index, (‘Relative Importance Index’ x ‘Frequency Index’), which was used to obtain the ten most severe triggers of disputes among the 56 probable causes of disputes on Ghanaian construction projects.

The combined opinion of participants regarding the ten most severe causes of construction disputes in Ghana are:

i. Poor financial arrangements by the clients leading to late payments;
ii. Failure of the client to honour payments as and when due;
iii. Unclear and incomplete description of items in the bills of quantities;
iv. Ineffective communication between the parties on the project;
v. Contractor’s failure to read the contract documents;
vi. Design and specification oversights and errors or omissions resulting from uncoordinated civil, structural, architectural, mechanical and electrical designs;
vii. Award of contracts to incapable contractors;
viii. Contractor’s failure to price properly for works;
ix. Disruptions and delays by the contractor that create deviation from initial programme of works and
x. Government policy which encourages low evaluated tenders followed by claims.
8. AGREEMENT ANALYSIS

To investigate the agreement among the three groups of respondents, a non-parametric statistical method, the Kendall’s coefficient of concordance (W) was used for assessing agreement among the clients, consultants and contractors.

\[ W = \frac{\sum_{i=1}^{n} (R_i - \bar{R})^2}{n(n^2 - 1)/12} \]

\[ W = \frac{9036.76}{14630} \]

\[ W = 0.62 \]

The value of W obtained from calculation is 0.62. This result showed a fair to good level of agreement beyond chance alone amongst the respondents consisting of clients, consultants and contractors.

9. SIGNIFICANCE TESTING

This method was used to obtain the most significant causes of disputes on Ghanaian construction projects among the Fifty six (56) factors found in literature.

The decision was whether or not to reject the null hypothesis (Ho) which was:

\[ H_0: \text{a source among the list of the 56 potential causes of construction disputes listed in the questionnaires does not qualify to be selected as a real cause of disputes on Ghanaian construction projects.} \]

Based on the ranking assigned by the respondents, the summation of weighting of each potential cause was computed to perform the significance test to enable the relevant ones to be selected for the first objective to be achieved. An evaluation of the test statistic (Xs) was done and the p-value determined. The P-value was taken to be the smallest value at which the significance level (\( \alpha = 0.05 \)) could be present and still have been able to reject the H0. The H0 was rejected when the P-value was considered to less than 0.475.

The five point ranking (i.e. 1, 2, 3, 4, &5) have a mean (\( \mu \)) of three (3) with a standard deviation of 1.58. The probability of observing the sample mean or larger if \( \mu = 3 \) and standard deviation (\( \delta \)) =1.58 was computed. The test statistic was by Central Limit Theorem, approximately normally distributed with a \( \mu =3 \) and \( \delta / \sqrt{n} \) where n is the number of responses for that factor. The p-value therefore, was obtained using the equation below:

\[ P[X \geq \mu] = P[Z \geq \frac{X - \mu}{\sigma / \sqrt{n}}} \]

(For positive values of z)
\[ P[x \leq u] = 1 - P \left[ z \geq \frac{x-u}{\sigma/\sqrt{n}} \right]. \]

(For negative values of z)
From the standard normal distribution table, values z was read.
\[ = 0.5 - \frac{\alpha}{2} \]
\[ = 0.5 - 0.05/2 \]
\[ = 0.475 \]

All P-values greater than 0.475 were accepted while those less than 0.475 were rejected (95% level of confidence).

Based on the test of significance, 30 causes were accepted as having the potential of causing disputes in the Ghanaian construction industry significance.

10. CONCLUSIONS
This study investigated the causes of disputes on construction projects in Ghana. It studied the importance, frequency and severity of the 56 causes identified from the literature and semi-structured interviews. The respondents in this study included 20 clients, 50 consultants and 27 contractors. The ten most severe causes of disputes which occur on Ghanaian construction projects from the collective view point of the three groups of respondents were:

i. Poor financial arrangements by the clients leading to late payments;
ii. Failure of the client to honour payments as and when due;
iii. Unclear and incomplete description of items in the bills of quantities;
iv. Ineffective communication between the parties on the project;
v. Contractor’s failure to read the contract documents;
vi. Design and specification oversights and errors or omissions resulting from uncoordinated civil, structural, architectural, mechanical and electrical designs;
vii. Award of contracts to incapable contractors;
viii. Contractor’s failure to price properly for works;
ix. Disruptions and delays by the contractor that create deviation from initial programme of works and
x. Government policy which encourages low evaluated tenders followed by claims.
11. RECOMMENDATIONS

The following recommendations are made to minimise disputes on construction sites.

Clients must pay particular attention to the following factors:

- Progress payments must be paid to contractors as when they are due. It means that sufficient financial arrangements must be made before construction projects are initiated. Additionally, the long bureaucratic processes involved in honouring payments of contractor’s claims must be curtailed to conform strictly to the provisions of the contract;
- Resources and capabilities of contractors must be thoroughly investigated prior to awarding of contract to the lowest bidder or any bidder;
- A comprehensive and thorough brief to the design team is necessary to enable it prepare detailed contract documents which leaves no doubt in the minds of the contractor regarding what the must be constructed. This is a key to avoiding design errors and omissions and the consequent variations on site and
- All members of the design team must be employed at the onset and must be involved in the evolution and production of working drawings. There must be proper coordination of the design process.

Contractors must consider the following factors:

- The right calibre of administrative and technical staff should be assigned to projects to handle all administrative and technical issues including pricing, planning and scheduling, interpretation of production drawings, receipt of instructions from consultants or project managers, and general supervision of works;
- Resources must be made available as and when required on site to achieve minimal interruption of the programme of works. This must involve proper management of financial resources, cash flow planning, the deployment of sufficient and motivated labour, and the provision of the right plant and equipment and
- Contract documents must be reviewed and related to one another and all ambiguities, inconsistencies, and deficiencies must be brought to the attention of consultants before construction begins.

Consultants must take note of the following:

- Sufficient time must be allowed for design production. Adequate and quality information must be obtained from the client, site, and market to achieve comprehensive design and specification and
- Design must be coordinated; all members must be involved and nothing must be left “to be sorted out” on site. Without fully coordinated drawings and specifications, the project will most certainly lead to variations and increase in cost.
Generally, effective communication between the parties before and during the construction of the project must be a priority. Issues concerning design, payment and compensation, variations in scope and others must be communicated effectively, efficiently and in a timely manner by the originator to the recipient. Effective communication must be supported by a good record keeping by all parties. Before the works begin, the parties should foresee possible future problems and establish procedures to organise and retain complete and accurate records concerning the progress of work. Taking photographs of the works as it progresses, carefully documenting all discussions particularly on site project meetings and recording all instructions received and actions taken on those instructions are absolutely valuable.

12. REFERENCE

Poh, K.C. (2005). The causes of construction disputes on client organisations. A project report for the degree of MSc. (Construction Management), Faculty of Civil Engineering, Universiti Teknologi Malaysia.