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 before they turn into disputes. The intent of this paper is to investigate the effects and cost of construction disputes in Swaziland construction projects. 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), contractors 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 enacting from the survey revealed that the major effects of construction disputes in Swaziland construction projects were loss of productivity, loss of company reputation, loss of business viability, loss of profitability. With respect to cost of disputes, the findings revealed that hidden cost; indirect cost; direct cost, were major factors for cost of disputes. The results of this study contribute to the body of knowledge and provide valuable insight to actual effects and cost of disputes in Swaziland construction projects, hence the effects are ugly. The study recommends that every stakeholder in the Swaziland construction industry familiarise themselves with the strategies of avoiding construction disputes to avoid the occurrence. Also the government must take up an initiative of educating all stakeholders about dispute avoidance, it would save the project and company fortunes.

Keywords: Cost of dispute, Effects of dispute, Swaziland

1. Introduction

The construction industry has become very complex, high risk and competitive environment in which participants with different views, talents and level of knowledge of construction process work together, hence, there is a great deal of dispute exist within the construction industry. (Sinha & Wayal, 2008; Cakmak & Cakmak, 2013; Kumaraswamy & Yogeswaran, 1998 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 successfully completion of the construction project (Cakmak & Cakmak, 2013).

Construction disputes 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 assentation 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, particular if allowed to escalate and proceed to formal determination by court of law (Chapman, 2006). Hence resolving disputes can be expensive and time consuming, and therefore, crucial to manage disputes proactively to ensure that early settlement is achieved. Any stakeholders in the
construction projects can generate dispute and the effects are ugly (Jahren, et al., 1990). Effects of dispute could cripple a company badly and some of them are loss of productivity, cost overrun, loss of profitability, time delays, breakdown in co-operation between parties (Sinha & Wayal, 2008; Jahren et al., 1990). Therefore, since some disputes are not avoidable, proper management of conflict will ease the effect it has on the construction process, however resolution should follow quickly.

There are very reliable few studies on cost of disputes and thus very little justification for implementation of these approaches in terms of quantification of costs and measured savings to be achieved. Diekmann and Nelson (1985), state that construction industry frequently fails to analyse the actual cost associated with dispute occurrences. The types of cost that are experienced due to dispute causation are transactional cost, direct cost, indirect cost and hidden cost (Gebken et al., 2006).

There has been a considerable research done to determine the effects 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 effects and cost of construction dispute. Disputes have become an endemic feature of the Swaziland construction industry. Hence, this paper aims to investigate the effects and cost of construction disputes in construction projects in Swaziland.

2. Swaziland

Swaziland is Southern African country and shares its boards with South Africa on three sides and Mozambique on one side. Swaziland is very small country and because of its location, it is heavily dependent on its neighbours for access to the sea, to the markets and to outside suppliers (SACU - Kingdom of Swaziland, 2009). Swaziland’s population is estimated at around 1.4 million. Swaziland is Africa’s last monarchy, ruled by King Mswati III, subject to constitution of 2005. The constitution involves some democratic element and protection of human right (Miller, Holmes & Feulner, 2013: 413). However political parties remain banned (Coppock, Forte, Ncube, Ooka, Richards & Vyas, 2008:2). The country is partial reliant on some natural resources found such as coal, clay, gold, diamond deposits, quarry stone, hydropower, timber and talc. (Miller et al., 2013:413). The Kingdom is divided into four districts namely Hhohho, Manzini, Lubombo and Shiselweni District. The capital city is Mbabane in the Hhohho District with a population of around 100,000. An authoritarian environment obtains in Swaziland and this makes the governance system to be weak and vulnerable to corruption. The courts are inefficient and organisations often pursue out of court settlement (Miller et al., 2013:414).
3. Swaziland construction industry

The construction industry (CI) in many countries is a key component of economic growth. 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.

4. Literature review

4.1. 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).

4.2. Causes of construction dispute

In the construction practice, there are numerous of construction disputes that occur largely through many reasons between the various parties in a design/construction effort. The construction disputes may occur from the initial stage until the closeout stage of the project. The occurrence of construction disputes can lead to negative impact towards client organisation. The construction work progress will be slow due to disputes between the contractor and client, subsequently; the cash flow also suffers terrible (Love et al., 2007).

Construction disputes are generally contract related so construction lawsuits fall in the filling category of civil suits (Tucker, 2005:27). On the contrary, construction disputes pose a significant problem for the construction industry. Roffman, (2003), surveyed 350 senior executives in the real estate and the construction industry and almost 50% reported an increase in construction related disputes over the last few years.

One may ask what is different about construction which makes it so confrontational and have a high potential for disputes? The answer is construction is procured and completed in a manner which lends its self to numerous potential disputes. The process includes an owner’s version, selection and completion of a formal design, selection of a construction team which usually includes many specialist subcontractors, actual construction, and ultimately building commissioning and turnover (Roffman, 2003).

4.3. Effects of disputes in construction companies

Problems of construction disputes has an effect on all stakeholders which may lead to an inequitable mode of project delivery such as reduced margins, increased costs and even reduced the quality and levels of service (Al Momani, 2000). Most disputes are of minor nature and are settled quickly, fairly and amicably by the building team (Tucker, 2009). However, from time to time, more serious issues come into disputes and when this happens
the building team should make mean to reach a fair settlement by negotiation or other means of dispute resolution mechanisms available which are mediation, arbitration, amongst others. The consequences of construction disputes will not benefit the stakeholders in the construction project (Love et al, 2007). Moreover, disputes may affect cash flows (disputes, affect insurance coverage (liability risk exposure), insurance rates (indemnity payment and cost of settling claims), overheads (personal time to defend and settle, plus attorney’s fees) and reputation (publicity from large suits) (Rubino, 1981:13).

Therefore, the effects of construction disputes in an organisation can be summarised as follows:

I. Additional expense in managerial and administration
II. Possibility of litigation cases
III. Loss of company reputation
IV. Loss of profitability and perhaps business viability
V. Loss of productivity
VI. Time delays and cost overruns
VII. Extended and/or More complex award process
VIII. Loss of professional reputation
IX. Break down in cooperation between parties
X. Diminution of respect between parties and deterioration of relationship and break down in cooperation
XI. Additional expense in administration
XII. High tender prices
XIII. Rework and relocation cost for men, equipment and materials
XIV. Cash flow (Dispute affect insurance coverage and liability risk exposure).

4.4. Cost of Dispute

There are very reliable few studies on cost of disputes and thus very little justification for implementation of these approaches in terms of quantification of costs and measured savings to be achieved. Diekmann and Nelson (1985), state that construction industry frequently fails to analyse the actual cost associated with dispute occurrences. Gebken et al (2006), attempted to quantify the cost arising from dispute resolution by unravelling the complexity of the cost of disputes and develop useful information to make worthwhile comparisons between different ways that disputes are currently managed by the industry.

Also there are transactional cost which are defined as the cost that are incurred because of the presence of a dispute including direct cost such as expenses paid to lawyers, accountants, claim consultant and other expenses. Indirect cost: are salaries and associated overheads cost, company managers, and other employees who have to assemble the facts, serve as witness and otherwise process the disputes. Hidden costs: are the inefficiencies, delays, loss of quality that disputes cause to the construction process itself, and the cost of strained business relations between the contracting parties (Love, et al, 2009:11). According to Gutierrez, Panuwatwanich & Walker (ND), Hidden cost also include time –value of money damage of reputation and long term business relationship, and opportunity costs, among others. Therefore, because of the high cost of dispute identified above, it is important to understand the critical factors that lead to disputes so they can potentially be minimized, or avoided altogether.

5. 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.

5.1. 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 inputting data on SPSS so as to enable analysis using the relevant 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).

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

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

6. 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 4 years experience, 13% had 3 years’ experience, 3% had 2 years and lastly 2% had 1-year experience. Respondent who were involved in civil and building projects were 44.6%, 27.7% of the respondents 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 100-200 million, 200 million were 24%, 21% had executed 10-20 million, 18% of the respondent had executed 20-100 million and 2% had executed 2-5 million. 59% Respondent had 5 or more construction dispute, 19% had encountered 3 dispute, 10% had encountered 2 & 4 dispute, and 3% had encounter one dispute

6.1, Effects of Disputes in Construction Projects

The respondents were asked to indicate the extent of possible outcomes / effect of a construction dispute in construction projects. Most of the respondents reveals that loss of productivity had a major effect on construction
projects and it was ranked first with a mean score of 4.8 and SD= 1.025; loss of business viability was ranked second with a mean score of 4.29 and SD= 0.982; Loss of profitability was ranked third with mean score of 4.23 and SD= 1.015; Time delay was ranked fourth with a mean score of 4.19 and SD= 0.938; Loss of professional reputation was ranked fifth with a mean score of 4.18 and SD= 1.064; break down in cooperation between parties was ranked sixth with a mean score of 4.11 and SD= 1.088; Cost overruns was ranked Seventh with a mean score of 4.10 and SD=0.918 and loss of company reputation was ranked eighth with a mean score of 4 and SD= 1.040. Furthermore, additional expense in administration was ranked third last (13) with a mean score of 3.55 and SD= 1.035; relocation cost of workers was ranked second last (14) with a mean score of 3.54 and SD=1.134 and lastly additional managers cost was ranked last fifteen with a mean score of 3.47 and SD= 0.987 (Table 6.1).

Table 6.1 Effects of construction disputes

<table>
<thead>
<tr>
<th>Factors</th>
<th>(\bar{x})</th>
<th>(\sigma X)</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of productivity</td>
<td>4.8</td>
<td>1.025</td>
<td>1</td>
</tr>
<tr>
<td>Loss of business viability</td>
<td>4.29</td>
<td>0.982</td>
<td>2</td>
</tr>
<tr>
<td>Loss of profitability</td>
<td>4.23</td>
<td>1.015</td>
<td>3</td>
</tr>
<tr>
<td>Time delays</td>
<td>4.19</td>
<td>0.938</td>
<td>4</td>
</tr>
<tr>
<td>Loss of professional reputation</td>
<td>4.18</td>
<td>1.064</td>
<td>5</td>
</tr>
<tr>
<td>Break down in cooperation between parties</td>
<td>4.11</td>
<td>1.088</td>
<td>6</td>
</tr>
<tr>
<td>Cost overruns</td>
<td>4.10</td>
<td>0.918</td>
<td>7</td>
</tr>
<tr>
<td>Loss of company reputation</td>
<td>4.00</td>
<td>1.040</td>
<td>8</td>
</tr>
<tr>
<td>Diminution of respect between parties</td>
<td>3.97</td>
<td>1.119</td>
<td>9</td>
</tr>
<tr>
<td>Relocation of Equipment</td>
<td>3.56</td>
<td>1.125</td>
<td>10</td>
</tr>
<tr>
<td>Rework/ repetition of work</td>
<td>3.73</td>
<td>1.119</td>
<td>11</td>
</tr>
<tr>
<td>Relocation of Material</td>
<td>3.58</td>
<td>1.124</td>
<td>12</td>
</tr>
<tr>
<td>Additional Expense in administration</td>
<td>3.55</td>
<td>1.035</td>
<td>13</td>
</tr>
<tr>
<td>Relocation cost of workers/ labors</td>
<td>3.54</td>
<td>1.134</td>
<td>14</td>
</tr>
<tr>
<td>Additional Managers cost</td>
<td>3.47</td>
<td>0.987</td>
<td>15</td>
</tr>
</tbody>
</table>

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

6.2. Cost of Construction Dispute

Respondent were asked to indicate the extent of costs incurred during or after dispute resolution. The type of cost incurred were grouped into three categories, therefore, Table 5.2 represent direct cost category. Respondent ranked fees and expenses paid to lawyers first with a mean score of 3.56 and standard deviation (SD) = 1.161; fees and expenses paid to claim consultant was ranked second with a mean score of 3.25 and SD= 1.121 and lastly fee & expenses paid to accountant was ranked third with mean score of 3.22 and SD= 1.099.
Table 6.2: Type of costs - Direct cost

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>$\bar{x}$</th>
<th>$\sigma_X$</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees &amp; expenses paid to lawyers</td>
<td>3.56</td>
<td>1.161</td>
<td>1</td>
</tr>
<tr>
<td>Fees &amp; expenses paid to claim consultant</td>
<td>3.25</td>
<td>1.121</td>
<td>2</td>
</tr>
<tr>
<td>Fees &amp; expenses paid to accountant</td>
<td>3.22</td>
<td>1.099</td>
<td>3</td>
</tr>
</tbody>
</table>

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

Under the category of indirect cost is presented in the following Table 5.3, respondent ranked salaries first with a mean score of 3.65 and SD=0.925; cost arising from reduced onsite productivity was ranked second with a mean score of 3.59 and SD= 0.981 and company managers were ranked third with a mean score of 3.56 and SD= 1.133. However, overheads to lawyers and employees assemble the fact, served as witness were ranked the least with a mean score of 3.33 & 3.13 and the SD= 1.016 &1.218 respectively (Table, 6.3).

Table 6.3 Types of costs - Indirect cost

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>$\bar{x}$</th>
<th>$\sigma_X$</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>3.65</td>
<td>0.925</td>
<td>1</td>
</tr>
<tr>
<td>Cost arising from reduced onsite productivity</td>
<td>3.59</td>
<td>0.981</td>
<td>2</td>
</tr>
<tr>
<td>Company managers</td>
<td>3.56</td>
<td>1.133</td>
<td>3</td>
</tr>
<tr>
<td>overheads of lawyers</td>
<td>3.33</td>
<td>1.016</td>
<td>4</td>
</tr>
<tr>
<td>Employees assemble the facts, served as witness</td>
<td>3.13</td>
<td>1.218</td>
<td>5</td>
</tr>
</tbody>
</table>

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

The Table 5.4 below presents the respondent findings under the hidden cost category: cost of strained business relation between the contracting parties was ranked first with a mean score of 3.7 and SD= 1.077 and lastly loss of quality that dispute cause to the construction process itself was ranked second with a mean score of 3.62 with SD= 1.069 respectively.

Table 6.4: Type of costs - Hidden cost

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>$\bar{x}$</th>
<th>$\sigma_X$</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of strained business relation between the contracting parties</td>
<td>3.70</td>
<td>1.072</td>
<td>1</td>
</tr>
<tr>
<td>Loss of quality that dispute cause to the construction process itself</td>
<td>3.62</td>
<td>1.069</td>
<td>2</td>
</tr>
</tbody>
</table>

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

7. Conclusion and Recommendation

7.1. Conclusion

Literature revealed that the effects of disputes in construction projects were additional managers cost, Additional Expense in administration, relocation of material, relocation of equipment, time delays, breakdown in cooperation between parties, loss of professional reputation, loss of profitability, loss of business viability. However, from the survey findings obtained from the respondents it revealed that loss of business viability; profitability; loss of professional reputation; break down in cooperation between parties and time delays were the major effects or had major impact on construction projects. However, it is interesting to note that some of the
effects pointed out by Tucker 2005 in his thesis that have high impact on construction projects, in Swaziland the respondents felt that they don’t have any effect in construction projects such as relocation of equipment; relocation of material; additional expense in administration; and additional cost to managers. Literature again revealed that the cost incurred during or after a construction disputes, were hidden cost such as cost of strained business relation between the contracting parties and Loss of quality that dispute cause to the construction process itself. Indirect cost such as salaries, cost arising from reduced onsite productivity and company managers. Direct cost such as fees and expenses paid to lawyers and claim consultant. Moreover, from the survey findings obtained from the respondents, hidden cost such as cost of strained business relation between the contracting parties and Loss of quality that dispute cause to the construction process itself were ranked the highest. Followed by indirect cost such as salaries, cost arising from reduced onsite productivity and company managers were ranked the second highest. Lastly, direct cost such as fees and expenses paid to lawyers and claim consultant, were ranked the least as the cost that are incurred during or after a construction dispute is resolved.

7.2. Recommendation

The study has revealed research gap which might be fruitfully pursued, such as the as the actual cost of construction dispute, if one can be allowed to access the court case so we can be able to quantify the exact cost used in resolving a construction dispute.

References


The Swaziland National construction Industry Bill (1st draft) October. (2010). the Ministry of Public Works and Transport
