Assessment of Contingency Sum in Relation to the Total Cost of Renovation Work in Public Schools in Abuja, Nigeria

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Abstract: In construction projects, plans and cost estimates are usually drawn to ensure that the work is carried out to the desired quality, within time and budget. The construction industry is inherently uncertain due to nature of the industry itself which often times makes accurate cost of project near impossible thereby given rise to the inclusion of contingencies in order to meet project objectives. Therefore, the study assessed the relationship between contingency sum and client objectives (cost, time and quality) in order to ensure effective project delivery in the renovation of public school facilities in Abuja. This was done through the self-administration of 331 structured questionnaires and historical data from 100 renovated projects between 2001 and 2011. It was discovered that location of the project, the level of dilapidation, type of project, volume of work and duration of the project determine the percentage addition of preliminary sum to the total cost of renovation work. Based on this, actual contingency sum should always be considered bearing in mind these factors in renovated work.

Keywords: Completion time; Contingency sum; Contract sum; Renovation; Total cost

1. INTRODUCTION

The expectation of building consultants is to keep the final construction cost within the initial budget estimate expenditure that includes a justified additional amount that caters for uncertainties and risk events which amount to variation. In construction projects, plans and cost estimates are usually drawn to ensure that the work is carried out to the desired quality, within allowed time, and within budget. The construction industry is inherently uncertain due to the nature of the industry itself- as a result of the competitive tendering process, the company’s turnover, site production rates and weather which are characterized by variability and a degree of uncertainty (Harris and McCaffer, 2001).

Invariably in the execution of any building project some unforeseen items are inevitable. Most times, the successful completion of any project is assessed on the basis of three parameters via; time, money and performance (Smith, 1999). The relative magnitude of these three types will be related to project objectives. In a construction project and from the owner’s point of view, contingency is the budget that is set aside to cope with uncertainties during construction (Burger, 2003).

Touran (2003) emphasized that it is common to assign contingency value to both cost and schedule because project uncertainties can affect both project schedule and cost, Touran further explained that contingency allocation has been the subject of various research and various methods of contingency calculation and allocation have been described in several sources. One of the common methods of budgeting for contingency is to consider a percentage of estimated cost, based on previous experience with similar projects (Thomson and Perry 1992).
According to Akinsola (1996), contingency is crucial to achieving project objectives. Contingency funds are included in development budgets to provide managers with techniques required to address uncertainties and deviations that threatened project objectives (Diekmann, Sewester and Taker, 1988). It is used to cater for events that are unforeseen within the scope of the project. Contingency is used as a financial treatment in risk treatment strategies thus; it caters for the risk associated with a project, the conventional approach to managing the extra cost is to include some percentage of the project cost as contingency in the pre-contract budget. According to Akinsola (1996), conventional allocation of contingency is based on judgment. However construction projects are unique; as they may have different objectives, require the application of new technology or technical approaches to achieving the required result. This uniqueness makes the contingency allowance allocation based on assumption and intuition inadequate and unrealistic.

The fact remain that construction contract delivery is a complex one, which is characterized with uncertainties and risk, has necessitated the need for inclusion of contingency and preliminaries sum to the construction cost but researchers differs on the actual percentage of contingency and preliminaries (Ashworth, 1999; Odeyinka, 1987; Ramus and Birchall, 1996; Nworuh & Nwachukwu, 2004). According to Bello and Oduasami (2008), the factors considered as the most vital in making provision for construction contingency and preliminaries include size and complexity of project, assessed risk on the project and adequacy of information. In a related development, Bello and Oduasami (2008) revealed that in Nigeria, 5 to 10 % of pre contract estimate is in most cases allowed as contingency. Although this contingency can be calculated in various ways, the most common way is to consider around 10 % of the estimated project cost (Burger, 2003). Hartman (2000) argued that this is an unscientific approach and thus a reason why many projects finish over budget. Thompson and Perry (1992) observed that most times, risk is either ignored or dealt with in an arbitrary way; by simply adding a 10 % contingency onto the estimated cost of a project is typical.

2. CONCEPT OF CONTINGENCY IN CONSTRUCTION PROJECTS

According to Thomson and Perry (1992), all too often risk is either ignored or dealt with in an arbitrary way; by adding a ten percent contingency to the estimated cost of construction project is typical and unscientific. Argenti (1969) cautiously predicted that model building will become a key technique for future generation managers. This has manifest itself in the number of research reports in which models are developed to serve as basis for construction cost estimate in order to achieve better level of accuracy and reliability of cost estimate. Touran (2003) identified project size, type of construction, difference between low bid and owner’s estimate among factors that affect project cost overrun. Andi (2004) identified cost-risks factors influencing project cost elements. Assurance of a reliable construction contingency is sine qua non to client’s satisfaction on the estimated final construction cost. Specifically, it will assist consultant quantity surveyors in their estimating practice to know project variables that could affect their decision on the contingency sum which is applicable to construction projects.

According to Odeyinka (1987) risk is inherent in any construction project right from the beginning through its completion. Ashworth (1999) posited that risk can be mathematically predicted, whereas uncertainty cannot. Nworuh and Nwachukwu (2004) asserted that experience on many projects indicate poor performance in terms of achieving time and cost targets, thus many cost and time overruns are attributable to unforeseen events for which uncertainties was not appropriately estimated. An amount of money used to provide for uncertainties associated with a construction project is referred to as contingency allowance (Mak and Picken, 2000).

Contingencies are mainly used to achieving project objectives. Contingency funds are included in development budgets to provide managers with flexibility required to address uncertainties and deviations that threaten achieving objectives (Diekmann, Sewester and Taker 1988). It is used to cater for events that are unforeseen within the defined project. It is added to indicate total cost of the project, which implies that the estimate represents the total financial commitment for a project. Contingency is used as a financial treatment in risk treatment strategies thus; it caters for risk associated with a project. According to Yeo (1990), the objectives of the contingency allocation are to ensure that the budget set aside for the project is sufficient enough to contain the risk of unforeseen cost increases. Therefore, any realistic contingency must serve as a basis for
decision making concerning financial viability of the variations, and a baseline for their control (Akinsola, 1996).

Contingency is a specific provision made for unforeseeable elements of cost, particularly in fixed investment estimates, which previous experience has shown to be statically likely to occur. It is an allowance reserved for unpredictable items of cost not known at the time of estimate. It provides for possible cost escalations, currency fluctuation, local conditions within the country where the project is to be sited, accuracy of estimation (Bello and Odusami, 2008). According to Baccarini (2004), contingency amounts will vary based on type of unit under consideration. During an inflationary period, experience indicates that the value selected should be on the high side of the range. Baccarini (2004) also suggested three range of contingency allowance for the following categories of projects:

i. Well-estimated process design (previously built) about 5–10%
ii. Well-estimated process design (the bottleneck type) about 20–35%.
iii. Brand new process design (never built before) 15–30%.

3. ESTIMATING METHODS FOR COST CONTINGENCY

According to Bello and Odusami (2008), the important factors considered in making provision for construction contingency are: size and complexity of project, assessed risk on the project and enough information. Andi (2004) identified cost-risks factors influencing project cost elements, relationship among the risks themselves and proposes risk analysis methodology for allocation of contingency. Touran (2003) identified project size, type of construction, difference between low bid and owner’s estimate among factors that affect project cost overrun. Project size, type of construction, type of client, method of procurement, percentage of design completed before tender, adequacy of information, and number of subcontractors used were identified by Akinsola, Potts, Ndekugri and Harris (1997). In estimating for contingency, project factors to be considered are project cost data and duration with their variability’s (Ahmad 1992; Ranasinghe, 1994; Moselhi, 1997; Chen and Hartman, 2000; Nassar, 2002; Touran 2003; Baccarini 2005 and Rowe 2006). And significant risk factors (Mak, Wong and Picken, 1998; Mak and Picken 2000; Chen and Hartman, 2000; Bajaj, 2001 and Sonmez, Ergin and Birgonul, 2007). It becomes more difficult to determine overall estimate reliability since some sections of a project may be thoroughly defined at the time of estimate, and others sketchily defined.

The practice of presenting project cost estimates as a deterministic figure comprising a base estimate and the addition of a single contingency amount (usually as a percentage addition) has been adopted in the construction industry for a long time for budgeting purposes. Usual practice is for this amount to be a single lump sum with no attempt made to identify, describe, and value various categories and possible areas of uncertainty and risk. Cost contingency is inclusive within a budget in exchange for the total financial commitment for the project owner. Therefore the estimation of cost contingency and its ultimate adequacy is of critical importance to project owners.

Baccarini (2004) detailed numerous estimating methods available for project cost contingency these are: traditional percentage, method of moments, Monte Carlo simulation, factor rating, individual risks-expected value, range estimating, regression, artificial neural networks, fuzzy sets, analytical hierarchy process. When estimating, the common method of allowing for uncertainty is the addition of a percentage contingency figure to the most likely estimate of the final cost of the known works.

Where there is some form of tender documentation provided for bidders; a portion of the contingency will usually be transferred to the provisional sums section in these documents. For construction projects that usually use a government’s fixed quantities contract, the magnitude of the final account variations that comprise additions and omissions can be compared with the contingencies included in estimates. This comparison can be used to assess the accuracy of the allowance made for the contingencies at the early estimate state. Moreover, due to the effect of negative sanctions (that is, imposing a penalty for an underestimate, where tender bids are above the pretender estimate but no reward/penalty for an overestimate), an over-exaggerated
contingency is not uncommon in many project estimates. For public works projects, this leads to misallocation of resources as more sufficient funds are locked up in projects.

4. METHOD

In the study, two methods were adopted; data from archival records of completed renovated projects and questionnaire survey. The data (contingency sum, final contract sum and final completion time) of 100 previously completed projects executed between 2001 and 2011 by the Federal Capital Territory Administration Secondary Education Board were obtained, particularly the renovated blocks of classrooms, hostel blocks, introductory technology workshops, science laboratories and multipurpose halls. In the survey, three hundred and thirty one (331) questionnaires were self-administered to clients, contractors and consultants within Abuja on their opinions about contingency sum. The data were analysed using mean scores and regression analysis which formed the basis for the conclusion and the recommendation made.

5. FINDINGS FROM THE STUDY

Table 1 below shows the analysis of field survey result. 62.8% of the questionnaires sent were returned.

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of questionnaires administered</th>
<th>Number returned</th>
<th>Response rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractors</td>
<td>36</td>
<td>28</td>
<td>77.8</td>
</tr>
<tr>
<td>Clients</td>
<td>24</td>
<td>17</td>
<td>70.8</td>
</tr>
<tr>
<td>Consultants</td>
<td>271</td>
<td>163</td>
<td>60.2</td>
</tr>
<tr>
<td>Total</td>
<td>331</td>
<td>208</td>
<td>62.8</td>
</tr>
</tbody>
</table>

Table 2 shows that respondents that obtained BSc./B.Tech. have the highest percentage of 49.5% with a response count of 103 while those who are PhD holders have the least response count of 1 representing 0.5%. The respondents that have HND and MSc/MTech as their highest educational qualification have response counts of 61 and 38 with 29.3% and 18.3% respectively. Hence, first and second degree holders are the major respondents for the study. This shows that there is availability of personnel with high qualification and leadership skills for project management.

<table>
<thead>
<tr>
<th>Respondents’ Qualification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>HND</td>
<td>61</td>
<td>29.3</td>
</tr>
<tr>
<td>BSc./B. Tech.</td>
<td>103</td>
<td>49.5</td>
</tr>
<tr>
<td>MSc./M Tech.</td>
<td>38</td>
<td>18.3</td>
</tr>
<tr>
<td>PhD</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Others (PGD and so on)</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3 shows the opinions of the respondents on whether they consider contingency sum as a percentage of estimated cost. The respondents that agree that the contingency sum forms a percentage of the estimated cost have the highest response count of 122 with 58.7% followed by those that strongly agree with a response count of 63 with 30.3%. The respondents that strongly disagree have the least response count of 1 with 0.5%. The mean score of 4.10 relative to the table can be deemed to agree with the question because it falls between 1.51 and 2.49 which represents 89% of the respondents that strongly agree and agree.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>30.3</td>
<td>58.7</td>
<td>1.0</td>
<td>8.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Mean score</td>
<td>4.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valid responses</td>
<td>205</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4 shows the opinions of the respondents on whether they consider contingency sum as a fixed amount of contract sum. The respondents that agree that the contingency sum is a fixed amount of contract sum has the highest response count of 81 with 38.9% followed by those that strongly disagree with a response count of 67 with 32.2%. The respondents that strongly agree have the least response count of 5 with 2.4%. The mean score of 3.10 relative to the table can be deemed to be neutral with the question because it falls between 2.50 and 3.49 which represent 50.5% of the respondents that strongly disagree and disagree.

**Table 4. Contingency sum as a fixed amount of contract sum**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>2.4</td>
<td>38.9</td>
<td>6.7</td>
<td>18.3</td>
<td>32.2</td>
</tr>
<tr>
<td>Mean score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.10</td>
</tr>
<tr>
<td>Valid responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>205</td>
</tr>
</tbody>
</table>

Table 5 shows the opinions of the respondents that the contingency is time-bound. The respondents that disagree that contingency is time-bound have the highest response count of 77 with 37.0% followed by those that strongly disagree with a response count of 58 with 27.9%. The respondents that strongly agree that the contingency is time-bound have the least response count of 6 with 2.9%. The mean score of 2.05 relative to the table can be deemed to disagree with the question because it falls between 1.51 and 2.49 which represents 64.9% of the respondents that strongly disagree and disagree.

**Table 5. Contingency is time-bound**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>2.9</td>
<td>14.4</td>
<td>13.5</td>
<td>37.0</td>
<td>27.9</td>
</tr>
<tr>
<td>Mean score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.05</td>
</tr>
<tr>
<td>Valid responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>199</td>
</tr>
</tbody>
</table>

The opinions of the respondents in Table 6 below show that the contingency is risk-based but not time-bound. The respondents that disagree that contingency is risk-based but not time-bound have the highest response count of 66 with 31.7% followed by those that strongly agree with a response count of 50 with 24.0%. The respondents that strongly disagree that the contingency is risk-based but not time-bound have the least response count of 12 with 2.9%. The mean score of 3.36 relative to the table can be deemed to be neutral because it falls between 2.50 and 3.49 representing 41.8% of the response agree.

**Table 6. Contingency is risk-based but not time-bound**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>24.0</td>
<td>17.8</td>
<td>18.8</td>
<td>31.7</td>
<td>5.8</td>
</tr>
<tr>
<td>Mean score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.36</td>
</tr>
<tr>
<td>Valid responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>204</td>
</tr>
</tbody>
</table>

Type of client is considered to be most important factor that determines the percentage addition of contingency sum to the estimated cost as it comes first in the ranking as shown in Table 7 below. The ‘Duration of the project’, the ‘Level of dilapidation’ and the ‘Type of project’ are factors that ranked as the second, third and fourth important factors respectively that dictate the magnitude of percentage addition of contingency sum to the estimated cost. The ‘Location of the project’ the organizations embark on ranked as the fifth important factor that determines the percentage addition of contingency sum to the estimated cost. Finally, the ‘Volume of work’ the organizations undertake was ranked as the least important factor that decides the percentage addition of contingency sum to the estimated cost.
Table 7. Percentage addition of contingency sum to the estimated cost

<table>
<thead>
<tr>
<th>Factors that determine the percentage addition of contingency sum to the estimated cost</th>
<th>Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of the project</td>
<td>1.78</td>
<td>5</td>
</tr>
<tr>
<td>Volume of work</td>
<td>1.67</td>
<td>6</td>
</tr>
<tr>
<td>Level of dilapidation</td>
<td>1.99</td>
<td>3</td>
</tr>
<tr>
<td>Type of client</td>
<td>3.59</td>
<td>1</td>
</tr>
<tr>
<td>Duration of the project</td>
<td>2.51</td>
<td>2</td>
</tr>
<tr>
<td>Type of project</td>
<td>1.83</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 7 shows that the relationship is also statistically significant because the p-value (0.000) is less than \( \alpha \) (0.05), hence, the null hypothesis is rejected. The dependency of the contract sum on the contingency sum may be predicted using the model below. Bello and Odusami (2009) result was consistent with what is presented here.

\[ Y_1 = 0.0283 X_1 + 2.299E7 \]

Where \( Y_1 = \) contract sum (dependent variable) and \( X_1 = \) preliminary sum (independent variable).

In order to determine if a statistical relationship exists between contingency sum and contract sum, the following hypothesis was formulated.

\( H_{01} \): There is no significant relationship between contingency sum and contract sum.

\( H_{11} \): There is a significant relationship between contingency sum and contract sum.

Table 8. Model for the relationship between contract sum and contingency sum

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.922$^a$</td>
<td>.850</td>
<td>.831</td>
<td>5.37670E7</td>
<td>.850</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CONTINGENCY SUM

b. Dependent Variable, TOTAL CONTRACT SUM

In establishing whether there is correlation between the factors that determine percentage addition of contingency sum and contract sum, another hypothesis was formulated and tested as shown in Table 9 below. The table indicates a negative correlation (-0.148) for location of the project and the relationship is statistically significant since the p-value (0.002) is less than \( \alpha \) (0.05), hence, null hypothesis is rejected and we conclude that the location of the project determines the percentage addition of contingency sum to the estimated cost. The table also indicates a negative correlation (-0.084) for volume of work and the relationship is statistically significant since the p-value (0.001) is less than \( \alpha \) (0.05), hence, null hypothesis is rejected and we conclude that the volume of work determines the percentage addition of contingency sum to the estimated cost.

The table further indicates a positive correlation (0.052) for level of dilapidation and the relationship is statistically significant since the p-value (0.002) is less than \( \alpha \) (0.05), hence, null hypothesis is rejected and we conclude that the level of dilapidation determines the percentage addition of contingency sum to the estimated cost. Also, the table indicates a negative correlation (-0.037) for type of client and the relationship is statistically not significant since the p-value (0.655) is not less than \( \alpha \) (0.05), hence null hypothesis is not rejected and we conclude that the type of client does not determine the percentage addition of contingency sum to the estimated cost.

Furthermore, the table indicates a negative correlation (-0.038) for duration of the project and the relationship is statistically significant since the p-value (0.004) is not less than \( \alpha \) (0.05), hence, null hypothesis is rejected and we conclude that the duration of the project determines the percentage addition of contingency sum to the estimated cost. Finally, the table indicates a
positive correlation (0.033) for type of project and the relationship is statistically significant since
the p-value (0.002) is less than \( \alpha \) (0.05), hence, null hypothesis is rejected and we conclude that
the type of project determines the percentage addition of contingency sum to the estimated cost.
Overall decision is that there is statistically significant relationship between the factors and
contingency sum. However, Bello and Odusami (2009) considered three factors (nature of project,
type of project and type of client) and discovered that they were not considered in determining the
percentage of contingency added to projects as the analysis of variance (ANOVA) results showed
no significant difference. Therefore, this is not consistent with their study in this regards but it
should be emphasised that this study was on renovated projects and not new projects.

\[ H_{a0}: \text{There is no correlation between factors that determines percentage addition of contingency sum and contract sum.} \]

\[ H_{a1}: \text{There is a correlation between factors that determines percentage addition of contingency sum and contract sum.} \]

Table 9. Factors that determine the percentage addition of contingency sum to the estimated cost

<table>
<thead>
<tr>
<th>Factor</th>
<th>Pearson product</th>
<th>Sig (2 tailed) or p-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of the project</td>
<td>-0.148</td>
<td>0.002</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Volume of work</td>
<td>-0.084</td>
<td>0.001</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Level of dilapidation</td>
<td>-0.052</td>
<td>0.002</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Type of client</td>
<td>-0.037</td>
<td>0.655</td>
<td>Reject ( H_1 )</td>
</tr>
<tr>
<td>Duration of the project</td>
<td>-0.038</td>
<td>0.004</td>
<td>Accept ( H_1 )</td>
</tr>
<tr>
<td>Type of project</td>
<td>0.033*</td>
<td>0.002</td>
<td>Accept ( H_0 )</td>
</tr>
</tbody>
</table>

Correlation significant at the 0.05 level (2-tailed)

Finally, Table 10 shows that the relationship is also statistically significant because the p-value
(0.011) is less than \( \alpha \) (0.05) based on the hypothesis stated below. The dependency of the
contingency sum on the final completion time of a project may be predicted using the model
below. This is consistent with the study of Bello and Odusami (2009).

\[ Y_3 = 0.876E06X_3 - 1.750E+09 \]

Where \( Y_3 = \text{contingency sum (dependent variable)} \) and \( X_3 = \text{final completion time (independent variable).} \)

\[ H_{a0}: \text{There is no significant relationship between completion time and contingency sum.} \]

\[ H_{a1}: \text{There is a significant relationship between completion time and contingency sum.} \]

Table 10. Model for the relationship between contingency sum and final completion time

<table>
<thead>
<tr>
<th>Model</th>
<th>R Square</th>
<th>R</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.757*</td>
<td>.573</td>
<td>.519</td>
<td>2.79070E6</td>
<td>.573</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.718</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.011</td>
</tr>
</tbody>
</table>

Dependent Variable: contingency sum
Predictors: (Constant), final completion time

6. CONCLUSION

The study assessed contingency sum in relation to the total cost of renovation work. It was found
out that 89% of the respondents were of the opinion that contingency sum was a percentage of
estimated total cost but no consensus however as to whether contingency sum was a fixed amount
of contract sum. It is concluded that the location of the project determines the percentage addition
of contingency sum to the estimated cost, that the volume of work determines the percentage
addition of contingency sum to the estimated cost, that the level of dilapidation determines the
percentage addition of contingency sum to the estimated cost, that the type of client does not
determine the percentage addition of contingency sum to the estimated cost, that the duration of the project determines the percentage addition of contingency sum to the estimated cost and that the type of project determines the percentage addition of contingency sum to the estimated cost. Hence, overall decision is that there is statistically significant relationship between the factors and contingency sum. The study also shows that completion time and contract sum had correlation with contingency sum in renovated work.

7. RECOMMENDATION

Contingency fund is included in development budgets to provide managers with flexibility required to address uncertainties and deviations that threaten achieving objectives. This study recommends the need for inclusion of contingency sum to the overall construction cost and that the actual percentage of contingency sum should always be considered based on the location of the project, the volume of work, the level of dilapidation, the duration of the project and the type of project to be executed.

REFERENCES


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