

## AN APPRAISAL OF COST CONTINGENCY MANAGEMENT PRACTICES FOR BUILDING PROJECTS IN NIGERIA

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### ABSTRACT

*Contingency funds are included in project estimates to manage risks and uncertainties so as to achieve project objectives. This paper presents results of a research work on management of contingency fund for building projects in Nigeria. A total of 100 questionnaires on projects cost contingency were randomly distributed to project managers. Sixty seven (67) completed questionnaires were returned. Analysis of the responses indicates that, in many organizations, there is a lack of formal policy or guidelines for the management of project cost contingency. Furthermore, 12% of the respondents do not monitor the use of contingency fund; also 37% do not review the accuracy of contingency allowance at the completion of projects. The study also shows that, the major problem encountered in the management of contingency fund is that, more often the fund is inadequate to cater for all the risks and uncertainties associated with projects. To improve cost contingency management practice, it is recommended that, organizations should establish a policy or guideline for management of contingency fund.*

**Significance:** Cost contingency is an important factor in project cost estimates. The effectiveness of contingency management can strongly influence project success.

**Keywords:** Contingency, Cost, Management, Building.

### 1.0 INTRODUCTION

Construction project performance is frequently measured in cost, time, and the value of the constructed facility (Ford, 2002). Hogg (2003) hypothesizes that, there has been high level of concern with regard to the performance of construction industry in terms of its ability to deliver projects on budget, on time and to satisfactory quality. The Construction Task Force (1998) stated that "under achievement can be found in growing dissatisfaction with construction among both private and public sector clients. Projects are widely seen as unpredictable in terms of delivery on time, within budget and to standard of quality expected". There is no doubt that construction by its nature involves certain unavoidable risks that threaten achieving set objectives. To address these problems, contingency fund are included in projects' base estimate. Ford (2002) define cost contingency as an amount included in project budgets to manage risks and uncertainties to achieve project goal.

According to Mak and Picken (2002) the objective of contingency allowance is to ensure that, the estimated project cost is realistic and sufficient to contain any cost incurred by risks and uncertainties. Contingency sum is determined in various ways, depending on the organization. The most common and simple method is a percentage addition on top of base estimate (Touran, 2003).

The objective of this paper is to study cost contingency management for building projects in Nigeria. Cost contingency management here refers to the process of planning, controlling and allocating contingency fund toward the achievement of pre-determined objectives. Project cost contingency is a key component of a project budget. Hence, the effectiveness of contingency management can strongly influence project success.

Ford (2002) stated that, the four contingency management objectives include: to resolve emergencies, control the schedule, improve

facilities and return excess contingency. Contingency management strategies are categorized into two; aggressive or passive. Aggressive strategy reallocates funds quickly, uses contingency to correct schedule before many emergencies are discovered, and applies fund early to improve the facility. In contrast, a passive strategy reallocates fund slowly, postpones using

contingency until it must be used to meet critical objectives, and uses little funds for improvement until emergency and schedule objectives are met. Project managers can make their contingency management strategy selection based on the level of uncertainty and variability in their project (Ford 2002).

## 2.0 RESEARCH METHODOLOGY AND DATA COLLECTION

The research has been conducted by means of questionnaire survey undertaken to determine the views of project managers regarding methods used in managing contingency funds in their organizations. The questionnaire design was based on an extensive review of the literature dealing with cost contingency as well as with the aid of consultations with professionals in the construction industry. The research population includes all project managers working in public and private sector. The questionnaires were distributed randomly to 100 project managers, the

selection being based on a random sampling method. In each question respondents were required to rate the option given on a five point Likert scale ranging from 1 – 5, where 1 represents not important and 5 represents very important or write the requested information in the space provided or indicate using a tick (✓) the option that best represented their opinion. A total of 67 completed questionnaires were returned in a usable format, representing 67% response rate.

## 3.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION

This section presents and discusses the results obtained from the field survey. Data were analyzed with the aid of simple statistical techniques, that include; percentages, means, and standard deviation (s.d).

The respondents were asked to rate their priority objectives they seek to achieve with contingency fund on a five point Likert scale ranging from 1 –

5, where 1 represents not important objective and 5 represents very important objective (Table 1). The result shows that, the most important objective as highlighted by the respondents is to resolve emergency situations by providing funds for future unforeseen expenses.

**Table 1: Ranking of the Priorities Objectives of Contingency Fund**

Variables	Mean score (N = 67)	S.D	Rank
Resolve emergency	4.61	0.82	1
Control schedule	3.09	1.22	2
Improve facility	2.30	1.34	3
Return excess contingency	1.20	1.41	4

This is followed by controlling schedule to ensure completion by the project deadline. While to return excess contingency fund that remains to the client after the project is completed has been considered least important objectives. The first two objectives (resolve emergency and control schedule) include many of the risks identified in the literature that contingency is used to manage. When the respondents were asked to indicate the

strategy used in allocating contingency fund during construction projects, their response was as presented in Table 2. The result shows that, passive strategy (reallocate fund slowly, i.e. using contingency only to meet critical objectives) is the most common strategy used by the respondents in allocating contingency representing 81% responses, while the application of aggressive strategy (reallocate fund quickly at the early stage

of project) is adopted by only 19% of the respondents. This result indicates that, with rare exception, the respondents consider exhausting

contingency before project completion have negative impact, unless if it is necessary.

**Table 2: Responses on Cost Contingency Management Strategy Used**

Strategy	Responses	Percentage
Aggressive strategy	13	19
Passive strategy	54	81
<b>Total</b>	67	100

When the respondents were asked whether their organizations have a policy or guidelines for the management of contingency fund, thirty percent (30%) of the respondents stated that their organizations do not have. This suggests that there is a room for improvement in the whole approach to project cost contingency. For a good practice there is a need to establish guidelines to define and control the scope, estimation and management of contingencies.

When the respondents were asked whether they monitor the use of contingency fund throughout their projects, twelve percent (12%) of the respondents said that they do not. This implies that a number of project managers do not control the use of contingency fund in their projects, which will definitely lead to inappropriate use of the fund.

It is important to note that, for good management practice, once a contingency fund has been established, its use must be constantly monitored and controlled throughout the project, and should be used only for its intended purpose and not incorrectly used for other issues.

When the respondents were asked whether they had excess contingency in any of the recently completed projects within their organizations, 54% stated that they had excess contingency in some of their projects in both public and private projects. This result may have two possible explanations.

The first interpretation is that, more funds might have been set aside to address risk and uncertainties in the projects. In other words, the contingency allowance might have been over estimated in those projects. If this is correct, then it could lead to mis-allocation/ mis-appropriation of the funds. This suggests that, there is a need to improve the methods used in the determination of contingency fund. While in the second explanation the excess contingency might serve as an indicator of good management of the fund.

When the respondents were asked whether they undertake post contract review to assess the accuracy of project cost contingency, 37% of the respondents said they do not conduct reviews of the accuracy of project cost contingency in their organizations. This indicates poor practice, because as part of quality management, organizations need to review their activities in order to improve. Without a review it is difficult for the management to know the areas that need improvement. In order to improve the accuracy of the process of calculating and managing project cost contingency there is need to undertake a post contract review.

When the respondents were asked to list the major areas of application of contingency fund in the recently completed projects within their organization, they responded as shown in Table 3.

**Table 3: Frequency Distribution of Major Areas of Application of Contingency Fund**

Response	Frequency (N = 67)	Percentage
Architect's instructions	55	82
Change of client requirements	33	49
Fluctuation	21	34
Unforeseen work	23	33
Underestimation of provisional quantities/undefined work	18	27

**Note:** N = 67, % does not total 100 as respondents stated more than one item

The result shows that, the major areas of application of contingency fund are in Architect's instructions representing 82% responses, followed by change of client's requirement 49%. Twenty seven percent (27%) of the respondents applied cost contingency to cater for underestimation of provisional quantities due to the incomplete or

undefined scope at the time of estimate. The literature clearly proposes the items covered by contingency funds. Nevertheless, to investigate the project managers' understanding of the concept, the respondents were asked to list the items that contingency should not be used to fund (Table 4).

**Table 4: Responses on Items that Contingency Should not be Used to Fund**

Response	Frequency (N = 67)	Percentage
Scope change	38	57
Estimating errors	31	46
Insured risks	25	37
Force majeure	19	28
Losses on site due to negligence	17	25
Claim due to delay in payment	14	21
Unknown	13	19

**Note:** N = 67, % does not total 100 as respondents stated more than one item

From the Table it can be observed that 57% of the respondents hold the opinion that, contingency should not be applied to cater for scope changes. Any scope changes should be sponsored differently by client reserve (Baccarini, 2005). Forty six percent (46%) of the respondents stated that, contingency should not be applied to cater for human error in estimating due to negligence, unjustified conclusion from data, or miscalculations. The rationale is that poor estimating processes might be promoted if estimators know that their errors will be compensated for by the use of contingency. Twenty five percent (25%) of the respondents indicated that contingency should not cover losses on site due to negligence, while 28% of the respondents opined that the fund should not cater for force majeure. Nineteen percent (19%) of the respondents were indifferent on items that contingency should not cater for. The overall result implies that a significant number of project managers exhibit limited understanding of the important concept of project cost contingency, or what contingency should include and exclude. This could lead to the inappropriate use of contingency, because any vagueness of what

contingency is meant to cater for may tempt many to use it for other purpose, than its original intended purposes (Wideman, 1992; Samid, 1994).

When the respondents were asked to state the problems encountered in managing contingency fund, the following are the main problems they highlighted:

- Sometimes contingency fund allowance is arbitrarily determined and not appropriately calculated for a specific project; as such the fund might be inadequate to cater for its intended use.
- Variations as a result of Architect's instructions are usually so many during implementation of projects, as such the reserved contingency might be inadequate to cater for all the changes if not envisaged at the early stage.
- Nowadays construction projects are becoming more complex, therefore, there is high tendency of project cost risks and uncertainties which make the contingency fund difficult to manage.

#### 4.0 CONCLUSIONS

Cost contingency management practice in various organizations in building industry has been studied. Effective management of contingency funds is an important factor in successful project delivery. The research work highlighted several shortcomings of contingency management practice in Nigerian construction industry. Fundamentally, in many organizations there is lack of policy or

guidelines for management of contingency fund. Furthermore, some of the organizations considered in this study do not monitor the use of contingency during projects implementation; others do not review the accuracy of contingency allowance at the completion of a project. This perhaps is one of the reasons why contingency is often inadequate to cater for risks and uncertainties associated with

construction projects. Even if the fund is accurately determined, without good management practice the fund will not be effectively utilized and this will lead to mis-appropriation of resources. The research work identified poor management practice in terms of reviewing accuracy of contingency allowance and the absence of monitoring the funds during implementation of a project by some organizations. It is suggested that, at project

completion the accuracy of contingency allowance should be reviewed to establish whether there is need for improvement. In addition to this, for good management practice, contingency fund should be constantly monitored, controlled and reassessed throughout the project life cycle. Moreover, organizations should establish a guideline for the management of contingency fund.

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