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Factors Affecting The Contractor's Cost Overrun Of Building Project In Kano State, Nigeria.

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***Abstract*— The successful completion of the project is within the required cost, time and quality. However, not all projects will be completed within the fixed time, budget and quality. Cost overrun of the project by the client or the contractor frequently happens. Cost overrun is more critical in the contractors' organization and should be monitored closely. Inefficient method of cost control by the contractor will lead to lower profit or even losses. The aim of the study is to assess the factors affecting contractor's cost overrun in building construction project and the how to minimize the contractors cost overrun. The objectives of the study are to identify factors contribute to the contractor's project cost overrun and to determine the strategies on how to minimize contractor's cost overrun in Nigeria. The study is limited to identifying the factors causing cost overrun in building construction project in Nigeria by contractors' category 'D'. The study is carried out through questionnaires. The questionnaires were distributed online using Google drive and the respondents consist of contractors, subcontractors, site engineers and project manager. A total of 52 questionnaires were returned answered. The data is analyzed using Average Index. From the study, the factors that contribute to the contractor's project cost overrun are contractor's lack of experience, improper planning, fraudulent practice, poor on site management and lack of coordination between designers and contractors. The study indicates that contractors can minimize cost overrun by using actual value and earned value analysis, cost engineer to monitor cost, software to control cost, and line manager to manage cost.**

***Keywords*— Cost overrun, contractor, cost control.**

I. INTRODUCTION

Cost overrun and inefficient method of cost control by stakeholders in the construction industry is a major challenge to developing countries like Nigeria. Ideally, the quantity is suppose to be in possession of the complete set of working drawings and the specification so as to prepare an accurate bill of quantities for tendering purpose[1].[2] defined cost overrun as the difference between the original cost estimate of project and actual construction cost on completion of works of a commercial sector construction project. Cost overrun has obvious negative implications for the key stakeholders in particular, and the industry in general [3]. To the client, high cost implies added costs over and above those initially agreed upon at the onset, resulting in less returns on investment. To the contractor, it implies loss of profit through penalties for non Completion, and negative word of mouth that could jeopardize his/her chances of winning further jobs, if at fault. In order to prevent poor cost performance, it is often required to evaluate a project's vulnerability of cost overrun before it is too late [4]. usually, a project is considered as successful if it is completed on time, within budget and to the level of quality standard specified by the client at the beginning of the project[5].

Various researchers had made an effort in discovering the factors that significantly influence the costs performance of a project from the inception stage through to the completion stage. Therefore, this research will identify the most critical among these factors and suggest a proper solution on how this problem will be minimized, because evidence shows that many of the project stakeholders do not have the experience and knowledge to manage them effectively and efficiently.

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Methodology

The research methodology adopted here is quantitative approach. Quantitative approach seeks to gain insight and to understand people or group [6]. Therefore the briefs, understanding, opinions and views of people were investigated.

The primary data which refers to field data obtained through the use of well structure questionnaire developed from the initial identification of likely factors affecting construction cost overrun in kano Nigeria and its impact on clients, consultant and contractors with also the possible solution to minimize

the effects. A well structured questionnaire was used to seek the opinion of the respondents on how severe these factors affect cost overrun of project. The questionnaire designed on Likert Scale of 1 to 5 rating scale, in determining the extent of severity of the factors discovered.

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Results and Discussion

The result obtained shows that 56% of the respondents are contractors while 21% are site engineer that work with the contractor, 8% of the respondent are subcontractor and 15% of the respondent are project managers.

The respondent's years of working experience also shows that 37% of the respondent have experience of less than 5 years, 44% have 5 – 10 years working experience, 15% have 10 – 15 years and 4% over 15 years of working experience. It can be concluded that majority of the respondent working experience ranges between 5 – 10years.

The procurement method used by the respondent is predominantly traditional method with about 78% while 22% of the respondent use design and build procurement system. Most of the respondent have average knowledge of cost system with about 52%, 37% of the respondent understand cost system, 8% of the respondent totally understand cost system with 2% that do not understand.

Table 1 shows the Causes of contractor's Cost Overrun in Kano state Nigeria Construction Projects. The factors are from 1 to 16 with the respondent choosing from a likert scale of 1 to 5 so as to give a wider option. From the result obtain as can be seen from the table above, both factors have effect on the cost overrun as a result of the contractor's activities either directly or indirectly. Factors such as fraudulent practice, improper planning, contractor's lack of experience, lack of coordination between designers and contractor and poor on site management are the most critical factors that causes cost overrun base on the average index value obtain as 4.33, 4.30, 4.09, 3.9 and 3.80 respectively.

TABLE 1: Causes of contractor's Cost Overrun in Kano state Nigeria Construction Projects.

FACTORS AFFECTING COST OVERRUN		SCALE					AVERAGE INDEX	CATEGORY OF RATING
		1	2	3	4	5		
Contractor's Cost Overrun								
1	Contractors lack of experience	2	6	4	13	27	4.09	Critical
2	Improper planning	0	4	5	14	29	4.30	Critical
3	Fraudulent practice	0	3	5	12	32	4.40	Critical
4	Cost underestimation	8	11	20	10	3	2.78	Neutral
5	Poor on-site management	2	8	5	20	17	3.80	Critical
6	Mistake in design	6	9	11	19	7	3.23	Neutral
7	Inadequate construction method	8	6	21	11	6	3.02	Neural
8	Inadequate site investigation	8	5	13	16	10	3.28	Neutral
9	Wrong method of cost estimation	8	11	22	8	3	2.75	Neutral
10	Dispute on site	11	18	14	6	3	2.46	Less critical
11	Poor financial control on site	0	16	11	23	2	3.21	Neutral
12	Duration of contract period	8	4	14	19	7	3.25	Neutral
13	Contractors cartel	23	7	16	4	2	2.13	Less critical
14	Lack of coordination between designers and contractors	1	4	14	13	20	3.90	Critical
15	Absence of construction cost data	6	16	18	9	3	2.75	Neutral
16	Complexity of work.	10	14	19	6	3	2.58	Neutral

TABLE 2: The Strategies to Minimize the Cost Overrun in Nigerian Projects using earned value

OPTIONS	FREQUENCY	PERCENTAGE(%)
YES	14	27%
NO	29	56%
SOMETIMES	9	17%
Total	52	100%

Fig. 1 shows the importance of using earn value for the organization. From the graph above, it can be seen that about 56% of the respondent do not use the actual value and earn value concept in controlling cost. These indicate that majority of the respondent do not use the actual concept. Only 17% of the respondent use the earn value concept while 27% of the respondent use the earn value concept occasionally. Earn value can be use to evaluate performance of project which include integrating cost schedule and work.

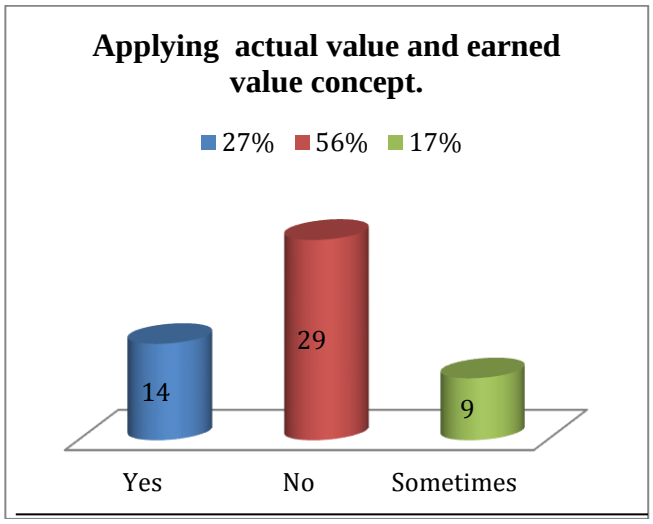

Fig.1 Graph of applying actual value and earned value concept.

TABLE 2: Cost engineer who is responsible for cost control

OPTIONS	FREQUENCY	PERCENTAGE(%)
YES	13	25%
NO	32	62%
SOMETIMES	7	13%
Total	52	100%

The figure below indicate that 62% of the respondent does not have any cost engineer that monitor's the contractor cost. Only 25% of the respondent has cost engineer while 13% of the respondent may engage the service of the cost engineer occasionally.

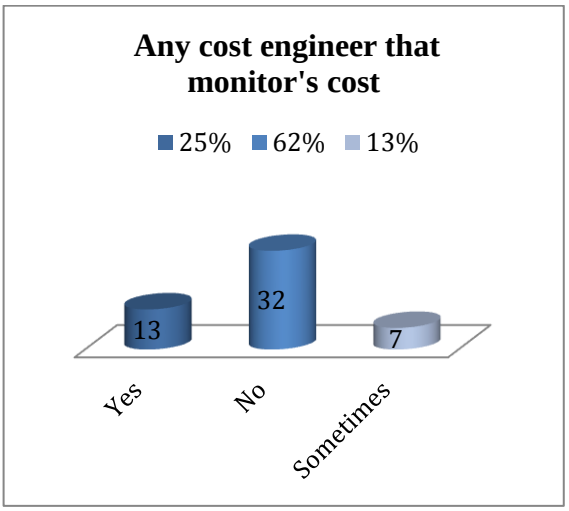

Fig 2: Graph of cost engineer that monitor cost

TABLE 3: Apply any software to control cost

OPTIONS	FREQUENCY	PERCENTAGE(%)
YES	13	25%
NO	29	56%
SOMETIMES	10	19%
Total	52	100%

56% of the respondent as can be seen from the fig.3 below do not use software in order to control cost. 25% of the respondents on the other hand use software and 19% of the respondent uses software to control cost sometimes. Microsoft project and primavera are the common software use in planning, monitoring and controlling cost.

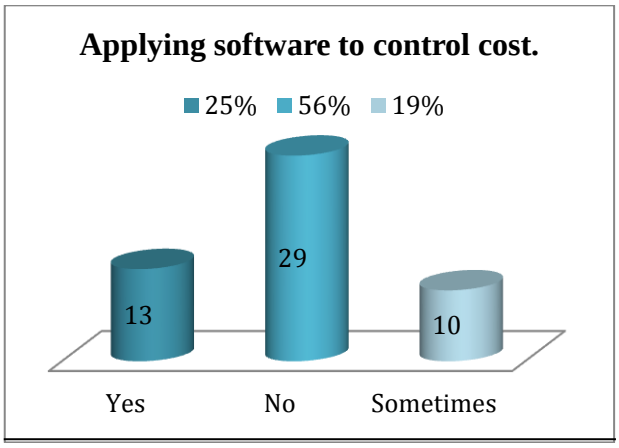

Fig. 3: Graph of applying software to control cost

TABLE 4: Right and Authority to line managers to manage actual expense

OPTIONS	FREQUENCY	PERCENTAGE(%)
YES	16	31%
NO	26	50%
SOMETIMES	10	19%
Total	52	100%

50% of the respondent does not give right to line manager to manage cost as shown from the diagram below. 31% of the respondent gives right to line manager to control their cost because the line manager contributes in appropriate team communication in order to achieve work progress. Lastly 10% of the respondents give right and authority to line manager sometimes.

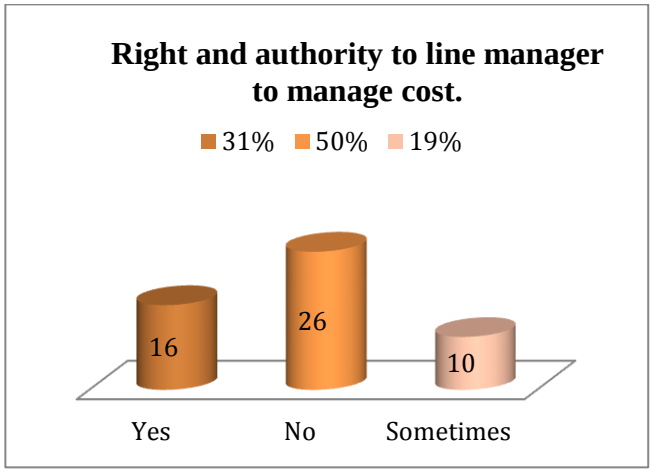

Fig. 4: Graph of authority for line managers to manage cost.

TABLE 5: Do you have cost schedule associated with estimated time scheduled.

OPTIONS	FREQUENCY	PERCENTAGE(%)
YES	29	56%
NO	10	19%
SOMETIMES	13	25%
Total	52	100%

56% of the respondent have cost schedule with estimated time schedule and 25% apply it sometimes while only 19% of the respondent do not have a cost schedule with estimated time schedule.

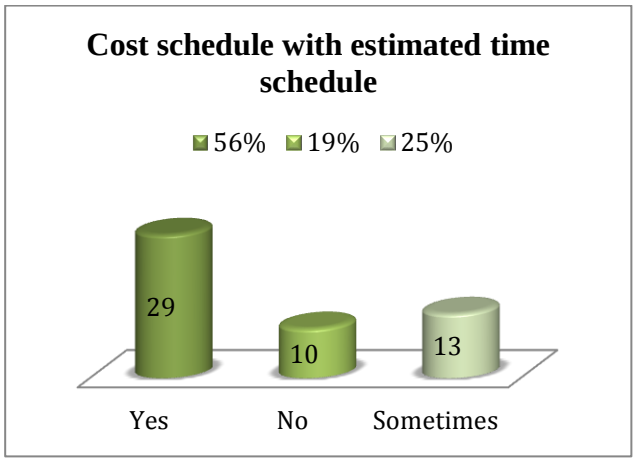

Fig.5: Graph of cost schedule with estimated time schedule

CONCLUSION AND RECOMMENDATIONS

The study reveals:

- Fraudulent practice, improper planning, Contractor's lack of experience, poor onsite management and lack of co-ordination between Contractor and designers were the major factors that causes contractor's cost overrun.
- Work programme, Monitoring and inspection, Evaluation of work are method of cost control employ by the contractor.
- The problems faced by Contractor are increased cost of material, waste of material, theft and vandalisation, delay by client to release money.

The study therefore recommends:

- Contractors should have adequate training in cost control because traditional procurement method is the most widely system used by the contractors.
- Proper planning and scheduling should be adhered to by the contractor's and also adequate management of the site should be enhanced.
- The contractor should maintain adequate report writing, site meetings and record keeping.
- Contractors should be aware of quality of construction materials before purchase.

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