

Assessment of Factors Affecting the Cost of Building Construction Project in Bauchi Metropolis, Nigeria

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ABSTRACT The high cost of land, building materials etc. discourages many people from starting their building projects in Nigeria. As a matter of fact, if landed properties are relatively cheap in Nigeria and building materials affordable, more people will be encouraged to start building construction projects because the cost of building construction would be generally reduced in Nigeria. As a result of increase in cost of construction materials in Bauchi metropolis of Bauchi State causes numerous problems such problems include inability to complete the project on schedule, low quality work, Project delay and project abandonments. This research is aimed to assess factors affecting the cost of building construction project in Bauchi metropolis and propose possible solutions on how these factors can be minimized. The methodology is used in this research is quantitative, field survey through questionnaire administration. The result of the data analysis was analyzed using SPSS descriptive statistic i.e. the mean and standard deviation and tables was used in presenting the result collected each questions from questionnaire. The identify factors from the finding are: inflation of project cost, wrong method of estimation, poor financial control on site, poor project management, improper planning, unforeseen site condition, additional work are the very significant factors affecting cost of construction. While insufficient funds, wrong method of construction, and lack of experience are the significant to cost of construction. Unsuitable equipment and poor contract management are the less significant to cost of construction. The average level of poor contract management practice that affect cost of building construction projects is significant to cost of building construction projects. While average level of the management process that affect cost of building construction is very

significant to cost of constructions. The relationship between contract management practice and management process, reveals that contract management practice and management process is very weak which is not significant ($r = 0.009$; $0.00 < p < 0.19$; 85). The study proposed 22 ways of minimizing cost of building constructions projects. The respondents selected 16 best possible ways among the 22 ways as follows: Proper cost control, appropriate scope definition, ensure adequate site supervision to minimize poor quality workmanship and idle time, appropriate contractual framework, e.t.c. recommendations was made on how to minimized the cost of building construction projects in Bauchi metropolis

Keywords – Cost, Factors, Affecting, Contract, Management, Building, Constructions, Projects, Professional Bauchi, Nigeria

I. INTRODUCTION

Cost of building construction can simply be defined as the amount of money to be spent in the process of constructing a building structure. It includes the smallest to the largest amount of money spent in the process of building construction (Nega, 2016). Building construction refers to the process of erecting or constructing a building structure. It involves stages and requires the involvement of building experts in order to be achieved (Peeters & Madauss 2016). There are many factors affecting cost of building construction in Nigeria those factors have being Categories into four which were Environmental factors, Economic factors, Government policy and issue of indigene. The economy of Nigeria affects the cost of building construction to a large extent. If the economy of Nigeria is robust and if people have more money, then more people will commence their building projects. The high cost of land, building materials

etc. discourages many people from starting their building projects in Nigeria. As a matter of fact, if landed properties are relatively cheap in Nigeria and building materials affordable, more people will be encouraged to start building construction projects because the cost of building construction would be generally reduced in Nigeria (Elinwa and Joshua, 2013). The environment where building construction is to take place can affect the cost of building construction. It will cost more money to construct a building structure in a swampy land. This is because of the cost of more building materials and that of labor needed to reinforce the foundation of such building structure in order to stand on the swampy land. The depth of such foundation also has to increase, the cost of digging the depth of such foundation will increase so will the number of blocks needed to raise the foundation height up to the floor level, and these costs will definitely reflect on the total cost of constructing such building structure. Some government's policies can affect the cost of building construction in Nigeria. If anyone wants to raise a building structure in Nigeria, you must receive permission or approval from the government, and some fees are involved before the approval. These fees depend on the type of building structure, and this has an effect on the cost of building construction in Nigeria. The indigenes of some towns in Nigeria where building construction is to take place can contribute to the cost of building construction. In some places in Nigeria, you pay the indigenes of the land some money before commencing a building construction project. Popularly known as 'matching ground money', this amount is not part of the price of the land and they charge this money based on the type of building structure to be constructed (Elinwa and Joshua, 2013). The research aimed at assessing the factors affecting cost of building construction projects in Bauchi metropolis through the following research objective:

1. To identify the factors affecting cost of building construction project in Bauchi metropolis
2. To determine the level of contract management practice that affect cost of building construction projects in the study area
3. To determine the level of management process that affect cost of building construction projects in the study area
4. To evaluate the relationship between contract management practice and management process that affect cost of building construction projects

II. CAUSES OF INCREASE IN COST OF CONSTRUCTIONS PROJECTS

A study made in Turkey by Arditi, in 1985 showed that the causes of construction cost overruns were attributed to inflationary pressures, increases in material prices and workmen's wages, difficulties in obtaining construction materials, construction delays, deficiencies in cost estimates prepared by the consultants and the unexpected sub-soil conditions. Mansfield, Ugwu and Doran in 1994 found out that, cost overruns were attributed to problems in finance and payments arrangements, poor contract management practices, material shortages, changes in site conditions, design changes, mistakes and discrepancies in contract documents, mistakes during constructions, price fluctuations, inaccurate estimating, delays, additional works, shortening of construction periods, and fraudulent practices and kickbacks. According to Robert F. Cox (2007), project owners identified five reasons for project cost overruns. They were incomplete drawings, poor pre-planning processes, escalating cost of materials, lack of timely decision and excessive change orders. The User's Guide 2005 also gives the following factors as contributors to project cost overruns with time: poor project management, design changes, unexpected ground conditions, inflation, shortages of materials, change in exchange rates, inappropriate contractors, funding problems and force majeure. Frimpong 2003, also found out that in Ghana, in addition to all factors mentioned above, construction cost overruns are also caused by problems with the payment of agencies' fees.

Studies have also shown that, the size of a building project influences the rate of cost overrun. Large projects are generally more complex and in such complex projects, some items are fraught to be missed out or may be forgotten during the planning and design phases. Hence, the complexity may increase the rate of cost overrun. The factors that could increase construction costs are numerous. Chan and Park, 2005 stated that the cost of a building project is affected by a large number of factors. This is so because construction is a multidisciplinary industry and its work involve many parties such as the project owner and various professionals, contractors and suppliers. Thus a building project cost does not only depend on a single factor but on a cluster of variables that are related to the characteristics of the project, the construction team as well as the market condition.

III. RESEARCH METHODOLOGY

The method employed for this study involved the use of relevant literatures related to the study such text books, journals, magazine and the use of internet. The sampling frame is building

constructions professionals (Architects, builders, Engineers and quantity surveyors) they are one hundred and forty one (141) building constructions professionals with the selected construction site and the sample size would be 103 according to the Krejcie and Morgan table, (1970). And the Sampling techniques used in this research work is

simple random sampling. A total of 103 questionnaires was distributed 85 questionnaire were returned representing 82.5% Total number of questionnaires not returned is 18. Data analysis were undertake using statistic packages for social science SPSS where frequency mean and standard deviation were used to interpret the result.

IV RESULT AND DISCUSSION

This section represent the finding

Table 3: Educational specialization type

Specialization	Frequency	Percent	Valid Percent	Cumulative Percent
Architect	23	27.1	27.1	27.1
Builder	23	27.1	27.1	54.2
Engineer	8	9.4	9.4	63.6
Quantity Surveyor	31	36.4	36.4	100.0
Total	85	100.0	100.0	

The table 3 above depicts the area of specialization of the respondents which reveals the core professionals in building projects. The Architect constitute 27.1% representing 23

respondents, Builder with 27.1% representing 23 respondents, Civil engineer with 9.4% representing 8 respondent and Quantity surveyor constitute 36.4% representing 31 respondents respectively.

Table 4: Level of educational qualification attained

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
ND	16	18.8	18.8	18.8
HND	15	17.6	17.6	36.4
PGD	15	17.6	17.6	54.0
B.SC/B.TECH	31	36.5	36.5	90.5
M.sc/M.Tech	8	9.4	9.4	100.0
Total	85	100.0	100.0	

The table 4 shows the data analysis of the respondent with respect to their academic qualification, the majority of the respondent possess Bsc/B.tech with 36.5% representing 31 respondents, and respondents with ND has 18.8%

representing 16 respondents, also respondents with HND and PGD are with 17.6% representing 15 respondents. 9.4% representing 8 respondents with Msc/M.tech as their educational qualification

Table 5: Professionals institutions you were registered with

Professionalism	Frequency	Percent	Valid Percent	Cumulative Percent
NIA	8	9.4	9.4	9.4

NIOB	15	17.6	17.6	27.1
NIQS	8	9.4	9.4	90.6
NSE	8	9.4	9.4	44.7
Not Registered	46	54.1	54.1	100.0
Total	85	100.0	100.0	

The table 5 above shows the professional institution which the respondent is registered with which reveals that 46 of the respondents are not registered with any professional institution representing 54.1%, NIA with 9.4% representing 8,

NIOB with 17.6% representing 15 respondents, NSE with 9.4% representing 8 respondents and 9.4% representing 8 registered with NIQS respectively.

Table 6: Period been in the construction industry

Period	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5 years	16	18.8	18.8	18.8
6-10 years	31	36.5	36.5	55.3
11-15 years	23	27.1	27.1	82.4
16-20 years	8	9.4	9.4	91.8
21 years above	7	8.2	8.2	100.0
Total	85	100.0	100.0	

The table 6 depicts the frequency and percentages of the respondents in terms of years of experience in construction industry, less than 5 years have 18.8% representing 16 respondents, 6 – 10 years have 36.5% representing 31 respondents,

11 – 15 years have 27.1% representing 23 respondents, 16 – 20 years have 9.4% representing 8 respondents and 21 years and above with 8.2% representing 7 respondents respectively.

Rank Scale

According to Amal 2016 to determine the minimum and the maximum length of the 5-point likert type scale, the range is calculated by $(5-1=4)$ then divided by five as it is the greatest value of the scale $(4/5=0.80)$. Afterwards number one which is

the least value in the scale was added in order to identify the maximum of the cell. The length of the cell is determine as: from 1 to 1.80 represent not significant, from 1.81 to 2.60 less significant, from 2.61 to 3.40, significant from 3.41 to 4.20 very significant and 4.21 to 5.00 most significant

Objective one: To identify factors affecting cost of building constructions projects

Table 7: Identify factors affecting cost of building construction

	Mean	Std. D	Rank	Decision
Inflation of project cost	3.8941	1.37168	1	Very Significant
Wrong method of estimation	3.8588	1.44875	2	Very Significant
Poor financial control on site	3.7059	1.34362	3	Very Significant
Poor project management	3.6824	1.43271	4	Very Significant
Improper planning	3.6235	1.59595	5	Very Significant
Unforeseen site condition	3.4588	1.24931	6	Very Significant

Additional work	3.4471	1.31390	7	Very Significant
Insufficient funds	3.2118	1.01294	8	Significant
Wrong method of construction	2.9294	.88356	9	Significant
Lack of experience	2.8824	.98091	10	Significant
Unsuitable equipment	2.3059	1.20538	11	Less Significant
Poor contract management	2.1294	1.24201	12	less Significant
Average Mean Score	3.2608			Significant

Table 7 above shows the mean scores and the standard deviation of the factors affecting cost of building construction. Inflation of project cost with a mean value of 3.8941 and standard deviation of 1.37168 rank 1st wrong method of estimation with a mean value of 3.8588 and standard deviation of 1.44875 rank 2nd very significant, Poor financial control on site with a mean value of 3.7059 and standard deviation of 1.34362 rank 3rd very significant, Poor project management with a mean value of 3.6824 and standard deviation of 1.43271 rank 4th very significant, improper planning with mean value of 3.6824 and standard deviation of 1.59595 rank 5th very significant, unforeseen site condition with mean value of 3.4588 and standard deviation of 1.24931 rank 6th very significant and additional work with a mean value of 3.4471 and standard deviation of 1.31390 rank 7th very significant. While insufficient funds with mean value of 3.211 and standard deviation of 1.01294 rank 8th significant, Wrong method of construction and Lack of experience, with mean value of (2.9294, 2.8824,) and standard deviation of (0.88356, 0.98091) rank 9th and 10th significant respectively. Unsuitable equipment, and poor contract management with a mean value of (2.3059, and 2.1294) and standard deviation of (1.20538, and 1.24201) rank (11th and 12th) respectively they are less significant.

DISCUSSION OF RESULT ON THE FACTORS AFFECTING COST OF BUILDING CONSTRUCTION

The research finding shows that inflation of project cost, wrong method of estimation, Poor financial control on site, Poor project management, improper planning, unforeseen site condition, Additional work are the very significant factors affecting cost of construction. While insufficient funds, Wrong method of construction, and Lack of experience are significant factors affecting cost of construction projects in Bauchi metropolis. Unsuitable equipment, and poor contract management are the less significant factors affecting cost of building construction in Bauchi metropolis. The average mean score of the finding

shows that all the identify factors are significant to cost of building constructions projects in Bauchi metropolis of Bauchi State. The implication of this research it is widely believed that cost discrepancies or distinction arise mostly at construction stage. However the problem in the increase in cost of building constructions projects is a worldwide phenomenon, and its ripples are normally a source of friction between client and contractors on the issue of increase in cost of constructions projects. If this friction is not properly handled, this could stall the progress of work and may subsequently lead to projects delay, low quality work and it bring about project abandonment. Comparing with previous researched there is similarity of the finding

Doloi (2011) found out in his work that factors causing cost overruns in construction projects in Nigeria were additional work, unforeseen site conditions, increment of materials prices, poor contract management practice, management process, delay in supply of raw materials and equipment by contractors, fluctuations in the cost of building materials, unsettlement of the local currency in relation to dollar value, project materials monopoly by some suppliers, resources constraint of funds and associated auxiliaries, not being ready, lack of cost planning/monitoring during pre-and post-contract stages, improvements to standard drawings during construction stage, design changes and inaccurate quantity take-off.

Ramata A. D (2017) found out in her work that availability of modern technology, architect action or omission to sound project planning and control have the higher means and have adverse effects on project cost, the least significant factors were administrative approvals, wrong method of estimation, lack of experience, the significant factors were adequacy of funding, increased in price of materials and poor management, unsuitable equipment has a lower mean it does not have a significant influence as a factors that influence building construction projects cost. More consideration should be done on funding of projects.

A.S Ali and S. N. Kamaruzzaman (2015) found out that poor estimation in projects cost is the main factor contribute to cost overruns in the Klang valley area. In respondents opinion, mistake

in design is not serious problem if compare with other factors since poor estimation is the main problem.

Objective two: To determine the level of contract management practice that affect cost of building construction

Table 8: Level Contract Management in practice that affect cost of building construction

	Mean	Std. D	Rank	Decision
Cost and time overrun	3.9059	1.54784	1	Very Significant
Instruction not in writing	3.1529	1.29565	2	Significant
Excessive use of variation	3.1529	1.29565	3	Significant
Lack compliance	3.0706	1.16280	4	Significant
Critical success factors not identify	2.3882	.88767	5	Less Significant
Poor or inappropriate scope of work	2.2471	.85782	6	Less Significant
Conflict and dispute with stakeholders and contractors	2.1412	1.23590	7	Less Significant
Average Mean Score	2.8655			Significant

The table 8 above shows the mean scores and the standard deviation of the contract management process that affect cost of building construction which indicate that cost and time overrun with a mean of 3.9059 and standard deviation of 1.54784 and rank 1st which is very significant, instruction not in writing with mean of 3.1529 and standard deviation of 1.29565 and rank 2nd which is significant, excessive use of variation with mean of 3.1529 and standard deviation of 1.29565 and 3rd which is significant, lack of compliance with mean of 3.0706 and standard deviation of 1.16280 and rank 4th which is significant. While critical success factors not identify with mean of 2.3882 and standard deviation of -.88767 rank 5th which is less significant, poor or inappropriate scope of work with mean of 2.2471 and standard deviation of -.85782 rank 6th which is less significant and conflict and dispute with stakeholders and contractors with mean of 2.1412 and standard deviation of 1.23590 rank 7th which is less significant.

THAT AFFECTS COST OF BUILDING CONSTRUCTIONS PROJECTS

The result of the finding shows that cost and time overrun is very significant to cost of construction, instruction not in written, excessive use of variation, and lack of compliance are the contract management practice that is significant to cost of building constructions projects in Bauchi metropolis. While critical success factors not identify, poor or inappropriate scope of work and conflict and disputes with stakeholders and contractors are the less significant to cost of building constructions projects in Bauchi metropolis. The average mean score of contract management practice is significant to cost of building constructions projects in Bauchi metropolis of Bauchi State. The implication of contract management practice lead to dispute and also affects time and cost overrun, delay in handing over site to the contractor, missing renewals and breach of contract (destroy relationship and add cost to a project). A contract has to be clear, specific definitions on project scope need to be included in a contract at the beginning, with both parties acknowledging and agreeing to them.

DISCUSSION OF RESULTS FOR CONTRACT MANAGEMENT PRACTICE

Objective three: To determine the level of management process that affect cost of building constructions projects.

Table 9: level of Management process that affect cost of building construction

	Mean	Std. D	Rank	Decision
Planning	4.5412	.66463	1	Most Significant
Directing	4.0706	1.18310	2	Very Significant
Organizing	4.0118	.60738	3	Very Significant

Controlling	2.6353	.75352	4	Significant
Staffing	2.6118	1.15567	5	Significant
Average Mean Score	3.5741			Very Significant

The table 9 above shows the mean scores and the standard deviation of the management process that can affect cost of building constructions which indicates that planning with a mean of 4.5412 and standard deviation of 0.66463 rank 1st which is most significant, directing with a mean of 4.0706 and standard deviation of 1.18310 rank 2nd which very significant, organizing with a mean of 4.0118 and standard deviation of 0.60738 rank 3rd which very significant, controlling with a mean of 2.6353 and standard deviation of 0.75352 rank 4th which is significant and staffing with a mean of 2.6118 and standard deviation of 1.15567 rank 5th which is significant. And the average mean is very significant

DISCUSSION OF RESULTS ON MANAGEMENT PROCESS THAT AFFECT

COST OF BUILDING CONSTRUCTIONS PROJECTS

The results of the finding shows that planning is most significant to cost of construction, directing and organizing are very significant management process on the cost of building constructions projects. While controlling and staffing are significant to cost of building constructions projects in Bauchi metropolis. The average mean of the finding show that management process is very significant to cost of building constructions projects in Bauchi metropolis. The implication of management process affects time and cost overruns of construction project it also bring about project delay and low quality work and unable to delivered projects on schedule. Constructions professionals should ensure proper management process in order to minimized the cost of constructions projec

Objective 4: To evaluate the relationship between poor contract management practice and management process in the study area

	Poor contract management practices	Management process
Poor contract management practices	Pearson Correlation 1	.009
	Sig. (2-tailed)	.936
	N	85
Management process	Pearson Correlation .009	1
	Sig. (2-tailed)	.936
	N	85

Correlation is not significant at the 0.01 level (2-tailed).

According to Dancey and Reidy (2007), correlation coefficient is a statistical measure of the strength of a monotonic relationship between paired data; which can be interpreted base on the closer is to ± 1 the stronger the monotonic relationship. Dancey and Reidy (2007) proposes a class interval of: 0.00 — 0.19 = Very weak; 0.2 —

0.39 = Weak; 0.40 — 0.59 = Moderate; 0.60 — 0.79 = Strong; 0.80 — 1.0 = Very strong.

Table 10 shows the relationship influence of poor contract management practice and management process. Then influence reveals that poor contract management practice and management process is very weak which is not significance (r = 0.009; 0.00 < p < 0.19; 85).

4.4 PROPOSED WAYS OF MINIMIZING COST IN BUILDING CONSTRUCTIONS PROJECTS

Table 11

S/N	Propose ways of minimizing cost of building constructions projects	Frequency	Percent%	Rank
1	Ensure efficient time management through proper resources planning duration estimation and schedule development and control.	1	1.17	8
2	Ensure adequate site supervision to minimize poor quality workmanship and idle time.	7	8.23	2
3	Hire and motivate experienced and qualified workforce to improve productivity and quality of workmanship.	4	4.70	5
4	Ensure realistic estimates through proper cost studies.	2	2.35	7
5	Allow sufficient time for feasibility studies, design, planning and tender submission.	4	4.70	5
6	Minimize propensity for late changes by ensuring a holistic assessment of client real and stated needs.	2	2.35	7
7	Minimize conflict with subcontractors which could undermine onsite productivity and progress of work.	3	3.52	6
8	Provide comprehensive information for easier interpretation of drawing and setting out of the work.	4	4.70	5
9	Ensure proper planning, directing and controlling of work	5	5.88	4
10	Ensure good contract management practice	5	5.88	4
11	Appropriate scope definition	7	8.23	2
12	Increased supply of materials	4	4.70	5
13	Appropriate contractual framework	6	7.05	3
14	Good coordination between designer and contractor	4	4.70	5
15	Elimination of waste at both professional and trade practice levels	2	2.35	7
16	Risk management during project execution	2	2.35	7
17	Proper cost control	8	9.41	1
18	Bulk purchase of materials	3	3.52	6
19	Studying project history for possible application on another projects	1	1.17	8
20	The professionals should apply project management tools in their project delivery	2	2.35	7
21	Only contractors with adequate experience and financial ability to handle building construction projects can be awarded contracts	4	4.70	5
22	Projects should be planned properly before the commencement of project execution	5	5.88	4
Total		85	100	

The table 11 above is a proposed 22 ways of minimizing cost of building constructions projects. The respondents selected 16 best possible ways among the 22 proposed ways as follows:

- i. Proper cost control
- ii. Appropriate scope definition
- iii. Ensure adequate site supervision to minimize poor quality workmanship and idle time.
- iv. Appropriate contractual framework
- v. Project should be planned properly before the commencement of project execution.
- vi. Ensure good contract management practice
- vii. Projects should be planned properly before the commencement of project execution
- viii. Ensure proper planning, directing and controlling of work
- ix. Hire and motivate experienced and qualified workforce to improve productivity and quality of workmanship.
- x. Ensure efficient time management through proper resources planning duration estimation and schedule development and control.
- xi. Good coordination between designer and contractor
- xii. Allow sufficient time for feasibility studies, design, planning and tender submission.
- xiii. Only contractors with adequate experience and the financial ability to handle building construction projects can be awarded contracts.
- xiv. Bulk purchase of materials
- xv. Minimize conflict with subcontractors which could undermine onsite productivity and progress of work.
- xvi. Increased supply of materials

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

SUMMARY OF FINDING

This study indicated 12 factors affecting cost of building construction projects and recommended ways through which they can be minimized; the factors affecting cost of building constructions projects shows that Inflation of project cost, wrong method of estimation, Poor financial control on site, Poor project management, improper planning, unforeseen site condition, Additional work are the very significant factors affecting cost of building construction. Insufficient funds, wrong method of construction, Lack of experience are the significant factors affecting cost of construction projects. Unsuitable equipment, and poor contract management are the less significant

factors affecting cost of building construction projects in Bauchi metropolis.

The study show that the level contract management practice that affect cost of building constructions projects in Bauchi metropolis as agree by the respondents is significant to cost of building construction projects in Bauchi metropolis. While the level management process is less significant to cost of building constructions projects in Bauchi metropolis of Bauchi State.

The study also evaluate the relationship between poor contract management practice and management process using Pearson Correlation and the result was not significant

The study proposed 22 ways of minimizing cost of building constructions projects. The respondents selected 16 best possible ways among the 22 ways as follows: Proper cost control, appropriate scope definition, ensure adequate site supervision to minimize poor quality workmanship and idle time, appropriate contractual framework, project should be planned properly before the commencement of project execution, ensure good contract management practice, projects should be planned properly before the commencement of project execution, ensure proper planning, directing and controlling of work Hire and motivate experienced and qualified workforce to improve productivity and quality of workmanship, ensure efficient time management through proper resources planning duration estimation and schedule development and control and good coordination between designer and contractor e.t.c. Although, the data for this study finding was gotten from Bauchi metropolis of Bauchi State in Nigeria, the findings can also be applicable to any developed countries that are faced with similar situation of factors affecting cost of building constructions projects.

CONCLUSION

In conclusion the factors affecting cost of building constructions projects as agreed by the respondents are Inflation of project cost, wrong method of estimation, Poor financial control on site, Poor project management, improper planning, unforeseen site condition, Additional work and insufficient funds, wrong method of construction, Lack of experience, Unsuitable equipment, and poor contract management

The study found the level of contract management practice that affects cost of building constructions projects base on the respondents view is significant to cost of building construction projects in Bauchi metropolis

The study also found the level of management process that affects cost of building constructions projects base on the respondents view is less significant to cost of building construction projects in Bauchi metropolis.

Finally the relationship between contract management practice and management process shows that it's not significant.

The proposed ways of minimizing cost of building construction as agreed by the respondents are as follows:

- i. Proper cost control
- ii. Appropriate scope definition
- iii. Ensure adequate site supervision to minimize poor quality workmanship and idle time.
- iv. Appropriate contractual framework
- v. Project should be planned properly before the commencement of project execution.
- vi. Ensure good contract management practice
- vii. Projects should be planned properly before the commencement of project execution
- viii. Ensure proper planning, directing and controlling of work
- ix. Hire and motivate experienced and qualified workforce to improve productivity and quality of workmanship.
- x. Ensure efficient time management through proper resources planning duration estimation and schedule development and control.
- xi. Good coordination between designer and contractor
- xii. Allow sufficient time for feasibility studies, design, planning and tender submission.
- xiii. Only contractors with adequate experience and the financial ability to handle building construction projects can be awarded contracts.
- xiv. Bulk purchase of materials
- xv. Minimize conflict with subcontractors which could undermine onsite productivity and progress of work.
- xvi. Increased supply of materials

RECOMMENDATION

The following recommendations deduced from this study are as follows: -

- i. Much attention should be placed on the factors affecting construction cost in order to reduce the cost of construction cost, enhance construction performance and generates confidence within the construction industry.
- ii. Builder on site should ensure proper cost control during the execution of the project
- iii. All parties to the contract should ensure good contract management practice

- iv. The architect should ensure adequate site supervision to ensure that the work is in line with the design in order to correct early errors
- v. Quantity Surveyors should become more alive to their responsibilities as cost experts ensuring that they make use of correct estimation methods.
- vi. There should be thorough crosschecking of estimates based on updated price information in order to avoid any wrong estimation.
- vii. Client should ensure appropriate scope definition of the project to avoid additional work which may increase the cost of the project.
- viii. There should be proper coordination and good communication among various parties working on the project in order to improve management, control problems and reduce any avoidable delay.
- ix. Builder on site should ensure proper planning, directing and controlling of work. This will help in minimizing cost of construction projects.

All parties should take responsibility to make use of the proffered solutions to minimizing cost of constructions projects

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