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**Stakeholders perspective on cost overruns of building projects in Jos,  
Nigeria**

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**ABSTRACT**

Cost overruns accounts for one of the avenues of wastages on projects and has continuously prevented the achievement of project objectives. In addition, conflicting interests of key project stakeholders has also been implicated as partly been responsible for escalation of project cost. This informed the decision to investigate using structured questionnaires the stakeholder's perspective on cost overruns of building projects in Jos Nigeria. The questionnaires were designed to sample opinions of respondents comprising of practicing construction professionals in contracting, consulting and client organizations in Jos, Nigeria. Forty (40) questionnaires were administered; however, only thirty two (32) representing 80% was retrieved. Responses were sought for only completed building projects between 1990 and 2009 in Jos Nigeria whose data are available during the research. The severity index and percentage method are used to analyze data. Research findings suggest that 56.25% of respondents agree that cost overruns significantly affect the construction industry whereas 43.75% have varying degree of agreement. Delay in project execution and completion, project abandonment and reduction in work quality rank 1st, 2nd and 3rd respectively as effects of cost overruns on the construction industry. Quite notably all the respondents agreed that the clients, consultants and contractors share responsibility for cost overruns. The contractors and consultants both rank first as been responsible for cost overruns while clients rank least of the three key project stakeholders. In addition, lack of proper management techniques, lack of sufficient project details when required and payment delays accounts for the most actions of contractors, consultants and client respectively that are responsible for cost overruns. It is suggested that the key project stakeholders be more conscious of their actions and/or inactions as they have an impact on project cost.

**Keywords:** Building projects, clients, consultants, contractors, cost overruns, project stakeholders.

### **1. Introduction**

The need for housing by mankind cannot be overemphasized as since ancient times the demand for buildings has continued to be on the increase due to the ever rising population growth rate and the varied usage of buildings. Most recently, this is been hampered by decreasing government revenues in the face of the economic environment, hence capital expenditures more than ever needs to be put to efficient use so that buildings are constructed within the limits of scarce resources to satisfy the desired need. This can be achieved if buildings are constructed and completed within budgeted cost as overruns imply wastage of resources which otherwise would have been put into productive use elsewhere. Moreover, project completion within budgeted cost according to (Chan and kumaraswany, 2002; Aftab

et al., 2014) is one criterion amongst many used to adjudge project success in construction management. Notable causes of cost overruns have been postulated by several authors e.g. (Kaliba et al., 2009; Doloi, 2011; Sovacool et al., 2014; Polat et al., 2014). However, common amongst many is design errors or problems (Jackson, 2002; Polat et al., 2014).

The Nigerian construction industry like many others abroad is unfortunately bedeviled with cost overruns. Cost overruns has been defined by several authors e.g. (Binchak, 2008; Bucciol et al., 2013) however, it is basically the excess of actual cost over original budget. It is often called budget overrun or cost escalation and related literature suggests its universality in building, infrastructure and energy projects (Cantarelli et al., 2012; Aftab et al., 2014). Cost overruns can be avoidable when they are foreseen and prevented e.g. design plan or project management problems and unavoidable when it cannot be foreseen and anticipated. Cost overruns can be positive if it involves the addition of extra value to the work else it is negative. Its number and percentage occurrence varies accordingly by geographical area, type and size of projects and project phases (Odeck, 2004; Cantarelli et al., 2012). While Odeck noted specifically that cost overrun is more prominent in small size projects with a mean cost overrun of 7.9%, Cantarelli et al. noted that worldwide figures often does not align with country specific cases. This justifies why the research investigated the occurrence of cost overruns in building projects in Jos, Nigeria from stakeholder's perspective.

Bucciol et al. (2013) explored the relationship between cost overruns and auction format contracts i.e. first price and average bid contracts in small size public works and concluded that cost overruns occur more in contracts employing first price than average bid formats. Bucciol et al. also acknowledged that in the average bid, colluding tendencies by contractors are likely since the average bid is the one closest to the average of all submitted bids. Study by Odeck (2004) suggests that the distribution of the ratio between actual and estimated cost was lognormal and not normal as is usually assumed. Odeck went further to note that with shorter expected completion time, the possibility of a project having cost overrun increases. Sovacool et al. (2014) noted that the average cost overrun for power projects between 2000 and 2013 in North America and Europe amounted to 226% and 193% respectively.

Kaliba et al. (2009) noted that cost overruns affect the relationships of the three key stakeholder i.e. client, consultant and contractor of a construction project and went further to attribute identified causes and responsibility of cost overruns to clients, consultants and contractors. Doloi (2011) investigated using the soft system methodology, the project stakeholder's perspective of cost estimation and opined that contract variation and ineffective management of contracts are the major causes of cost overruns in the project initiation phase. Doloi went further to identify five factors affecting cost estimation of projects as political, economic, financial technical and attitudinal concerns. Doloi also noted that in recent times, cost overruns have remained an obstacle to the achievement of project objectives and the involvement of multiple stakeholders with varied interest has ensured its continued occurrence. This situation no doubt seriously hampers the growth and viability of the construction industry as it introduces uncertainties in construction planning and execution which invariably implies added risk.

It is on this basis that this research investigated from stakeholders (i.e. client, contractor and consultant's) perspective cost overruns of building projects in Jos Plateau State Nigeria. Jos is located in North Central Nigeria. This study is restricted to completed building projects in Jos, Plateau State from 1990 to 2009.

## 2. Methodology

With the research objectives in mind, data for the research was sourced and collected using well structured questionnaires. The questionnaire was designed to sample opinions of respondents comprising of practicing construction professionals in contracting, consulting and client organizations in Jos, North Central Nigeria. Forty (40) questionnaires were administered; however, only thirty two (32) representing 80% was retrieved. The aim of administering the questionnaires was accomplished since a greater proportion of them were retrieved. The questionnaires administered but not retrieved was as a result of the unavailability of the respondents for their early collection. Though the sample size seem relatively small, its composition was considered adequate as respondents comprised of the relevant key stakeholders in the construction industry in the study area.

It should be noted that responses was sought for only completed building projects between 1990 and 2009 in Jos North Central Nigeria whose data are available during the research. Such data include; project name or title, type of construction, initial contract and final contract sum etc. This had to be so since the computation of cost overruns involves the use of the initial and final contract sums. With the non sampling of uncompleted or abandoned projects, percentage overruns obtained might not represent the actual situation at hand; however, not much can be done as the final contract sum for a project can only be obtained if the project is completed.

The severity index and percentage method are used to analyze data whilst tables are used to present same. The severity index for each item is defined as the mean value of the product of the respective importance and frequency response (Kaming et al., 1997). The severity index for each item was established using the equation:

$$\text{Severity index S.I} = \frac{\sum(xi \times xf)}{n} \quad (1)$$

Where

$xi$  = respondents importance response

$xf$  = respondents frequency response

$\sum(xi \times xf)$  = sum of the products of  $(xi \times xf)$

$n$  = total number of cases or response

## 3. Results and discussion

The research results are based on the analysis of data collected. Table 1 shows the profile of respondents. It indicates that majority of the respondents are Architects and Engineers each making up 25% of the total number of responses. They are both followed by the Builders and Quantity Surveyors each with 18.75% and finally the Project Managers representing 12.5% of the total number of responses. Table 1 also shows the previous work experience of respondents. It indicates that 75% of respondents had over 2 years previous work experience in the construction industry. In addition, table 1 show that of the total number of respondents sampled, over 50% of them have been involved in over 10 projects. Generally, the profile of respondents sampled is considered adequate as majority of them possess the requisite knowledge and project experience required to provide quality responses.

Table 2 suggests that none of the respondents agreed that projects can be completed within budget whilst 6.25% thought projects could be completed within budget. However, most of the respondents thought that 50% of projects are completed within project. Also from table 2,

it can be seen that none of the respondents agreed that cost overruns occurs “always” and “never”.

**Table1:** Profile of respondents

S/N	Profession of respondents	Freq.		Respondents work experience	Freq.		No. of projects executed	Freq.	
		No.	%		No.	%		No.	%
1	Architects	8	25.00	< 6months	2	6.25	2 - 4	6	18.8
2	Builders	6	18.75	6months - 2 years	6	18.75	4 - 6	4	12.5
3	Engineers	8	25.00	2years - 5years	12	37.50	6 - 8	4	12.5
4	Project Managers	4	12.50	> 5years	12	37.50	8 - 10	2	6.25
5	Quantity Surveyors	6	18.75				>10	16	50.0
Total		32	100		32	100		32	100

**Table 1:** Likely occurrence of cost overruns

Responses	Likely project completion within budget		Likely occurrence of cost overruns	
	Freq.		Freq.	
	No.	%	No.	%
Always	2	6.25	-	0.00
Most times	16	50.00	10	31.25
Sometimes	6	18.75	8	25.00
Few times	8	25.00	14	43.75
Never	-	0.00	-	0.00
Total	32	100	32	100

**Table 2:** Effect of cost overruns to the construction industry

S/N	Variable	Responses					Rank sum	Relative index	Ranking order
		1	2	3	4	5			
1	Delay in project execution and completion	-	2	4	6	20	140	0.90	1st
2	Project abandonment	-	6	6	10	10	120	0.75	2nd
3	Reduction in quality of work	-	8	6	8	10	116	0.73	3rd
4	Budgetary effects	2	6	6	8	10	114	0.71	4th
5	Disagreements and conflict	3	5	7	9	8	110	0.69	5th
6	Doubts and mistrust	4	6	8	8	6	96	0.60	6th
7	Effect on profits	2	10	12	6	2	92	0.58	7th

Table 3 shows the ranking of the effects of cost overruns in the construction industry. The variables were obtained from related literature and pilot survey conducted. Respondents were requested to rank the variables on a scale of 1-5 where 5 is the highest score. It indicates that delay in project execution and completion rank first as the effects of cost overruns. It is subsequently followed by project abandonment, reduction in quality of work, budgetary effects, disagreements and conflicts, doubts and mistrust in that order whilst effects on profits ranked least.

**Table 3:** Extent to which cost overruns affect the construction industry

Responses	Freq.	
	No.	%
Highly significant	-	0.00
Significant	18	56.25
Moderately significant	10	31.25
Slightly significant	4	12.50
Not significant	-	0.00
Total	32	100

Table 4 indicates that 56.25% of respondents agree that cost overruns significantly affects the construction industry whereas 31.25% agreed it is moderately significant, 12.59% agreed it is slightly significant and none of the respondent agreed that the effect of cost overruns is “highly significant” and “not significant”.

**Table 4:** Stakeholders responsibility for cost overruns

Variable	Responses					Rank sum	Relative index	Ranking order
	1	2	3	4	5			
Consultants	-	10	4	12	6	110	0.69	1st
Contractors	-	6	10	12	4	110	0.69	1st
Clients	-	12	6	6	8	106	0.66	3rd

Quite notably all the respondents agreed that the clients, consultants and contractors all have a share of responsibility for cost overruns through their actions and/or inactions that promote its occurrence on projects. The ranking result from table 5 suggests that the contractors and consultants both rank first as been responsible for cost overruns while clients rank least of the three key project stakeholders. Table 6 shows the actions and activities of the key project stakeholders responsible for cost overruns. Herein the top three in each category is highlighted below. For the contractors, lack of proper management techniques, supervisory method and inadequate cost control system are most responsible for cost overruns. For consultants; Lack of sufficient details of projects when required, constant review, modification and additional work and insufficient time to prepare contract documents are most likely actions responsible for cost overruns. Finally, for the client organizations; payment delays, inflation of contract sum and fraudulent practices and kickbacks are actions most responsible for cost overruns.

**Table 5:** Actions of contractors, consultants and clients responsible for cost overruns

S/N	Variables	Contractors	Consultants	Clients
		%		
1	Unnecessary delay	40.0	20.0	40.0
2	Mismanagement of funds	25.0	25.0	50.0
3	Inflation of contract sum	0.0	28.6	71.4
4	Fraudulent practices and kickbacks	15.8	21.1	63.1
5	Constant review, modification and additional work	0.0	76.2	23.8
6	Lack of proper management technique	67.7	33.3	0.0
7	Inadequate cost control system	50.0	16.7	33.3
8	Lack of sufficient details of projects when required	0.0	80.0	20.0
9	Supervisory method	55.6	33.3	11.1
10	Insufficient time to prepare contract documents	0.0	66.7	33.3
11	Variation instructions without appropriate cash backing	0.0	53.3	46.7
12	Payment delay	0.0	0.0	100.0
13	Non inclusion of clauses in contract documents to check cost overruns	0.0	38.9	61.1

#### 4. Conclusions

This research was directed at assessing the stakeholder’s perspective on cost overruns of building projects in Jos, Nigeria. It was established that cost overruns affect the construction industry significantly and delay in project execution and completion rank 1st as the effect of cost overruns on the construction industry. It was also established that the action and/or inaction of consultants, contractors and client organizations all lead to cost overruns of building projects. Research findings suggest that consultants and contractors both rank first while client organizations rank least as project stakeholders whose actions/inaction can lead to cost overruns. This implies that the project stakeholders have an impact on cost overruns.

#### 4.1 Recommendations

The utilization of adequate cost management systems in the administration and execution of building projects by consultants, contractors and clients is suggested. This may well forestall or limit the occurrence of cost overruns particularly those that don’t add extra value to the work. Further research can be carried out on the different developmental phases of a project i.e. conception, pre construction planning, execution as well as different building types to determine their level of cost overruns.

## 5. References

1. Aftab H., Ismail A., Noor Y., & Ahmad, T. K. (2014), Web-Based Risk Assessment Technique for Time and Cost Overrun (WRATTCO) - A Framework. *Procedia - Social and Behavioral Sciences*, 129, pp 178-185.
2. Binchak P.I. (2008), Cost and Time Overruns in the Provision of Engineering Infrastructure (A Case Study of Projects in Phase I District of the Federal Capital Territory, Abuja), MSc Dissertation, University of Jos, Department of Building, Jos.
3. Bucciol A., Chillemi O., & Palazzi G. (2013), Cost Overrun and Auction format in Small Size Public Works. *European Journal of Political Economy*, 30, pp 35-42.
4. Cantarelli C. C., Molin E. J., van Wee B., & Flyvberg B., (2012), Characteristics of Cost Overruns for Dutch Transport Infrastructure Projects and the Importance of the Decision to Build and Project Phases. *Transport Policy*, 22, pp 49-56.
5. Chan D.W., & Kumaraswamy M.M. (2002), Compressing Construction Durations. Lessons Learned from Hong Kong Building Projects, *International Journal of Project Management*, 20(1), pp 23-35.
6. Doloi H. K. (2011), Understanding Stakeholder's Perspective of Cost Estimation in Project Management. *International Journal of Project Management*, 29, pp 622-636.
7. Jackson S. (2002), Project Cost Overruns and Risk Management. *Proceedings of the Association of Researchers in Construction Management 18th Annual ARCOM Conference*. Newcastle.
8. Kaliba C., Muya M., & Mumba K. (2009), Cost Escalation and Schedule Delays in Road Construction Projects in Zambia. *International Journal of Project Management*, 27, pp 522-531.
9. Kaming P.F., Olomolaiye, P.O., & Holt, G.B. (1997), Factors Influencing Construction Time and Cost Overruns in High Rise Projects in Indonesia, *Construction Management and Economics*, pp 83-94.
10. Odeck, J. (2004), Cost Overruns in Road Construction - What are their Sizes and Determinants? *Transport Policy*, 11, pp 43-53.
11. Polat G., Okay F., & Eray E. (2014), Factors Affecting Cost Overruns in Micro-Scaled Construction Companies. *Procedia Engineering*, 85, pp 428-435.
12. Sovacool B. K., Gilbert A., & Nugent D. (2014), An International Comparative Assessment of Construction Cost Overruns for Electricity Infrastructure. *Energy Research & Social Science*, 3, pp 152-160.