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The *Nigerian Journal of Construction Technology and Management* is devoted to the published of paper, which advance knowledge of the practical and theoretical aspects of construction, design, building production and management. The Journal aims at providing a forum for readers to share experiences through review articles research notes, book reviews and short communications in related fields.

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NIGERIAN JOURNAL OF CONSTRUCTION TECHNOLOGY AND MANAGEMENT

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Papers for publication are selected based on their relevance clarity, topicality, the extent to which they advance knowledge and their potentials of stimulating further activity, research and development.

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DURATION OVERRUN OF U.B.E CONSTRUCTION PROJECTS: CASE STUDY OF KOGI STATE, NIGERIA

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ABSTRACT *This paper examined the time management among the local building contractors. A case study of 42 units of U.B.E. block of three classrooms with office, store and V.I.P. toilets was examined. The planned and actual completion time was compared using chi-square. The result shows X^2 value of 14.152 and critical value of 22.362, meaning that, there is no difference in the average completion time of the projects. The study revealed that on the average, it took a contractor 9 months to complete the project which was planned for three months. Hence, using time criteria, the project appears to be behind the initial planned schedule. The percentage overrun for the planned projects was 309%. Also it was observed that the non-inclusion of severe penalty clauses in the terms / conditions of contracts, the use of inexperienced contractors and the non involvement of the professionals, especially Quantity Surveyors in the management of the projects are the main causes of time overrun. The study recommended open tendering for all Government building projects and the inclusion of penalty clauses in the condition/terms of contract to check-mate the time overrun.*

Key words: time overrun, local building contractor, duration.

INTRODUCTION

The classroom construction project is a component part of the Federal Government Universal Basic Education Programme. A unit of the school is made up of 3 classrooms of adequate spaces, a sizable office, a store and three separate Ventilated improved pit (V.I.P) toilet designed to accommodate two compartments. Implementation and construction of the projects, were carried out by both Federal and State Governments, while the Federal Government financed the entire projects. To ensure efficient delivery consultants were appointed (Fig 1). The state consultants are the consultancy services unit of the University served as consultant to two states. The main duty of the consultants as stated in the U.B.E. Guidelines for Implementation of Primary School Building (2001) was "To ensure timely progress of work at site and full compliance with the accepted project scheduled". Though the schedule was not provided, the maximum period

from the commencement to completion and handing over was fixed as twelve (12) weeks. The projects were expected to be commissioned immediately after the handing over activities. General considerations were given to regional differences in prices (see the appendix) and the fact that most of the sites are situated in very remote areas. Given the relative robustness of the contract sum, it appears reasonable to expect that timely completion would be achieved. The fact that the projects subsequently underwent a time overrun suggests that other factors apart from adequacy of contract sum were at work. Lawal (2001) observed that it is increasingly becoming a tradition for the construction projects in Nigeria to have excessive time overrun. This view was supported by Mbachu and Olaoye (1999) as they rightly observed that the effect of delay in construction projects could be enormous as they seriously stultify the growth and viability of the industry. Where a

project experiences a time overrun, it is to be expected that a consequential overrun in budgeted cost will also be present. This is because the time taken to complete the project is a relative measure of the cost of completion of project. The problems of local contractors in Nigerian construction industry, which include duration overrun has been exhaustively discussed. Murtala (1998), Izam et.al (2000) identified the following as some of the problems.

1. Only one type of project organization/ procurement system (traditional/conventional approach) tends to be used for most projects.
2. Defects in the system of awarding contracts. Open tender, which supposed to promote healthy competition among the

contractors, is often abused; hence doubtful and inadequate contractors get the award.

3. Lack of understanding and articulation of contract conditions.

Standard Form of Contract for Building and Housing Project in Nigeria (SFBCN) (1990) provides for a contractor to state the duration for carrying out the proposed works and submit a progress chart for the client's approval. Also the "Damage for non-completion" clause 24 of J.C.T. (1980), which recommends payment to the client as a result of non-completion to time, but it is rarely applied. This paper examines time performance of the U.B.E. contractors in Kogi State, one year after the commencement of the classroom Building projects.

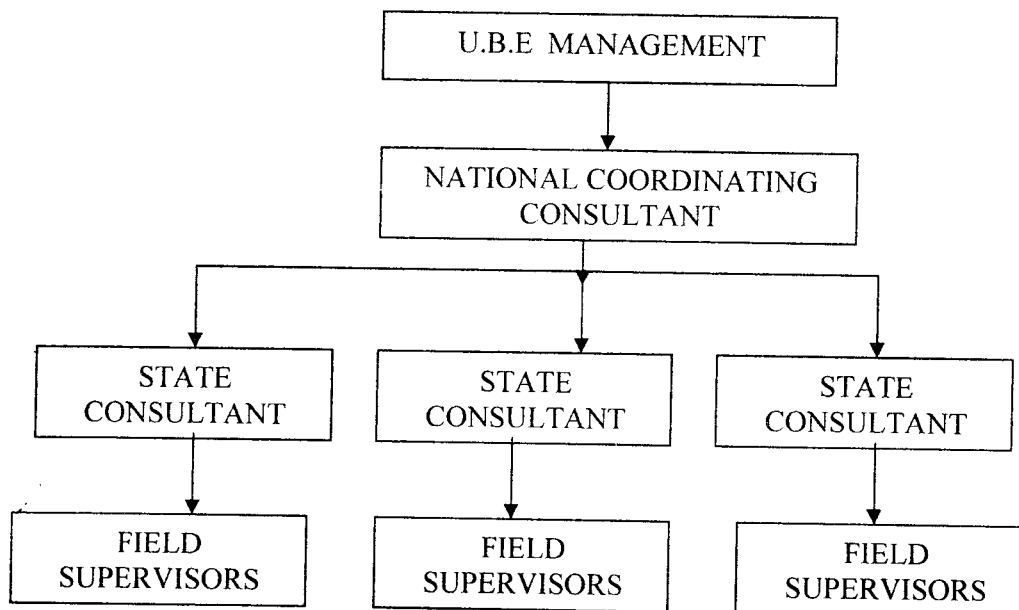


Fig 1: Structure of the field supervision for U.B.E classroom projects.

Source: Field work

A case study of 42 classrooms Universal Basic Education (UBE) projects (first phase) awarded in April, 2001 in Kogi State through the traditional/conventional method was carried out.

The contractors were given the Drawings and Bill of Quantities. In order to ensure successful execution of the projects, an advanced payment of 30% of the contract sum was paid to all participating contractors on presentation of a credible and acceptable bond, to enable them purchase the basic materials. The contract is firm priced and the stage payment arrangement made is shown in (Table 1).

METHODOLOGY

Data on class room construction projects were collected from FUTMIN CONSULT (the state consultant for Niger and Kogi states). These were supplemented with questionnaire and personal interview with the field supervisors and contractors. For simplicity and homogeneity of the results, only 31 Federal Government awarded projects were considered and out of this only 14 completed as at April 2002 were analyzed and used to find the average completion time using chi-square. Both data and results are presented in Table 11. It is assumed that the site conditions and location from the main cities are the same and that all contractors build to the same:- (1) specifications, (2) work environment, (3) quality of labour, (4) site.

DATA ANALYSIS CHI-SQUARE χ^2

A study was carried out to determine the mean completion time for 14. U.B.E projects completed within the first one-year. Data were collected on planned and actual completion time. The result shows χ^2 Value of 14.152 less than critical value 22.362. H_0 accepted (There is no significant statistical differences in the mean completion time of U.B.E projects completed within the first one year of the studied projects).

FINDINGS

The study reveals that the earliest time a contractor finished his work was 28 weeks against the 12 weeks contract period. This may be due to the following reasons.

1. Lateness in commencement of works by the contractors
2. Some of the contractors got the contract indirectly (i.e buying from the original allottee).
3. Delay in honouring certificates.
4. Inadequate project planning which lead to redesigning of projects during the second phase awards.
5. Though part of the functions of the consultants as state in the U.B.E Guidelines for the Implementation of Primary School Building (2001) is "to recommend necessary and urgent action against erring contractors in the interest of the success of the project". This has not been given desired attention by the parties as most of the erring contractors still hold contracts one year after the awards.
6. The contractors appear not to be conscious of 12 weeks duration, as virtually, none of the sites investigated has a progress chart (programme of works) nor do they have qualified professional among their staff.

RECOMMENDATIONS

1. Contract provision for a project of national importance such as U.B.E class room projects should include penalty clause for non-completion, like clause 24 JCT (1980) to checkmate the non-chalant attitude of the contractors particularly now that Nigeria is in a democratic regime, where timely implementation of Government programmes are very vital to good governance.
2. The contracting organizations working with the Local and State Government should be managed by a professional in construction, who will help interpret the drawings, conditions, and terms of contracts and provide good management for the project.

3. To redeem the battered image of building industry as avenue for sharing “national cake”, open tendering as recommended at the on set of

this administration should be strictly used for all Government projects. The known cases of indirect purchase of contract should be punished.

Table 1: Stage Payment Arrangement for U.B.E Classroom Project

Stage payment	Progress of works	% of work	Payment	Cum. payment
Week 1	No work	0%	30%	30%
Week 6-7	Site clearance	1%	45%	75%
	Excavation	3%		
	Conc. Footing	4%		
	Block work in foundation	5%		
	DPC level	10%		
	Blk wk. to window level	15%		
	Blk wk. to lintel level	20%		
	Lintel level	25%		
	Roofing level (head course)	30%		
	Roofing trusses in place	40%		
	Roof covering completed	45%		
	Ceiling completed	50%		
	Doors & Windows fixed	55%		
	Plastering flooring	65%		
	Painting (1 st stage)	70%		
	Painting completed	75%		
	External works	75%		
Week 11-12	Tidying-up/handing over	100%	25%	100%

Source: FUTMIN CONSULT (2001)

Table 2: Chi-Square Results for the Fourteen projects analyzed

Observed value (O) = actual competition period in (week)

Expected value (E) = arithmetic average of observed value

Primary School in the (L.G.A)	Actual completion time in Week	Expected competition time (E)	(O-E) ²	$\frac{(O-E)^2}{E}$
A	32	37.14	26.42	0.711
B	32	37.14	26.42	0.711
C	32	37.14	26.42	0.711
D	32	37.14	26.42	0.711
E	32	37.14	26.42	0.711
F	41	37.14	47.06	1.267
G	36	37.14	1.30	0.035
H	44	37.14	1.30	0.035
I	28	37.14	83.54	2.249
J	44	37.14	47.06	1.267
K	44	37.14	47.06	1.267
L	44	37.14	47.06	1.267
M	44	37.14	47.06	1.267
N	32	37.14	26.42	0.711

$$d.f = n-1=14-1=13:$$

$$\alpha = 0.056$$

$$X^2 = \sum \frac{(O - E)^2}{E} = 14.152: \text{Critical } X^2 \text{ value} = 22.362$$

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