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EVALUATION OF CASH FLOW PLANNING PRACTICE FOR BUILDING PROJECT DELIVERY IN ABUJA, NIGERIA

By

*** Jibrin Abdullahi Mairiga, *Halima O. Abubakar,**

***Umar Yusuf Danazumi, *Jibrin Musa**

*** Department of Building Technology, Federal Polytechnic, Nasarawa**

ABSTRACT

The research assesses the distribution of cash flow planning which is necessary for adequate cost control and effective cash management with the objectives of examining the existing cash flow planning concept, determine the factors hindering cash flow planning techniques and the strategies that will enhance the steady flow of cash to the contractors in Abuja. A field survey was conducted with the use of structural questionnaire, 113 questionnaires were distributed out of which 78 were returned, 55 not returned. Relative important index (RII) was used to analyze the data collected from the respondents (professionals). The research observed that the existing cash flow planning concept are mostly cash flow prediction and project schedule information which are rated 1st and 2nd with the corresponding RII values of 0.77 and 0.78. Estimating error and problem with supplier are the two factors hindering efficient cash flow planning format to the contractors in Abuja rated 1st and 2nd with the RII of 0.81 and 0.80. The research also found out the many contractors in Abuja uses accuracy of estimate at tender stage and proffer cash flow management as the strategies that enhance cash flow in Abuja. The research concludes that appropriate cash planning is necessary for adequate cost control and efficient management include considering the risks and uncertainties of the construction project.

Key words: Cash Flow, Cash Flow Planning Practice, Building Contractor

1.0 Introduction

According to Sullivan, Kashiwagi, and Chong (2009), construction industry has been an important factor in maintaining economic growth and recovery. Compared to other industries, this one has a proportionally higher number of struggling businesses. According to Tarek and Yaqiong (2014), the primary causes are insufficient cash resources and the failure to convince creditors and lenders that the shortage is only temporary. According to Arditi and Polat (2010), building construction projects are renowned for their high risk and uncertainty, particularly during the cost estimate phase, when the amount of project information is extremely limited.

According to Khalil et al (2012), the most difficult and crucial issue contractors face during the current financial crisis is securing sufficient cash flow at all phases of construction project implementation. Cash flow planning appears to be becoming an important tool for managing, controlling, and monitoring construction projects in order to guarantee uninterrupted cash flows throughout the project's execution (Richard, 2010). Clients and contractors alike must consider cash flow when financing construction projects. It travels through the client, the contractor, the subcontractor, and the suppliers. Similarly, accurate cash flow planning is essential for any building contractor's survival at all work stages (Banki and Esmaeeli, 2008).The balance of cash received and spent on a project over a specific time period is also known as cash flow (Terek et al.,2014).There are three main reasons why cash flow needs to be effective and sufficient: to cover costs associated with overhead, labor, and materials; to carry out construction tasks in accordance with schedule; and to lessen the financial burden (Khalil et al.,2012).

1.1 Statement of the Problem

Today, major national strategies and policies are made possible in large part thanks to the construction industry. However, the industry has been slammed for a long time and linked to shoddy work and abandoned projects (Munaaim,

and Abdul-Rahman, 2006). According to Olusegun, et al., (2018), cash flow is considered the most important source for any building contractor. It is the construction industry's lifeblood. Poor cash flow planning has led to poor project and operational performance by the majority of contractors, frequently resulting in construction delays, increased costs, dissatisfaction among stakeholders, litigation, and the financial collapse of construction companies (Olusegun, et al.,2018).In the construction industry, the rate at which construction projects are abandoned due to contractor bankruptcy has steadily increased over time (Olusegun, et al.,2018).Because of this issue, it is necessary to investigate the various strategies employed by these contractors to plan their cash flows and maintain control over the funds that are available.

According to Dan Moskowitz (2015), building contractors also face difficulties in making financial decisions because of the ambiguity and uncertainty surrounding anticipated cash flows. According to Halim, et al., (2010), this situation has created a negative impression regarding the building contractors' capacity to carry out construction projects. According to Baloi and Price (2004), construction projects' poor cost performance has been a major source of concern for both the client and the contractor.

According to Mbachu and Nkado (2004), cost overruns could have a negative impact on the industry as a whole, leading to the abandonment of projects, a decrease in construction activity, a negative reputation, and the inability to secure project financing or the need to do so at higher costs due to increased risks. Before beginning a construction project, cash flow planning is a practice that building contractors are reluctant to implement. However, in order to maximize profits, contractors must be encouraged to implement cash flow planning. This study aims to evaluate building contractors' cash flow planning with the goal of increasing construction productivity and expediting project completion in Abuja, Nigeria's Federal Capital Territory. The goals are as follows (:i) To evaluate the current cash flow planning method utilized by building contractors in Abuja, Nigeria's Federal Capital Territory.(ii) To determine the factors that prevent building contractors in Abuja, Nigeria's Federal Capital Territory, from carrying out efficient cash flow planning.(iii) To investigate building contractors' methods for improving cash flow planning in the study area.

2.0 Literature Review

The financial risks in building project development come from several sources, encompassing the need for intensive capital, typically occurring in many projects, possible delays on client payments and the exposure to interest rate changes during the period between the contract closing and the end of the payment plan (Paulo, et al., 2001).

Amongst all the construction resources, the cash flow planning is one of the most critical tasks since most contractors overlook it in their construction business due to lack of liquidity and inadequate planning towards the cash flow of their construction business (Potts, 2008). In most contracting firm, the major method of financing the cash flow is cash flow forecasting. This method enables the timing of financial requirement to be calculated in advance and ensure that the finance needed is enough for further unpredictable consequences (Odeyinka, et al., 2008).

2.1 Modes of Financing Cash Flow for Contractors

Cash flow is the plan of predicting the future cash requirement of a project, all attitudes about the prospect of the project should be taken into account while developing the flow (Nurudeen et al., 2016). An overdraft account is a convenient and flexible way of covering building contractor’s day to day spending and improving his cash flow. Normally, there is a maximum overdraft limit which can be imposed on an overdraft account. In effect overdraft financing depends upon the pattern of cash flow over time (Arbiti, 2000).

2.2 Factors Influencing Cash Flow Planning

The following are the list of key factors influencing cash flow planning of building contractors in Nigerian construction industry;

2.2.1 Late and Non Payment

Paymasters' poor financial management, the contractor's local attitude, and underpayment of

certified amounts are all potential contributors to the contractor's situation of late or non-payment. Mohammed et al., (2006) affirmed that these factors will result in accounting issues, tax computation, and a negative perception of industry players, which will affect a company's growth. They will also make it hard for the main contractor to run the business, which will require a lot of cash, and there is a chance that subcontractors will sabotage the project because they haven't been paid.

2.2.2 Change of Design from Client, Consultant or Architect

Any changes in design or specification will automatically change the expected quantity of nature of the bill of quantity items.

2.2.3 Consultant's Instructions

Delays in agreeing to any changes in specification, quantity and materials as may be ordered by the consultant.

2.2.4 Delays in Settling Claims

A construction claim tends to have negative connotations on the construction industry, and claims scenarios on projects usually result in strained relations between the contracting parties.

2.2.5 Inclement Weather Condition

Unexpected action in weather condition cause any project reworks due to rains, hurricanes etc. leading to project delays and having a significant effect on the industry performance.

2.2.6 Problem with the Foundation

From the early start of the project at the excavation problems may be initiated that can make a significant effect on the project duration and cost like unexpected sewer pipeline or electricity line or gas pipe etc., that wasn't on the infrastructure drawings. That requires conversion or removal of this line and that will require an extra cost and time.

2.2.6 Estimating Error

Estimating is the process of looking into the future and trying to predict project costs and resource requirements, it is one of the major process in the construction, and all other stages depend on its accuracy. So, any estimating error affects all the successive stages where the cash flow analysis stage is one of major component stages.

2.2.7 Level of Inflation

As inflation rises, every currency you own purchases a smaller percentage of goods and service. The value of any currency dies not stay constant during inflation period. The value of currency is observed in terms of purchasing power, which are the real, tangible goods that money can buy. When inflation jump up, there is a decline in the purchasing power of money.

2.2.8 Changes in Interest Rates

Interest is essentially a rental, or leasing charge to the borrower, for the asset's use. The changes in the interest rate affect the construction industry, when it increases the attraction to investment decreases so the government tries to hold it still.

2.2.10 Late Payment from Client

This causes a shift in the cash inflow profile and as consequences it will change the net cash profile which will differ from expected profile and surprise the contractor with a new one that he cannot handle or over the contractor capabilities.

2.2.11 Bankruptcy of Subcontractor

When the subcontractor is declared bankrupt, which means he is no longer working on his job. The general contractor therefore lost the cash paid to the subcontractor and needs to assign the construction work to another one which cause a loss in cash and time.

2.2.12 Equipment Breakdown

Any breaking down of the plant and/or equipment at the construction site affects the project duration and sometimes it can cause a fine which will affect the cash flow to the building contractor.

2.3. Strategies for Enhancing Cash Flow Planning Of Building Contractors

Dan, 2015, identified some strategies on how a contracting company can improve its cash flow in order to ensure it remains profitable from inception to finish stages. They are as follows;

1. Proper Cash Flow Management
2. Correct Accuracy in Tender Stage
3. Frequent Monitoring of Cash Flow
4. Preparation of Ideal Job Schedule

5. Establishment of Good Relationship with Construction Team
6. Project Future Cash Flow
7. Spread out Costs
8. Shop for the best prices 9. Approach Payroll Correctly
10. Process change orders quickly
11. Send Automated invoices immediately
12. Accept electronic payments
13. Avoid Over-billing and Under-billing
14. Train the project manager on cash flow management
15. Set a Goal for Day Sales Outstanding

3.0 Research Methodology

This study focuses on the evaluation of cash flow planning for building contractors in Abuja, Federal Capital Territory (FCT) of Nigeria. The target population for this study for this study comprises of the registered building contractors who are actively practicing in the study area. Information about the registered building contractors involved in the production and management of building construction project was obtained from the Cooperate Affair Commission in Abuja. The list formed the basis for consultation and selection of sample for this study.

3.1 Data Collection

For this research study, a purposive sampling approach was used to select respondents with experience in building construction management and with depth knowledge of cash flow planning for building contractors in Abuja, FCT Nigeria. The instrument that was used for collection of primary data through field survey is a structured questionnaire. The questionnaire uses Five-point Likert-type scale (as use by Abubakar, 2012; Oladapo, 2007) to measure a range of views from "Very weak" to "Very strong", "Very low" to "Very high", etc as the case may be. The rating to be use would be assign a numerical scale of 5 for highest and 1 for lowest, where 1 = Never, 2 = Less Often, 3 = Fairly Often, 4 = Quite Often 5 = Very Often. The research used relative important index (RII) to observe the nature of cash flow planning adopted by the contractors and respondents and how effective is used to attain an efficient and successful project delivery.

3.2 Sampling Size

The following equation was used to determine the sample size

$$n = \frac{N}{1 + Ne^2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where n is the sample size or number of sample, N is the total population target and e is the acceptable sampling error or error tolerance.
For this research, the 95% degree confidence level corresponds to e =0.05. The population target was chosen to be (N) 200 samples. Therefore, the sample size is calculated as follow

$$n = \frac{200}{1+(200*0.05^2)} = 133.33$$

The sample size is rounded up to 133. This means that the sample required is 133 from the population to reach 95% confidence level.

3.3 Data Analysis

The research used relative important index (RII) to observe the nature of cash flow planning adopted by the contractors and respondents and how effective is used to attain an efficient and successful project delivery. The relative index techniques formula used:

$$RII = \sum \frac{5n5 + 4n4 + 3n3 + 2n2 + 1n1}{5[n5 + n4 + n3 + n2 + n1]}$$

Where Nx = the number of respondent agreeing with the x choice. Thus;

N1 = no. of respondents for "Never", N2 = no. of respondents for "Less Often"

N3 = no. of respondents for "Fairly Often", N4 = no. of respondents for "Quite Often"

N5 = number of respondents for "Very Often".

Presentation shall be in the form of bar char and tables.

4.0 Discussion of Findings

A total of 133 questionnaires were distributed to the respondents out of which 78 were properly fill and returned, 55 were not returned. Therefore, a total of 78 were used for the analysis.

Figure 1 below is a bar chart describing the distribution of respondents based on their profession. It is clearly seen that Quantity surveying tops the list with 23.1% representation, followed by Builder with 20.5%, followed by Architect with 19.2%, civil engineering 16.2%, Services engineers 15.4 & and other 5.1%.

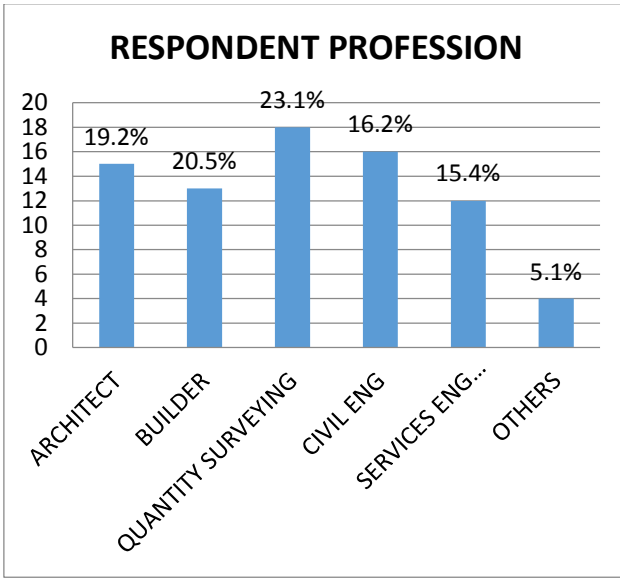

Figure 1: Profession of Respondents

Figure 2 shown below is describes the distribution of the respondents based on the membership profession in the Nigeria construction industry, where MNIOB tops the list with 35.5%, followed by MNIA with 23.1%, MNIQS 19.2%, MNSE 12.8% and others 9%.

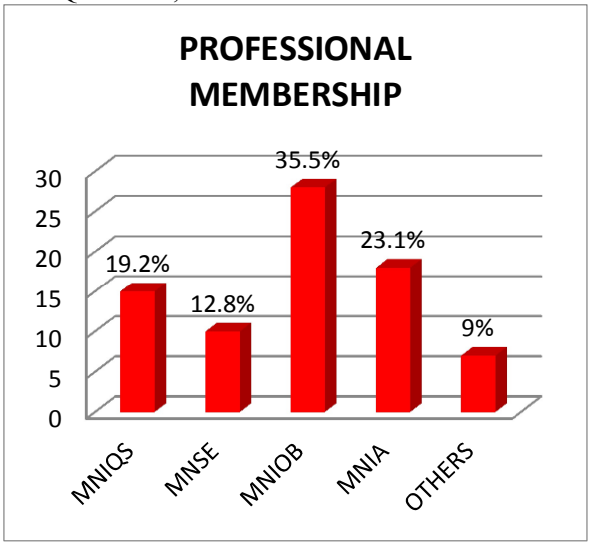

Figure 2: Membership Profession of Respondents

Table 1: Existing Cash Flow Planning of Building Contractors

S/N	Present Practice Of Cash Flow Planning Concept	No. Of Respondents In Ordinance Scale					Total	Relative Index (RI)	Rank
		5	4	3	2	1			
1	Cash Flow Prediction	34	16	19	8	1	78	0.79	1st
2	Cash Flow Analysis & Work Program	27	20	21	7	3	78	0.76	3rd
3	Statement Of Project Cash Flow	25	28	11	6	8	78	0.74	4th
4	Project Schedule Information	34	19	10	12	3	78	0.78	2nd
5	Bank Overdraft	12	30	17	9	10	78	0.66	7th
6	Construction Guarantee Fund	19	28	5	20	6	78	0.69	6th
7	Value Approach (Based On Project Value)	30	11	20	13	4	78	0.73	5th

Source: Field survey, 2022

From Table 1, the major methods adopted for cash flow planning by building contractors in Abuja is cash flow prediction with the overall RII value of 0.79 (ranked 1st), and is also evident from the table that project schedule information with an RII value of 0.78 higher (ranked of 2nd) than cash flow analysis & work program with an overall RII value of 0.76 (ranked of 3rd). This followed by

statement of project cash flow with an RII value of 0.74 (ranked 4th). The value approach (based on project value) has an RII value of 0.73 ranked 5th while the adoption of bank overdraft, construction guarantee fund in cash flow planning ranked lowest with an RII value of 0.69 and 0.66 (ranked 6th & 7th) respectively.

Table 2: Factors Hindering Effective Cash Flow Planning

S/N	Factors Hindering Efficient Cash Flow Planning format	No. Of Respondents In Ordinance Scale					Total	Relative Index (RI)	Rank
		5	4	3	2	1			
1	Late & Non payment from client	20	13	18	21	6	78	0.65	7th
2	Consultant's Instructions	19	18	8	25	8	78	0.64	8th
3	Delay in Settling Claims	26	32	10	8	2	78	0.79	3rd
4	Estimating Error	29	30	11	8	0	78	0.81	1st
5	Level of Inflation	21	8	19	16	14	78	0.62	9th
6	Changes in Interest Rates	14	19	9	20	16	78	0.59	10th
7	Equipment Breakdown	15	24	21	12	6	78	0.68	6th
8	Inclement weather condition	19	32	23	3	1	78	0.77	5th
9	Bankruptcy of subcontractor	9	22	18	23	6	78	0.57	11th
10	Problem with Supplier (Late delivery of material)	31	25	15	5	2	78	0.80	2nd
11	Change of design from client, consultant or architect	24	33	12	6	3	78	0.78	4th

Source: Field survey, 2022

The findings in table 2 above, reveals that estimating error with overall RII value of 0.81 was ranked 1st. It is considered to be the major factor hindering efficient cash flow planning of contractors in the Nigerian construction industry. It is followed by problem of supplier (late delivery of material), delay in settling claims, change of design from client, consultant or architect and inclement weather condition with the RII value of 0.80, 0.79, 0.78, & 0.77 (ranked 2nd, 3rd, 4th & 5th) respectively. The respondent considered the other factors like equipment breakdown, late & non-payment from client, consultant's instruction, level of inflation, changes of interest rate and bankruptcy of subcontractor with the RII value of 0.68, 0.65, 0.64, 0.62, 0.59 & 0.57 (ranked 6th, 7th, 8th, 9th, 10th & 11th) respectively.

Table 3: Cash Flow Planning Enhancement Strategies for Building Contractors

S/N	Strategies for Enhancing Cash Flow Planning of Building Contractors	No. Of Respondents In Ordinance Scale					Total	Relative Index (RI)	Rank
		5	4	3	2	1			
1	Proper Cash Flow Management	20	39	8	11	0	78	0.77	2nd
2	Accuracy of estimate at Tender Stage	26	30	9	15	0	78	0.78	1st
3	Frequent Monitoring Of Cash Flow	15	29	4	22	8	78	0.65	8th
4	Preparation Of Ideal Job Schedule	34	7	25	12	0	78	0.76	3rd

5	Relationship With Construction Team	22	8	19	28	1	78	0.66	7th
6	Project Future Cash Flow	12	21	18	19	8	78	0.63	10th
7	Spread Out Cost	17	13	23	19	6	78	0.64	9th
8	Shop For The Best Prices	19	11	26	21	1	78	0.67	6th
9	Approach Payroll Correctly	11	10	19	26	12	78	0.55	15th
10	Process Change Orders Quickly	10	19	17	21	11	78	0.59	14th
11	Send Automated Invoices Immediately	14	28	19	14	3	78	0.69	4th
12	Electronic Payments	13	12	21	25	7	78	0.60	13th
13	Training of Project Manager On Cash Flow Management	15	14	19	20	10	78	0.61	12th
14	Avoidance of Over-Billing And Under-Billing	18	16	24	19	1	78	0.68	5th
15	Professional Assistant	14	17	16	26	5	78	0.62	11th

Source: Field survey, 2022

From table 3 above, the research shows that accuracy of estimate at tender stage was ranked 1st, with an overall RII value of 0.78 as the most effective strategies for enhancing cash flow planning of building contractors in the Nigeria construction industry. Proper cash flow management was rated 2nd with RII value of 0.77 and preparation of ideal job schedule was rated 3rd with a corresponding RII value of 0.76. The other strategies were valued below RII value of 0.70 which indicates low frequency. Overall, these results show that a highly effective level of importance is attached to the correct accuracy in tender stage, proper cash flow management, and preparation of ideal job schedule, which further indicates a high level of usage of the strategies for enhancing cash flow planning of building contractors in Nigerian construction industry

5.1 Summary

This research work also highlights the strategies for enhancing cash flow planning of building contractors. The most frequently adopted cash flow planning concept used by building contractors is Cash Flow Prediction with overall RII 0.79 ranked 1st and the lowest is Bank overdraft with RII 0.66 ranked 7th.

Estimating error, Problem with supplier and Delay in settling claims with RII score 0.81, 0.80 and 0.79 (ranked 1st, 2nd & 3rd) respectively constitute the highest factors hindering effective cash flow planning of a building contractors. 36percentage (36%) of the respondents responded that they have little knowledge of the cash flow planning of their contracting firms, 33% don't have any knowledge of cash flow planning of their company while 31% claimed to have adequate knowledge of cash flow planning of their firms. Therefore, this shows a low awareness of cash flow planning in the Nigeria construction industry.

5.2 Conclusion

The research finds and concludes that, famous existing cash-flow planning concept practice by the contractors is cash flow prediction, project schedule information and cash flow analysis and work programme. The research also concludes that estimating error, problem with supplier and delay in settling claims hinder the cash flow planning of building contractors in the industry which will automatically cause construction delay and lower construction productivity. Accuracy of estimation, proper cash flow management and preparation of ideal job schedule was predetermined to be the major items of consideration in the contractor cash-flow planning format.

5.3 Recommendations

Base on the results from this research work, the following recommendations were given to the building contractors in Nigerian construction industry as regards the effective use and implementation of cash flow planning for project execution.

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i. There is need for increased awareness on the importance of adopting cash flow planning by building contractors towards increased productivity and efficiency in Nigeria construction industry. This can be achieved through the participation of relevant professional bodies.
ii. Much focus should be placed on the major factors hindering effective cash flow planning of construction project in order to enhance construction performance and generate confidence between stakeholders within the construction industry.
iii. Regular review of strategies for enhancing cash flow planning of building contractors should be carry out to manage project cost and related challenges.
iv. Contracting firms can also take advantage of ICTS to automate their cash flow planning concept and cost information management system.
v. Contracting firms should plan for more access to finance sourced for at regular interval to reduce the problem of bankruptcy which can leads to abandonment of construction projects.
vi. There should be a proper coordination and communication between various parties working on the project in order to improve management control problems and reduce unnecessary obstacles.

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