ABSTRACT-This study examines the prospects and problems of Project Management Consultants in enhancing the Millennium Development Goal in lieu of Cost, Time and Quality of housing projects. Basic literature was reviewed and survey questions were administered while the percentages mean score, critical index and Chi-Square method at 5% level of significance of analysis was used to test data. Among the roles played by project management consultants to enhance housing for the achievement of the millennium development goals are preparation and presentation of project reports to clients periodically \((X_n=4.15, \text{Critical Index}=0.2769)\), identification of clients objective \((X_n=4.10, \text{Critical Index}=0.2735)\) and coordinating the preparation of as-built drawings for the clients \((X_n=4.10, \text{Critical Index}=0.2735)\). The Chi-Square test analyses indicated that the calculated value obtained was \((\chi^2 =139.9)\) against the table value of \((\chi^2=16.919)\) for time overrun, and calculated value obtained was \((\chi^2 =128.97)\) against the table value of \((\chi^2=14.067)\) for cost overrun which revealed that there is significant relationship between the performance of Project Management Consultants and the Cost/Time Duration of MDGs Projects in Abuja FCT. Therefore, Delay by client \((X_n=4.41, \text{Critical Index}=0.2974)\), Corruption \((X_n=4.31, \text{Critical Index}=0.2870)\) and Variation and Fluctuation \((X_n=4.18, \text{Critical Index}=0.2786)\), are factors to be considered during the execution of a project. The study advocates adequate attention to determinants of construction Cost, Time and Quality at the design stage, provision of sufficient finance as at when due and proper reconciliation of client’s and designer’s requirement to prevent duration overrun of such significant national projects.

I. INTRODUCTION

According to [19] there is a general consensus among the various scholars that development will increased capacity of people to have control over material assets, intellectual resources and ideology; and obtain physical necessities of life (food, clothing & shelter), employment, equality, participation in government, political and economic independence, adequate education, gender equality, sustainable development and peace. However, UNDP in its 1998 report documented that the reality of the world is that many countries are underdeveloped with precarious development indices. More than 1.2 billion people or about 20 percent of world population survive on less that US $1 per
day while Nigeria, which was one of the richest 50 countries in the early 1970s, has retrogressed to become one of the 25 poorest countries at the threshold of the twenty first century. The average annual percentage growth of GDP in Nigeria from 1990 -2000 was 2.4. This is very poor when compared to Ghana (4.3) and Egypt (4.6) [19]. In order to address the problem of poverty and promote sustainable development, the United Nations Millennium Declaration was adopted in September 2000 at the largest ever gathering of heads of heads of States committing countries both rich and poor to do all they can to eradicate poverty, promote human dignity and equality and achieve peace, democracy and environmental stability.

Construction contributes some 7% of the GDP in most countries and up to 12 to 14% in Japan and Korea [11] while in developing countries according to [29] investments in construction projects could be as high as 50-60% of national budgets. In Nigeria, the construction industry was the dominant contributor to the nation’s GDP in the 1980s, accounting for about 70% of the GDP (Planning Committee on the National Construction Policy, 1989). This made the industry very strategic to Nigeria’s developmental efforts. Unfortunately, however, the industry has been bedeviled by a combination of low demand and consistent low productivity and poor performance over the years [28], [26], [1] & [7]. This has reduced its contribution to the national economy to a mere 1% of the GDP in 2002, and the years after; (African economic outlook, 2004). However, as important as this industry is, or may be, it is rather sad to note that several authors have decries the poor performance of the industry and its concomitant effect on the cost and quality of the product of the industry [20] & [21].

The complexities and multidisciplinary nature of the construction industry in Nigeria requires many consultants be put together to meet the time, cost, quality, safety, aesthetic, environmental dimensions, performance and the expectations of the client to effect project management [30]. In line with this, a number of improved contract management system have emerged over the years. These include Design and Build, Package Deal, Management Contracting, Turnkey, among others to replace the Traditional Contract Method in which the architect was recognized as the independent designer of buildings and the manager of the construction process. These alternatives have succeeded in bringing the activities of the design and construction teams together, to bring about build-ability and maintainability; Hence the project management option is considered as more appropriate to provide a frame work for design organization and contract administration which can suit a particular project and conditions for its execution.

II. REVIEW OF PROJECT MANAGEMENT IN NIGERIAN CONSTRUCTION INDUSTRY

In Nigeria today, most construction project are being completed at costs much higher than initial estimated [16]. Earlier studies by [27], [31], [13] and [33] have indicated that initial cost estimates on construction projects in Nigeria can hardly be relies upon by clients. Ref. [16] assert that the scenario is that in which clients are compared to pay for unbudgeted increase in projects or abandon the project out rightly. The study of [3] as cited by [35] review that the major criticism facing Nigerian construction industry is the growing rate of delays in project delivery and project delays leading to cost and time overrun, for example, through additional overheads and potential claims between clients and contractors [12]. There are also of the opines that project should be judge as
successful if the project is completed on time, within budget, without accident, to the specified quality standard and overall client satisfaction. [22] suggest that overall effectiveness on construction sites may simplistically be attributed to three main dimensions; quality, in terms of accuracy of jobs, workmanship, degree of skills; quantity in terms of productivity, time constraints, ability to meet planned schedule; and resources in terms of availability of materials, tools and equipment and manpower.

Ref. [9], defined project management as the overall planning, implementation, control and co-ordination of the project from inception to completion to meet the defined needs to the required standards within time and to budget, a view also shared by The Chartered Institute of Building in the United Kingdom [10]. Ref. [30] is of the same view that project management is initiated to accomplish specific goals of the project. Ref. [23] added that project management is the art and science of mobilizing and managing people, materials, equipment and money to complete the assigned project work on time within budgeted cost and specified technical performance standards. According to [12] a project is successful from the point of view of management, if it is completed on time within budget and free from accident.

In the context of construction industry, a consultant is defined by the [36] as an individual or organization engaged to:
- provide expert analysis and advise which facilitates decision-making
- perform a specific one off tasks or set of tasks
- Perform tasks involving skills or perspectives that would not normally be expected to reside within the departments or agencies of the client.

Therefore the project management consultants’ main responsibility is to deliver the project end-time within budget and time, in accordance with technical specifications, and in fulfillment of the project’s objectives. It is in view of this note that [32] suggests that the project management responsibility include; planning project activities, tasks and end result, including work break down, scheduling and budgeting, organizing, selecting, and placing the project team, coordinating tasks and allocating resources, monitoring project status, identifying technical and functional problems and solving them directly or knowing where to find them. The project manager should also have some level of experience and also be ethical in carrying out his responsibilities according to the ethics of his profession [32]. The contribution of the construction industry to national economic growth necessitates improved efficiency in the construction industry by means of cost effectiveness and timeliness which would certainly contribute to cost saving for the country as a whole [3]. Ref. [14] added that there is a greater awareness of cost because of the prevailing economic conditions which have placed several restrictions on the availability of capital, making it essential to ensure that whatsoever the amount that is available is judiciously used to secure the best economic advantage. This idea according to [25] is also shared by the contractors and thus necessitates that project be designed and executed through improved and refined cost control tools to give maximum value for money.

However because of the huge amount of resources required in building construction, this demand that the professional advisers accept cost as an element in design and that they should provide a balanced cost in all parts of the building as well as an accurately forecast overall cost [18]. Ref. [17] further stated that the effect of this increase is that as construction works progress, most clients
especially government ministries and institutions are compelled either to pay for this unbudgeted increase or abandon the project out rightly. This can only be controlled by the use of the right procurement method [15]. The study by [15] reviews that the use of project management procurement method will reduce or avoid the problem encountered which led to extension of time and cost of project.

Ref. [6], [9], [2], [24], [5] and [23] all envisaged that the project managers are trained and competent to carry out the following functions:

a. Identify the client’s objectives and priorities
b. Coordinate and manage all pre-contract services
c. Establish control systems and execute value management exercise on production information.
d. Conduct the approval of building drawings and other statutory consents.
e. Conduct tender evacuation and selection of contractor(s) and nominated sub-contractor(s)
f. Coordinate contractor’s site possession

A. Types of Project Management

According to [4] there are essentially two type of project management which include.

A. Types of Project Management

According to [4] there are essentially two type of project management which include.

Executive Project Management

Executive project manger acts in an executive capacity on behalf of the client, and handles the formation of the project team from conception to implementation through completion of the project.

The objectives of this type of project management process are those of the client, and the role of the project manager is geared towards ensuring that the project organization works to achieve the client’s objectives. Similarly, decisions taken during the process should be taken with the sole purpose of achieving the client’s objectives. In this note the Executive Project Management is when the Project Manager is vested with the powers to appoint the project consultants and Contractors.

Non-Executive Project Management

The non-executive project management is a direct opposite of the executive type of project management. The client in this case retains the decision making process and all executive powers on the project.

B. Research Hypothesis

b. Develop and prepare brief for a project on behalf of the client, taking cognizance of the client’s requirements and objectives
c. Conduct reconnaissance site survey
d. Establish a budget and an overall development program
e. Advice client on the appointment of other team members
f. Commission other consultancy services
g. Establish and manage integrated communication and project information systems

i. The Executive type and

ii. Non –Executive type
The following research hypotheses were tested.

(a) Ho: There is no significant relationship between the project management consultants practice and the cost of millennium development project in Abuja FCT.

(b) Ho: The performance of the project management consultants’ has no significant relationship with the time duration of millennium development projects in Abuja FCT.

III. METHODOLOGY

Detail reviews of relevant literature in the area of project management consultants in construction industry were carried out. Interviews were conducted through oral questions and questionnaire administered on the contractors and consultants who participated in the projects of the millennium development goals in Abuja FCT. The research presumes that the locations are true representation of the construction activities in Nigeria due to vast construction/ developmental activities going on in the area. Data were collected through the coordinating consultants in Abuja FCT. The final duration of each project and cost were collected and calculated from the date of commencement of the project to the practical handing over of the project by the contractor as reflected in the handing over form completed for each project investigated. Initial duration of six weeks was fixed by the client for every contractor.

A sample size of fifty firms (consultancy and contractors) situated in Abuja that undergo millennium development projects were sampled and a total of fifty 50 questionnaires were administered randomly among the firms and thirty-nine (39) questionnaire were received and used for the analysis. The data collected were analyzed with statistical method such as ANOVA and chi-square using computer software. Responses from questionnaires survey were analyzed using descriptive statistics. The mean score of factors responsible for time and cost overruns were ranked on a five point linker scale. The factors with the greatest mean was ranked the most significant contribution to time and cost overruns, and any factor having a mean score below 3.00 was considered not a significant contributor.

IV. ANALYSIS OF DATA AND IMPLICATION

Average Percentage Cost of Projects

Table 1 presents the factors that affect cost of millennium development project in Abuja FCT, the result indicates that Variation has the highest average percentage (Xn=4.41, Critical Index=0.2940) while Delay in getting imported materials has the lowest (Xn=3.64, Critical Index=0.2743).

In order to test hypothesis 1: this state that there is no significant relationship between the project management consultants practice and the cost of millennium development project in Abuja FCT. The chi square test was used at 5% level of significant. From the chi square test in Table 2, calculated value obtained was ($\chi^2 = 139.9$) against the table value of ($\chi^2 = 16.919$). It could be concluded they is a There is a significant relationship between the project management consultant practice and the cost of millennium development project in Abuja FCT. That means the use of project management consultants should be encourage in the construction industry to reduce the cost of project executed.

<table>
<thead>
<tr>
<th>Cost factors</th>
<th>score</th>
<th>Xn</th>
<th>Critical index</th>
<th>REMARKS</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td>Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S/N</td>
<td>Cost factors</td>
<td>fe</td>
<td>fo</td>
<td>(fe –fo)²</td>
<td>Total</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>Delay by client</td>
<td>168</td>
<td>117</td>
<td>51</td>
<td>2601</td>
</tr>
<tr>
<td>2</td>
<td>Variations</td>
<td>172</td>
<td>117</td>
<td>55</td>
<td>3025</td>
</tr>
<tr>
<td>3</td>
<td>Delay in payment</td>
<td>172</td>
<td>117</td>
<td>55</td>
<td>3025</td>
</tr>
<tr>
<td>4</td>
<td>Civil commotion</td>
<td>155</td>
<td>117</td>
<td>38</td>
<td>1444</td>
</tr>
<tr>
<td>5</td>
<td>Delay in getting</td>
<td>142</td>
<td>117</td>
<td>25</td>
<td>625</td>
</tr>
<tr>
<td></td>
<td>imported materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Architects instruction</td>
<td>146</td>
<td>117</td>
<td>29</td>
<td>841</td>
</tr>
<tr>
<td>7</td>
<td>Change in specification</td>
<td>164</td>
<td>117</td>
<td>47</td>
<td>2209</td>
</tr>
<tr>
<td>8</td>
<td>Bureaucratic bottleneck</td>
<td>168</td>
<td>117</td>
<td>51</td>
<td>2601</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>16,371</td>
<td></td>
</tr>
</tbody>
</table>

\[ \frac{\sum (F_e - f_o)^2}{F_o} = \frac{16,371}{117} = 139.9 \]

**NOTE**
If \( X_n \geq 3.0 \) (Accept), else \( X_n \leq 3.0 \) (Reject)
Expected Value = Number of Sample \( \times 3.0 \)
\( 39 \times 3.0 = 117 \)

\( F_o = 117 \)

Degree of Freedom (D.F) = Number of column – 1
\( 8 - 1 = 7 \)

<table>
<thead>
<tr>
<th>variable</th>
<th>( \chi^2 ) calculated</th>
<th>D.F</th>
<th>( \chi^2 ) table</th>
<th>significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>A8</td>
<td>139.9</td>
<td>7</td>
<td>14.067</td>
<td>0.05(5%)</td>
<td>accept Hi</td>
</tr>
</tbody>
</table>

**Decision rule**
- If \( \chi^2 \) calculated > \( \chi^2 \) table “accept Hi”
And if \( \chi^2 \) calculated > \( \chi^2 \) table “ accept Ho”

A. Average Percentage duration overrun of Projects

Table 3 presents the factors that affect time duration of millennium development project in Abuja FCT, the result indicates that the Variation and Fluctuation has the highest average percentage (\( X_n=4.18 \), Critical Index=0.2786) while Architects instruction has the lowest (\( X_n=3.77 \), Critical Index=0.2513).

In order to test hypothesis 2 which states that the performance of the project management consultants’ has no significant relationship with the time duration of millennium development projects in Abuja FCT, chi square was used. From the result of the chi-square in Table 4, calculated value obtained was (\( \chi^2=128.97 \)) against the table value of (\( \chi^2=16.919 \)). It could be concluded that there is a significant relationship between the performance of the project management consultants’ and the time duration of millennium development projects in Abuja FCT. That means that project management consultants will reduce time duration of project.

B. Level of Acceptance of Procurement Methods

Summarily, Project Management was ranked second (\( X=3.128 \), 20.54%), after the Traditional Procurement Method (\( X=3.87 \), 51.28%). The result indicates the familiarity of project management procurement methods among the various shareholders executing the project.

<table>
<thead>
<tr>
<th>factors</th>
<th>score</th>
<th>%</th>
<th>Xn</th>
<th>Critical index</th>
<th>REMARKS</th>
<th>rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil unrest</td>
<td>2 0 7 13 17 150</td>
<td>3.85</td>
<td>0.2564</td>
<td>Significant</td>
<td>7th</td>
<td></td>
</tr>
<tr>
<td>Variation and fluctuation</td>
<td>0 2 3 20 14 163</td>
<td>4.18</td>
<td>0.2786</td>
<td>significant</td>
<td>1st</td>
<td></td>
</tr>
<tr>
<td>Delay in payment</td>
<td>0 1 7 15 16 163</td>
<td>4.18</td>
<td>0.2786</td>
<td>significant</td>
<td>1st</td>
<td></td>
</tr>
<tr>
<td>Contractors incompetence</td>
<td>0 3 5 16 15 160</td>
<td>4.10</td>
<td>0.2735</td>
<td>significant</td>
<td>4th</td>
<td></td>
</tr>
<tr>
<td>Claims</td>
<td>0 3 10 16 10 150</td>
<td>3.85</td>
<td>0.2564</td>
<td>significant</td>
<td>7th</td>
<td></td>
</tr>
<tr>
<td>Architects instruction</td>
<td>0 4 10 16 9 147</td>
<td>3.77</td>
<td>0.2513</td>
<td>significant</td>
<td>10th</td>
<td></td>
</tr>
<tr>
<td>Increase in scope of work</td>
<td>0 1 9 16 13 158</td>
<td>4.05</td>
<td>0.2701</td>
<td>significant</td>
<td>5th</td>
<td></td>
</tr>
<tr>
<td>Increase in volume of work</td>
<td>0 3 4 17 15 161</td>
<td>4.13</td>
<td>0.2752</td>
<td>significant</td>
<td>3rd</td>
<td></td>
</tr>
<tr>
<td>Substitution of material</td>
<td>0 2 10 19 8 150</td>
<td>3.85</td>
<td>0.2564</td>
<td>significant</td>
<td>7th</td>
<td></td>
</tr>
<tr>
<td>Availability material</td>
<td>0 1 15 10 13 152</td>
<td>3.90</td>
<td>0.2598</td>
<td>significant</td>
<td>6th</td>
<td></td>
</tr>
</tbody>
</table>

Grand mean=3.986 ; S.D = 0.02268

C. Roles of Project Management in Controlling Time and Cost of Project

Preparing and presenting project report to client periodically (\( X_n=4.15 \), Critical Index=0.2769), is ranked highest as shown in table 4, followed by identification of clients objective (\( X_n=4.10 \), Critical Index=0.2735). Commission of other consultants services has the lowest with
(X_n=4.05, Critical Index=0.2700). All the roles of project management consultants were accepted as factors to enhance the cost, time and quality of projects.

Table 4: Chi square (χ²) Text Result of Most Common Factors that Influence Time of Project Management Consultants.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Time factors</th>
<th>e</th>
<th>f_o</th>
<th>fe-fo</th>
<th>(fe –fo)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Civil unrest</td>
<td>150</td>
<td>117</td>
<td>33</td>
<td>1089</td>
</tr>
<tr>
<td>2</td>
<td>Variation and fluctuation</td>
<td>163</td>
<td>117</td>
<td>46</td>
<td>2116</td>
</tr>
<tr>
<td>3</td>
<td>Delay in payment</td>
<td>163</td>
<td>117</td>
<td>46</td>
<td>2116</td>
</tr>
<tr>
<td>4</td>
<td>Contractors incompetence</td>
<td>160</td>
<td>117</td>
<td>43</td>
<td>1849</td>
</tr>
<tr>
<td>5</td>
<td>Claims</td>
<td>150</td>
<td>117</td>
<td>33</td>
<td>1089</td>
</tr>
<tr>
<td>6</td>
<td>Architects instruction</td>
<td>147</td>
<td>117</td>
<td>30</td>
<td>900</td>
</tr>
<tr>
<td>7</td>
<td>Increase in scope of work</td>
<td>158</td>
<td>117</td>
<td>41</td>
<td>1681</td>
</tr>
<tr>
<td>8</td>
<td>Increase in volume of work</td>
<td>161</td>
<td>117</td>
<td>44</td>
<td>1936</td>
</tr>
<tr>
<td>9</td>
<td>Substitution of material</td>
<td>150</td>
<td>117</td>
<td>33</td>
<td>1089</td>
</tr>
<tr>
<td>10</td>
<td>Availability of material</td>
<td>152</td>
<td>117</td>
<td>35</td>
<td>1225</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15090</td>
</tr>
</tbody>
</table>

∑(fe –fo)² =15090
∑(fe –fo)²
fo

NOTE
If X_n ≥ 3.0 (Accept factor), else X_n ≤ 3.0 (Reject factor)
Expected coefficient = numbers of sample x 3.0
F_o=39x3.0 =117
Degree of Freedom (D.F)= Number of rows – 1
10-1=9

D. Roles of Project Management in Controlling Time and Cost of Project

Preparing and presenting project report to client periodically (X_n=4.15, Critical Index=0.2769), is ranked highest as shown in table 4, followed by identification of clients objective (X_n=4.10, Critical Index=0.2735). Commission of other consultants services has the lowest with (X_n=4.05, Critical Index=0.2700). All the roles of project management consultants were accepted as factors to enhance the cost, time and quality of projects.

E. Cost and Time Overrun of 25 selected MDGs Projects in Abuja FCT

The project report revealed that Seventeen (17) of the project use project management while eight (8) use other procurement methods the performance project management consultant is better with time overrun of 22.00% and cost overrun of 26.81%, while the other procurements methods record time overrun of 64.25% and cost overrun of 26.81%. Due to the problem
faced which led to extension of time and cost overrun, all the respondents agree to the use of project management procurement method.

F. Quality of Project Executed
The project survey revealed that the quality of work executed by project management is better with Grand mean of 4.23 compare to other procurement methods with grand mean of 3.97.

V. CONCLUSIONS AND RECOMMENDATIONS
The study shows that there is a relationship between project management and cost of project. The result also highlight variation as the major cost of delay with architect instruction the least. The result of the analysis of variance to test hypothesis two shows that there is a positive relationship between the performance of the project management consultants’ and the time duration of millennium development projects in Abuja FCT. It observed that variation and fluctuation as the major time factor with importation of imported material as the least factor.

REFERENCES


