FACTORS FOR CONTAINING FAILURE AND ABANDONMENT OF PUBLIC SECTOR CONSTRUCTION PROJECTS IN NIGERIA

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Abstract
The objective of this study was to identify possible factors that would minimize or contain failure and abandonment of public sector construction projects, evaluate the identified factors in their order of importance. Data on the study variables were collected through structured questionnaire from construction firms located in Imo, Abia and Rivers States of Nigeria with wealth of experience in failed and abandoned public sector construction projects. Respondents were approached personally to collect the data. A total of three hundred (300) questionnaires were distributed while two hundred and fifty three (253) were retrieved and used for analysis. Various statistical tools such as descriptive statistics, cronbach's alpha test, as well as relative importance index with the aid of SPSS and Microsoft Excel were applied for data analysis and inference. The results of the study revealed that nine factors were critical in containing failure and abandonment of public sector construction projects in Nigeria. The factors include; Detailed and Comprehensive Design by the Contractors, Effective Monitoring, Understanding of Project's Mission, Technical Knowhow of the Project Manager, Support from Top Management, Political Risks, Effective Procurement Process, Provision of Adequate Finance by the Client, and Effective Communication and Information Management by Design Team.

Key words: Construction projects, failure, abandonment, Containing failure and abandonment, public sector construction projects.

INTRODUCTION

Construction projects in Nigeria and the world over are confronted with a lot of complexities and ambiguities as a result of uncertainties of not meeting project deadlines which also hinges on low quality, cost overruns which invariably leads to failure and abandonment of such projects.
Incessant failure and abandonment of projects by the public sector according to (Ubani and Ononuju, 2013); Olalusi and Otunola, 2012) are continuously posing serious challenges to the stakeholders in the built environment.

The construction industry is known to be the primary and focal point on which the development of any country rests on. It is viewed as the life wire as well as an instrument of choice of a country, due to its role in providing the basic requirements for the entire citizenry. In as much as the industry remains the instrument of choice for most policy makers, the low performance of projects in the construction sector and the disillusionment ensuing there from by stakeholders seems to have become the rule and the exception in recent time.

To a greater extent, the growth and development of a country is determined by the quality and capability of its products from the built industry/ sector. Unfortunately, the inherent complex, uncertain and dynamic state of most construction projects created obvious problems of not achieving their initially stated objectives. Despite Nigeria's position as the largest economy compared to South Africa, Nigeria has persistently performed poorly in terms of providing for her citizens the best life can offer in terms of better living standard, economic growth, justice and the likes (Ingwe, et al. 2010)

Furthermore, Ingwe et al. (2010) opined that foregoing poverty indices has compelled Nigeria's government into developing infrastructural facilities as a means of propelling advocacy for rapid development in terms of stimulating economic growth and development, but the performance of Nigeria's government in this regard has been dismal. Nigeria's present and nearly ubiquitous collapse of various infrastructures like roads, railways, transport, and education are a pointer to these facts.

In Nigeria, a lot of factors contributes to project failure which most often than not, leads to outright abandonment. Failure in construction projects is construed to be a negative consequence ensuing from risk actions that invariably leads to obstruction of any or some impending benefits derivable from the project. Furthermore, failure is said to occur in a component when the various elements that make up the components can no longer be relied upon to fulfill its initial objectives. On the other hand, abandonment is a situation whereby the client/owner of a project ceases to provide or make provisions for maintenance and operating services to a project. Abandonment occurs when management decides for whatever reason best known to it, discontinues temporarily or permanently a project under development (Ewusi-Mensah and Przasnyski, 1991)

Failed and abandoned construction projects abound everywhere; Malaysia, United States, Spain, Dubai, Saudi Arabia, Russia, Abu Dhabi (Hoe, 2013) and Nigeria (Ewa, 2013). See table 1 below on some failed and abandoned projects. According to Ewa (2013), there are about 4000 uncompleted or abandoned public projects to the tune of about ₦300 billion littered all over Nigeria and that it would take about 30 years to get them completed. Most authors have identified the factors responsible for construction project failure and abandonment. They include; lack of /poor planning, demise of client, unqualified project managers, incorrect cost estimates, poor design, political influence, poor funding etc. (Olalusi and Anthony 2012; Ubani and Ononuju 2013; Ayuba, et al. 2012; Hoe, 2013; Ayodele and Alabi 2011). Various scholars have tried to provide possible solutions to curtail the incidences of failed and abandoned construction projects, but still the problem keeps on rearing its ugly head (Hoe, 2013; Olalusi and Anthony 2012; Ubani and Ononuju 2013; Ayuba, et al. 2012; Sahibzada and Mahmood 1992). The aforementioned authors tried to provide solutions to the problems of failed and abandoned construction projects by merely making suggestions in their studies which obviously have not yielded sufficient results. It is in the light of these assertions that this study would provide possible solutions/measures for containing construction project failure and abandonment by way of carrying out an in-depth study into unraveling measures that if not possible would curtail the excesses of such a menace.

Table 1: List of Abandoned Public sectors Construction Projects in the study areas

S/N	Type of project	Location	Owner	Year project commenced	Year project was abandoned	Reasons for abandonment
1.	IPP project	Ahoda, Rivers State	Federal Govt	2005	2007	Funds not made available
2.	Bridge	Eagle Island, P/H	Rives State Govt	2000	2006	Due to Change in Govt
3.	Low Cost Housing	Ahoda, east Rivers State	Rives State Govt	2001	2003	Due to Change in Govt
4.	Construction of Link Roads	Orji, Mbeiri, Nwaoruobi to Ugwuorji	Imo State Govt	2009	2011	Political reason/Issue
5.	Road Construction	Alike-Umuosochi-Umulogho	NDDC/Imo State Govt	2011	2011	Problems with the contractor
6.	Road Construction	Ugwunagbo, Umunka road	Abia State Govt	2010	2013	Paucity of funds

Authors compilation, (2014)

Statement of the Problem

The construction industry has been one of the critical sectors of Nigeria's economy before the era of the oil boom. Despite its role in the economy, it has been confronted with a lot of challenges as a result its inability to achieve ab initio set out goals. According to Ewa (2013), the issue of project failure and abandonment has been left unresolved for a very long time and this has created obvious room for a multiplier effect on the construction industry specifically and the entire economy as a whole. Olalusi and Anthony (2012) in their study opined that most construction projects that would have impacted on the economic and entire development of Nigeria, littered the nooks and crannies of the entire country. This affected the entire environment by defacing the aesthetics, and creating social problems as well as other health hazards to the entire populace.

The abandonment of a public sector construction project normally does not directly affect the entire populace as a result of its absorption by the government through reserved funds. This scenario often leads to a loss of opportunity by the public not being able to benefit from the intended purpose. On the other hand, should additional funds be made available to revive such projects, this would invariably incur extra opportunity cost of foregoing the project's original set objectives. (Hoe, 2013). According Onyekpere, (2011) the impact of failed projects in terms of cost and schedule overruns on a nation's economy is enormous as the new costs incurred as a result of these scenarios would have been deployed for the development of other important projects for the overall benefit of the entire citizenry.

Most projects frequently fail to achieve their goals due to a myriad of problems ranging from imperfect project design, poor stakeholder management, delays between project identification and startup, delays during project implementation, cost overruns, and coordination failure. Amade et al (2014) opined that, the entire nooks and crannies in Nigeria is a washed with evidence of failed and abandoned construction projects stemming from cost related issues viz poorly articulated

cost estimating principles, poor risk management practices which is often hinges on clear cut knowledge of contingency provisions and management.
Latham, (1994) opined that the public sector is usually particular about using their spending power in obtaining value for money on a particular project while also assisting in enhancing the productivity and competitiveness of the construction industry in terms of obtaining better value for money generally in the long term.

According to Potts, (2008), construction activities are prone to huge capital expenditure which the client may not commence implementation without confirming the state of the benefits accruing. In the case of the society benefiting from the project, in this case a public sector project, the justification for such a project will be based on the cost-benefit analysis. Much attention should be accorded to the budgetary process so that the project doesn't fail to achieve it stated objectives.

Morris, (2012) further stated that managing public-sector projects can be more difficult than the private-sector projects because they most times operate in an environment that is prone to conflicts, while also involving different stakeholders with varied interests. While Ali, (2010) opined that the public sector are differentiated by the activities of their counterparts in the private sector. There is no tendency for profit making, but rather a minute potential for income generation while also lacking on specific basis for performance measurement. Ali, (2010) further stated that the public sector organizations still possess the fulcrum to drive the growth of a nation's economy.

According to KPMG (2011) government as well as public sector projects are uniquely positioned to deliver highly-tailored local solutions, based on key insights gained from previous work with similar public and private sector organizations in different parts of the world. A valuable mix of local specialists and leading global industry best practices consistently helps us to deliver valuable and sustainable strategies to the public sector clients. Possibly more than any other time in history, the public sector is confronted with a myriad of latest and complex challenges. Constant public scrutiny and the need for fiscal sustainability and a continued increase in demand for services has forced many governments to seek new ways to balance effective delivery of services in the short-term against long-term budget considerations. KPMG (2011)

While Dlakwa and Culpin, (1990) opined that public sector projects in a developing country like Nigeria is prone to frequent delays compared to their counterparts in the private sector. The reasons for this are attributed to the delays in internal bureaucracy associated with most public service institutions.

According to Opawale, et al. (2013) a study carried out in year 2000 on infrastructural development revealed that before 1999, Nigeria was losing a whooping sum of about $265 million annually via different types of illegal procedures in the award of contracts by government officials. These illegal practices were in the form of escalated contract sums, use of unqualified contractors, over-invoicing, awarding contracts without budgetary provisions and most importantly diversion of contract sums into private pockets which most often than not leads to the failure of such projects and subsequent abandonment.

Therefore it is the import of this work to critically provide far reaching solutions on how best incidences of failure and abandonment of construction projects could be curbed by specifically applying empirical research to address the underlying issues confronting public sector construction projects in Nigeria.

Research Questions

Based on the research problems identified, this study therefore attempts to provide answers to the following research questions.

1. What are the possible factors that would minimize or contain failure and abandonment of public sector construction projects in Nigeria?
2. How can the identified factors for containing construction project failure and abandonment be evaluated.

Objectives of the Study

1. To identify possible factors that would minimize or contain failure and abandonment of public sector construction projects in Nigeria.
2. To evaluate the identified factors in their order of importance.

LITERATURE REVIEW

Project failure the world over continues to be a talked about issue whose occurrence is at an alarming rate despite the increasing understanding of the concept of successful project management maturity and consistent stream of successful projects. According to Amponsah, (2012), statistics abound on

failed projects and the testimony of such a scenario is a common phenomenon one could testify which is at par with widely reported cases of success. Belassi and Tukel (1996) opined that, a project that exceeds its completion due date, expenses overran its budget, or its outcomes did not satisfy its predetermined performance criteria, such a project is adjudged a failure. Failure in construction projects can be adduced to be a negative consequence emanating from perceived risk action which invariably results to obstruction of any or the entire benefits derivable from a project. Furthermore, Ayuba, et al. (2012) asserted that failure could be attributed to occur in a component when the individual components that make up the component can no longer be adjudged reliable in achieving its initial stated objectives. In Nigeria, for instance, construction project failure has been attributed to a myriad of factors ranging from the use of poor quality materials, inexperienced personnel, (Ayuba, et al. 2012), unforeseen natural calamities, inaccurate cost and schedule estimate (Ubani and Ononuju, 2013), poorly designed feasibility studies; (Sahibzada and Mahmood, 1992) neglect of the significance of project planning processes; dearth of in executing complex projects; poor and unstable design; corruption and bribery; delay in making payments, etc (Nguyen and Chileshe, 2013); dearth of change management, poor communication, inadequate resources, poorly defined requirements, poor risk management, (CSI, 2005)

Project abandonment on the other hand is seen as a consequence and implication of a failed project. Project failure and abandonment according to Ubani and Ononuju (2013) is described as the resultant effect of the consequence of reneging on an already commissioned project by virtue of the factors that precipitated the failure ab initio. Project abandonment on a general note, is the act of given up an action on an issue completely with the intention of not resuming either. When decisions on a project are put on hold without any specific time to commence work on the project, such a project is termed to be abandoned (Hanachor, 2012). Hanachor, (2012) further opined that there are two limits of schedule lag between suspension and resumption on a project. The short term lag ranges between 1 to 2 years, while the long term lag ranges between 3 to 5 years. Where the two scenarios are applied, a project is termed abandoned when some of the physical features are seen wearing away and becoming obsolete and out of use, which invariably would attract substantial amounts of funds to replace. According to Abdul Rahman, et al. (2013) a construction project is adjudged abandoned if it is not ready or completed for its occupants to use. While in the U.S., Malaysia, U.K. an abandoned construction project is one whose appearance shows some visible signs of distress such as deterioration, burned and possibly boarded up. Abdul Rahman, et al. (2013)

In Malaysia, the regulatory authorities (public) have laid down a set of conditions for adjudging a project as abandoned. The conditions include; one or more of the following ensues; no visible construction activities for a period of six months and beyond; the developer wounds up; the constructor is unable to complete the project; the regulatory body declaring the project abandoned pursuant to Acts establishing it.

According to Ayodele and Alabi, (2011), Nigeria has become the “world’s junk yard” of abandoned projects culminating into billions of naira. This assertion is hinged on the fact that a country enriched with a lot of potentials in the different endeavours of life and the construction industry in particular is bedeviled by the menace of project failure and abandonment. A report according to Ayodele and Alabi, (2011) concluded that there are a lot of abandoned public sector projects to the tune of about 4000 which would require a whooping sum of over ₦300 billion naira and about 3 decades to complete. They further opined that the issue of project abandonment has been handled by the public authorities with kid gloves for quite some time and the consequence of this action is what we now see happening.

The prevalence of failed and abandoned construction projects has been a burning issue and this calls for some concern among stakeholders in the built industry most specifically, clients and the public authorities. It is imperative to state that failed and abandoned construction projects has a debilitating impact on the aforementioned stakeholders, therefore it is the import of this paper to critically provide solutions on how best the incidence of failed abandoned construction projects could be curtailed by specifically applying the research procedure to achieve this feat.

Containing Construction Project Failure and Abandonment

Certain factors exist in order to facilitate the achievement of project objectives which in most cases are referred to as key performance indicators. While other researchers see this same factors as critical success factors (Saqib, et al. 2008; Baccarini and Collins 2003; Belassi and Tukel 1996; Adnan, et al. 2014; Jha and Iyer 2006). According to Saqib, et al. (2008), a study on project’s success factors are most often than not considered as means of improving a project’s effectiveness and efficiency there by eliminating totally any incidence of failure and abandonment. Baccarini and Collins (2003), opined that project success factors are generally a set of circumstances, events in the form of

facts, influences that can contribute to the realization of a project's objective viz; cost, schedule, performance and stakeholders satisfaction. Furthermore, Pankaj and Bhangale, (2013) opined that success criteria as well as an individual's perception of success in the construction industry changes from one project to another with particular reference to the project's scope, size and the client's understanding of the design procedure, technological knowhow and a host of other factors. While on the other hand, factors' relating to success often develops not with a particular project, but across the industry as success is related to the perceptions and expectations of the client, consultant and contractors.

In the context of construction projects, the term success factors, according to Saqib, et al. (2008), are those factors predicting success on projects. While, Pankaj and Bhangale, (2013), see it as meeting the necessary expectations of the project's stakeholders as well as achieving the intended purpose. If these aforementioned definitions of success factors are not deployed effectively in the course of executing a project, it is then evident that such a project would fail and subsequently be abandoned. Consequently, this work is intended to proffer solutions on how construction projects failure and subsequent abandonment could be curtailed and contained with. In this study, we assume that any success factor for construction project realization would invariably prevent such projects from failing and abandoned.

A comprehensive view of authors concerning factors that can curtail/ contain construction project failure and abandonment has been identified from the literature and categorized into seven groups as shown in table 2 below.

Table 2: Factors for Curtailing/Containing Construction Project Failure and Abandonment

Authors:	Factors
Factors related to Project Management	
Saqib, et al. (2008); Baccarini, (2009); Ika et al. (2012); Belassi & Tukel (1996); Ejaz, et al. (2013); Ogwueleka, (2011); Poon, et al. (2001); Shehu & Akintoye (2009).	Ability to make effective decisions; planning efforts; previous project management experience; effective monitoring; effective method of planning and scheduling; objective management; appropriate project risk management.
Factors related to Project Manager	
Saqib, et al. (2008); Baccarini & Collins (2003); Belassi & Tukel (1996); Ejaz, et al. (2013); Ogwueleka, (2011); Haughey (2014); Jha & Iyer (2006); Baccarini, (2009); Slevin & Pinto (1987); Adnan, et al. (2014); Omran, et al.(2012).	Experience and capability of project manager; understanding of project's mission; project manager's ability coordinate and motivate team; technical knowhow of the project manager; project manager's ability to take concrete decision; ability of project manager to avoid scope creep; leadership skills of the project manager.
Factors related to Contractor	
Saqib, et al. (2008); Ika et al. (2012); Ogwueleka, (2011); Omran, et al.(2012)	Cash flow of the contractor; contractor's experience; management of site; site supervision; detailed and comprehensive design; contractor's ability to manage the design.
Factors related to Client	
Saqib, et al. (2008); Ejaz, et al. (2013) Omran, et al.(2012); Young & Mustaffa (2012)	Effective and efficient decision making by client; ability of client to take decision; provision of adequate finance; client's experience.
Factors related to Environment	
Belassi & Tukel (1996); Ogwueleka, (2011); Jha & Iyer (2006); Slevin & Pinto (1987); Amade, et al. (2012); Adnan, et al. (2014); Omran, et al.(2012); Young & Mustaffa (2012); Poon, et al. (2001)	Effect of the economy; technological attainment; support from top management; political risks; constructability; appropriate dispute resolution system; weather conditions; environmental health & safety
Factors related to Procurement	
Baccarini, (2009); Adnan, et al. (2014); Barasa, (2014)	Effective procurement process.
Factors related to Design Team	
Omran, et al.(2012); Poon, et al. (2001); Shehu & Akintoye (2009)	Relationship between team members; effective communication and information management by design team

Critique/ Research Gap Analysis

In other to arrive at our research gap, criticism was based on only literature works related to construction projects even though some few works had one or two factors that could be found in construction related projects. Omran, et al.(2012) did a study on evaluation of factors for success of construction projects in Wadi Alhaya, Libya using questionnaire survey to elicit information from 44 respondents. The findings from the study after using relative importance index revealed that ten (10) factors were critical to the realization of success of construction projects. They include; contractor's experience, project manager's leadership skills, labour productivity, quality relationship between team

members, shortage of materials etc. Yong and Mustaffa (2012) attempted to study the principal factors that are critical to the success of construction projects in Malaysia. Using a questionnaire as a means of data collection and mean score analysis, 15 key factors were identified as a means of delivering construction projects to fruition from a response of about 45 questionnaires. The factors include; financial capability of the client, control of contractor's work, consultant's competence, consultant's ability to solve problems, etc. Saqib, et al (2008) in their study on assessment of factors critical for construction project's success in Pakistan, identified ten (10) factors as key to successful construction projects. The study adopted a survey method using questionnaires, while criticality score and index were used to analyse the results. The findings from the study include; decision making effectiveness, project manager's experience, contractor's cash flow, contractor's experience, and timely decision by client amongst others. Baccarini and Collins (2003) studied factors critical to the success of projects in Australia. The study adopted a survey method using questionnaire to elicit responses from one hundred and fifty (150) respondents. Descriptive statistics viz frequency distribution were used to analyze the data. The findings revealed that project's understanding, competent project team, communication, realistic schedule and cost estimates as well as adequate project control seems to be key drivers to successful projects. Ogwueleka, (2011) did a study on critical factors of success influencing project performance in Nigeria. Five (5) factors were identified as key drivers. The study adopted the survey method where 188 questionnaires were distributed to the respondents in the four regions of Nigeria. Frequency, severity and importance index were used to analyze the results from the study. The findings revealed objective management, management of design, technical factors, top management's support and risk management as key drivers to success. Ejaz, et al.(2013) in their study on assessment of most critical success factors for mega construction projects in Pakistan, identified five (5) factors as key drivers for the success of construction projects. Survey method with the aid of questionnaires was used to elicit responses from professionals in the industry. Descriptive statistics viz, mean score ranks were used to analyze the results. The findings from the study include; planning efforts and scheduling, adequate funding, ability of the project manager to decision, adequate planning and specification, timely decision making by client. Poon et al. (2001) did a study on the identification of success factors in the construction process using literature review in arriving at their findings. The findings from the study include; clearly defined project objectives, scope of the project, the project manager, project team, planning, control, appropriate size of work package, communication and information management, top management support as well as environmental health and safety.

A cursory look at some of the literature below would assist us in arriving at our research gap properly. In Poon et al (2001), there work seem to be too theoretical as literature review was solely used to arrive at their findings without any further empirical analysis to buttress their findings. This seems inadequate. Omran et al (2012) used a total of forty four (44) respondents to arrive at their findings in Libya, this is also not adequate given the entire population of Libya. Saqib et al (2008) in their work did not state the numbers of questionnaires used in eliciting responses from their respondents, this is unacceptable in a research work of that magnitude. In Ogwueleka, (2011), the study was carried out in Nigeria from the four (4) regions; viz south, east, north and west using questionnaires to elicit information from one hundred and eighty eight (188). These also seem to be misleading given the population of Nigeria. Ejaz, et al.(2013) in their study also did not mention the number of questionnaires used, this also misleading and inadequate.

In this study, the research was centered on construction projects within Imo, Abia and Rivers States of Nigeria. A total of two hundred and fifty three (253) respondents with particular reference to the public sector were consulted for the study.

RESEARCH METHODOLOGY

Questionnaire Design

This research investigated the factors for containing on construction project failure and abandonment in Nigeria's public sector. The study relied on public sector participants that are involved in construction based activities. Factors for containing construction project failure and abandonment based on a thorough review of the literature. Interviews were held with the key players and contractors in the public sector as well as other representatives of government that are involved in construction projects to verify from them on how best incidences of project failure and abandonment could be curtailed.

The data used for the study were elicited through the use of a questionnaire survey via a quantitative approach. The questionnaire was articulated based on a thorough review of the factors for containing construction project failure and abandonment. The approach was carried out to improve

the wordings and increase the reliability of the questions. Closed -ended questions were used as they are very convenient for eliciting credible data and as such easier to analyse due to the limited nature of the answers. The respondents were implored to respond to the 35 questions raised on the factors that would help in containing construction project failure and abandonment using the Likert 5-point scale of 1= Not important, 2=Fairly important, 3=Important, 4=Very important, and 5=Extremely important. This type of scale has been found to be acceptable in most construction project management literature.

Surveys

The target respondents were made up of heads of government departments and agencies and chief executives of parastatals and other professionals around the built industry that are key players within the study area of Imo, Rivers and Abia were consulted. In all, 300 questionnaires were distributed in this order; Imo, Rivers and Abia States having 100 each, while 265 were returned, but 253 were found to be usable for the analysis of which 88 responses came from Rivers, 76 from Abia and 89 from Imo States.

The analysis of the data was carried out with the aid of the Statistical Package for Social Science (SPSS) 17.0 packages and Microsoft excel. The data collected from the survey were coded and entered into the software to compute the required statistics, viz; descriptive statistics in the form of charts, while the major tool for analyzing the key themes of the study were the relative importance index.

Relative importance index (RII) was used to rank the perception of relative importance attached to the identified factors for containing construction project failure. Relative importance index has been used by other researchers, (Amade, et al, 2014; Aibinu and Jagboro, (2002), Kazaz, et al. (2008) as: RII = ∑ W / A*N; where W is the weight assigned to each variable by the respondents ranging from 1 to 5; A is the highest weight = 5; and N is the total number of respondents (253) for purpose of this study.

Cronbach's alpha was used to test the reliability of each of 35 Factors for Curtailing/Containing Construction Project Failure and Abandonment. While the content validity of the questionnaire was conducted with the assistance of senior academic colleagues and experts in the industry by test running few samples of the questionnaire via pilot study before a feasible questionnaire was finally designed and adopted for the study.

RESULT ANALYSIS AND FINDINGS

In this section, the results of the field survey were analyzed and discussed. The section illustrates and discusses the characteristics of the study population and the need to identify factors for Curtailing/Containing Construction Project Failure and Abandonment. Descriptive statistics and inferential statistical methods were used to analyze the data.

Demographic Statistics of Respondents

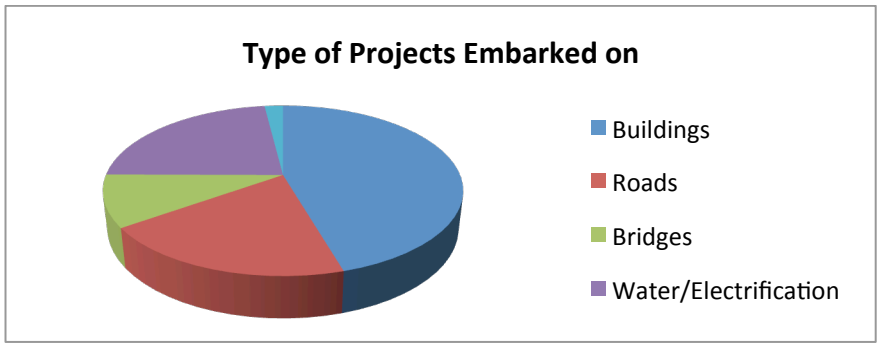

Figure 1: Type of Projects Embarked on by Respondents

In Figure 1 above, (45%) 115 respondents embarked on building projects. This is closely followed by Water and Electrification Projects (23%) 58, Road projects were (20%) 50 and while Bridges and Jetties/Refineries accounted for (10%) 25 and (2%) 5 respectively. There is a clear indication that majority of the respondents embarked on Building related construction projects, thus it can be deduced that the respondents were sufficiently experienced in responding to the issues of Construction Project Failure and Abandonment.

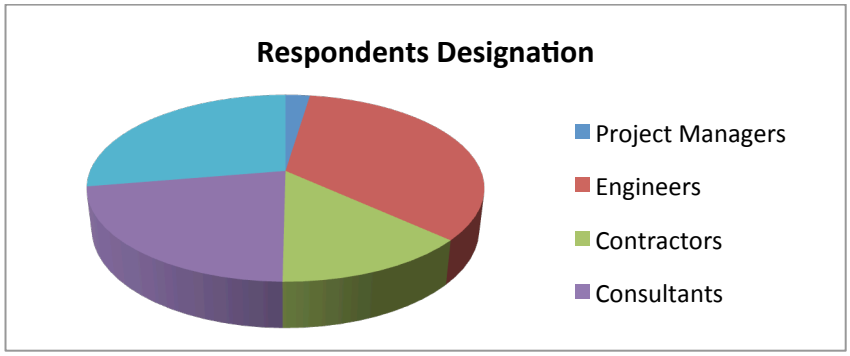

Figure 2: Respondents Designation

In Figure 2 above, (35%) 87 respondents are Engineers, (28%) 70 are Builders and others, Consultants (22%) 56, Contractors (13%) 34, while Project Managers are (2%) 6. This shows that the main professionals in the construction industry were adequately consulted and thus their responses could be relied upon for purposes of this study.

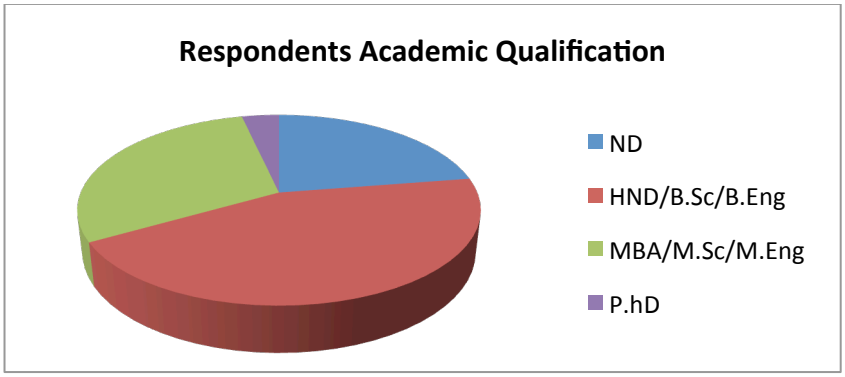

Figure 3: Respondents Academic Qualification

In Figure 3 above, a greater part of the respondents had HND/B.Sc/B.Eng as qualification with 112 (44.3%) making the population. While those with Master's Degree, MBA/M.Sc/M.Eng comprises of 75 (29.6%), ND and PhD holders were the least with 57 (22.5%) and 9 (3.6%) respectively. This is also an indication that the respondents are adequately fit to respond to the questions posed in our questionnaire as they possess the basic minimum academic requirement that would enable them contribute meaningfully to the study.

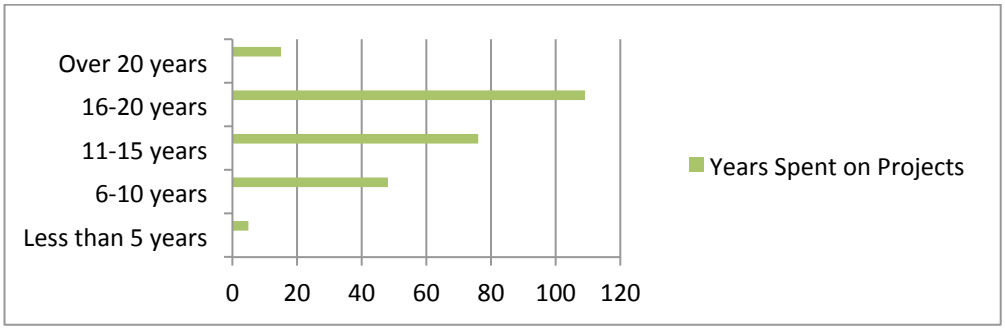

Figure 4: Years Respondents spent on Projects

In Figure 4 above, majority of the respondents have spent between 16 to 20 years engaging in project related activities with (43%) 109 respondents attesting. While 76 (30%) have spent between 11 to 15 years, 48 (19%) between 6 to 10 years and 5 (2%) less than 5 years. This is a clear indication that the professionals were quite familiar with issues bordering on construction project failure and abandonment given their years of experience and this would enable them contribute meaningfully to the survey.

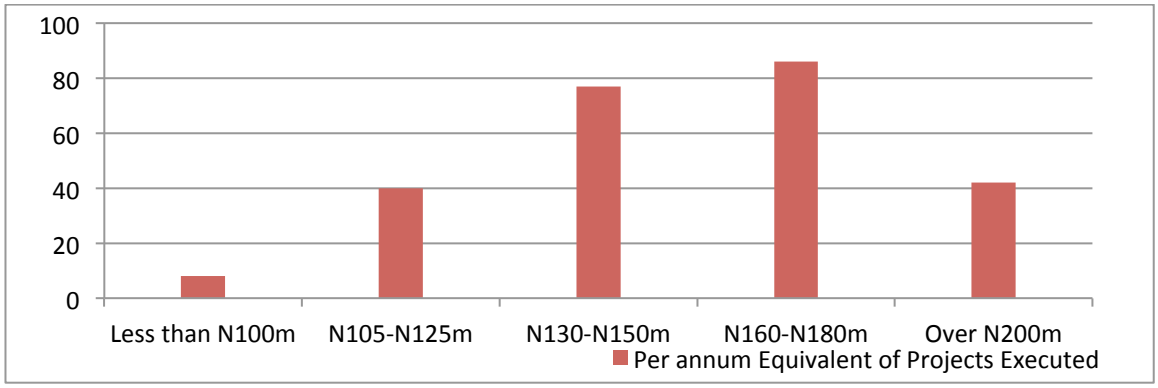

Figure 5: Respondents per annum equivalent of Projects executed

Figure 5 above, shows the respondents per annum equivalent of construction projects executed in the last five years. A good number of the respondents have spent between ₦160 to ₦180 Million on previously executed construction project with (34%) 86 respondents affirming. While 77 (30%) have spent between ₦130 to ₦150 million, 42 (17%) over ₦200 million, while between ₦105 to ₦125 million 40 (15.8%) and 8 (3.2%) less than ₦100 million. This also shows that the respondents are busy engaging themselves in the construction business and as such they should be able to respond accurate on issues bordering on project failure and abandonment thus contributing meaningfully to this study.

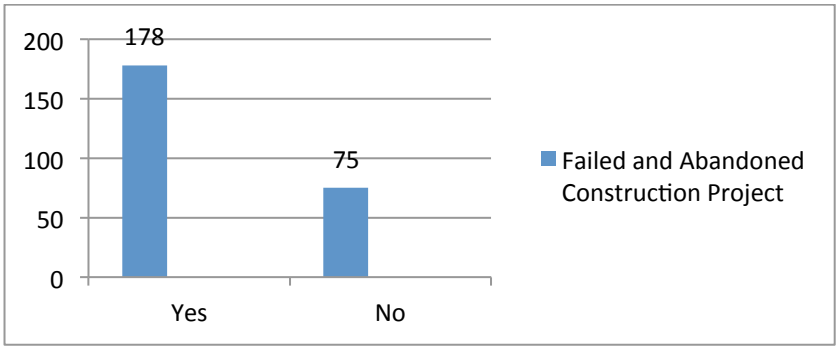

Figure 6: Respondents involvement in failed and abandoned projects

Figure 6 above shows the respondent's involvement in construction projects that failed and were subsequently abandoned. Majority of the respondents about (70%) 178 had involved in projects that failed and later abandoned, while (30%) 75 had not participated in failed and abandoned construction projects. The findings, shows the respondents should be able to spot out likely factors that could help curtail/contain construction project failure and abandonment given their experience and participation in failed projects.

Cronbach's Alpha coefficient of factors for Curtailing/Containing Construction Project Failure and Abandonment

Table 3a:

Case Processing Summary			
		N	%
Cases	Valid	253	100.0
	Excluded[a]	0	.0
	Total	253	100.0

a. Listwise deletion based on all variables in the procedure.

Table 3b:

Reliability Statistics	
Cronbach's Alpha	N of Items
.592	35

Cronbach Alpha coefficient for all thirty-five factors for Curtailing/Containing Construction Project Failure and Abandonment is 0.592. An Alpha value of greater than 0.7 implies that an instrument is good in reliability (Pallant, (2005). Reliability of the group of 35 factors for Curtailing/Containing Construction Project Failure and Abandonment is below 0.7 but above 0.5 This implies that the 35 items related to factors for Curtailing/Containing Construction Project Failure and Abandonment are adequate (see Pallant, (2005) on the interpretation of Alpha values).

Table 4: Relative Importance Index of each of the factors for Curtailing/Containing Construction Project Failure and Abandonment

Factors	5	4	3	2	1	RII	Rank
Factors related to Project Management:							
Ability to make effective decision	13	61	153	24	2	0.55	5
Planning Efforts	12	64	157	20	0	0.55	5
Previous Project Management Experience	13	61	158	21	0	0.55	5
Effective Monitoring	144	90	19	0	0	0.76	1
Effective Method of Planning and Scheduling	48	156	48	1	0	0.67	2
Objective Management	12	72	149	20	0	0.56	4
Appropriate Project Risk Management	35	155	62	1	0	0.66	3
Factors related to Project Manager:							
Experience and Capability of Project Manager	140	92	21	0	0	0.75	3
Understanding of Project's Mission	146	86	21	0	0	0.76	1
Project Manager's ability to Coordinate and Motivate Team	28	157	67	1	0	0.65	4
Technical Knowhow of the Project Manager	150	79	24	0	0	0.76	1
Project Manager's ability to take concrete decision	9	64	153	26	1	0.54	5
Ability of Project Manager to avoid Scope Creep	0	0	1	172	80	0.28	6
Leadership Skills of the Project Manager	0	0	3	167	83	0.28	6
Factors related to Contractor:							
Cash Flow of the Contractor	7	68	158	19	1	0.55	5
Contractor's Experience	32	159	61	1	0	0.65	3
Ability to Manage Site	15	65	154	18	1	0.56	4
Site Supervision	11	65	149	27	1	0.54	6
Detailed and Comprehensive Design	146	89	18	0	0	0.76	1
Contractor's Ability to Manage the Design	36	156	61	0	0	0.66	2
Factors related to Client:							
Effective and Efficient Decision making by Client	37	160	55	1	0	0.66	2
Ability of Client to take Decision	38	155	60	0	0	0.66	2
Provision of Adequate Finance	142	85	26	0	0	0.75	1
Client's Experience	8	67	157	21	0	0.55	4
Factors related to Environment:							
Effect of the Economy	13	57	163	19	1	0.55	4
Technological Attainment	0	0	7	174	72	0.29	6
Support from Top Management	146	87	20	0	0	0.76	1
Political Risks	150	87	16	0	0	0.76	1
Constructability	33	158	62	0	0	0.66	3
Appropriate Dispute Resolution System	0	0	2	173	78	0.29	6
Weather Conditions	12	60	161	20	0	0.55	4
Environmental Health and Safety	0	0	3	172	78	0.29	6
Factors related to Procurement:							
Effective Procurement Process	140	96	17	0	0	0.76	1
Factors related to Design Team:							
Relationship between Team Members	10	60	155	26	2	0.54	2
Effective Communication and Information Management by Design Team	39	155	59	0	0	0.66	1

Authors result analysis (2014)

Relative importance index scores for factors related to project management had: Effective monitoring (RII= 0.76) and ranked first. For factors related to the project manager; Technical Knowhow of the Project Manager and Understanding of Project's Mission both had an (RII= 0.76) and were ranked first. For factors related to the contractor; Detailed and Comprehensive Design with an (RII=0.76) was ranked first. For factors related to the client, Provision of Adequate Finance with an (RII= 0.75) was ranked first. On factors related to the environment, political risks and Support from top management both had an (RII=0.76) and were ranked first. Factors related to procurement, effective

procurement process had an (RII=0.76) and ranked first. While factors related design team, Effective Communication and Information Management by Design Team with an (RII=0.66) and ranked first.

Discussions and Research Findings

This section covers discussion on the results of data analyses presented. The discussions are focused on the most important factors for containing failure and abandonment of public sector construction projects that are determined statistically in the study. Discussions on the effects of the identified factors in containing failure and abandonment of public sector construction projects by testing hypotheses were also presented. Finally findings from this research study were outlined.

The Cronbach Alpha coefficient for all the thirty-five (35) factors for Curtailing/Containing Construction Project Failure and Abandonment was gotten as 0.592. An Alpha value of greater than 0.7 according to Pallant, (2005) implies that the instrument of data collection is good in terms of reliability. This implies that the 35 items related to the factors for Curtailing/Containing Construction Project Failure and Abandonment is adequate for purposes of the study and was found quite adequate. Thus, it could be inferred that the questionnaire for this study could be used in a similar study and that its results are dependable.

Extremely important (significant) factors for Curtailing/Containing Construction Project Failure and Abandonment:

Results from the relative importance index of significant factors for Curtailing/Containing Construction Project Failure and Abandonment showed that the respondents perceived that the under listed nine factors were most important factors for Curtailing/Containing Construction Project Failure and Abandonment:

Effective Monitoring, Understanding of Project's Mission, Technical Knowhow of the Project Manager, Support from Top Management, Political Risks, Effective Procurement Process, Detailed and Comprehensive Design by the Contractors, Provision of Adequate Finance by the Client, Effective Communication and Information Management by Design Team.

Effective Monitoring

Effective Monitoring was adjudged by the respondent as extremely important under the factors related to project management with a relative importance index of (0.76) and ranked first. Project management activities according to Saqib et al (2008) are key factors for project success. They further opined that by using the management tools, the project managers would be able to plan and execute their construction projects to maximize the project's chances of succeeding and achieving their stated objectives. This assertion is also in line with Ike et al (2012) who are of the view that project managers should intensify effort in project monitoring thereby improving project implementation as well as the chances for project success.

Provision of Adequate Finance by the Client

Provision of adequate finance was adjudged by the respondent as extremely important under the factors related to the client with a relative importance index of (0.75) and ranked first. Provision of adequate finance is an important component of project success because it contributes effectively in making sure all the various component of the project are engaged towards completion of their tasks. According to Yong and Mustaffa (2012) that it is essential for a client to ensure that funds are made available to maintain the cash flow of the project. Problems such as delayed payments and financial difficulties are seen to be a major factor could hamper the progress of construction projects. While Ejaz, et al (2013) opined that funding could be considered as one the most important success factors which makes a project come alive and gets completed on schedule.

Understanding of Project's Mission

Understanding of Project's Mission was adjudged by the respondent as extremely important under the factors related to the project manager with a relative importance index of (0.76) and ranked first. Clearly defined project objectives are very important in achieving stated objectives. This gives the project manager a clear cut direction of what is expected in other to get to the desired destination. Adnan, et al. (2014), Baccarini and Collins (2003) opined that understanding of client's needs, clear project goals and end user requirements constitutes understanding the entire project's mission statement.

Technical Knowhow of the Project Manager
Technical Knowhow of the Project Manager was adjudged by the respondent as extremely important under the factors related to the project manager with a relative importance index of (0.76) and ranked first. A project manager in a construction environment must possess good technical knowledge and experience, since most of the projects are highly technical. Belassi and Tukel (1996) further stated the importance of appointing a project manager who possess the necessary technical and administrative skills for purposes of successfully executing a project to fruition.

Support from Top Management
Support from Top Management was adjudged by the respondent as extremely important under the factors related to the environment with a relative importance index of (0.76) and ranked first. Support from top management plays a significant role in achieving a successful project. Belassi and Tukel (1996) opined that top management support is usually strong and helps a project manager to understand and achieve project objectives by facilitating and implementing strategies for the successful completion of a project.

Political Risks
Political Risks was adjudged by the respondent as extremely important under the factors related to the environment with a relative importance index of (0.76) and ranked first. Political risks and activities can affect the execution, implementation and possibly the project completion period if not properly handled. While a stable political environment will increase the likelihood of achieving a project successfully. This assertion is also in tandem with Yong and Mustaffa, (2012) findings.

Effective Procurement Process
Effective Procurement Process was adjudged by the respondent as extremely important under the factors related to procurement with a relative importance index of (0.76) and ranked first. The process of award of most construction related contracts hinges on the basic principles of procurement viz tendering and selection of capable hands to execute the project. In the case selecting a capable contractor without a transparent procedure in place, the consequence of such an action would be devastating. According to Yong and Mustaffa, (2012), the procurement method as well as tendering procedures plays an important role in ensuring that projects achieve their initial set objectives of cost, schedule and quality. Basara, (2014) also opined that lack of an effective procurement process could equally lead to failure and the procurement issues should be priotized during project implementation.

Detailed and Comprehensive Design by the Contractors
Detailed and Comprehensive Design by the Contractors was adjudged by the respondent as extremely important under the factors related to the contractor with a relative importance index of (0.76) and ranked first. Ika et al (2012) in their findings also emphasized on the need for a detailed design that is coherent in line with the specification of the project as a vital ingredient for achieving a successful project without which the project would fail. This assertion is in line with Yong and Mustaffa, (2012) findings.

Effective Communication and Information Management by Design Team
Effective Communication and Information Management by Design Team was adjudged by the respondent as extremely important under the factors related to the design team with a relative importance index of (0.66) and ranked first. This implies having a good and adequate communication channels among the project team by ensuring that there are ways to manage the flow of information in a bid to achieve project objectives. Poon, et al (2001) suggested methods of disseminating information should be via working drawings, manuals, meetings, letters and memos. Shehu and Akintoye, (2009) further opined that effective communication is an essential aspect of any successful programme/project management.

CONCLUSIONS AND RECOMMENDATIONS

This paper analyzed the results of a survey that aims to explore the factors for containing failure and abandonment of public sector construction projects and evaluate the identified factors in their order of importance. This research contributes to the generic literature for containing project failure and abandonment. Nine (9) out of the 35 factors used for the survey were found to be extremely important in containing failure and abandonment of public sector construction projects; the following are the nine most highly ranked factors: Detailed and Comprehensive Design by the Contractors; Effective Monitoring, Understanding of Project's Mission, Technical Knowhow of the Project Manager, Support

from Top Management, Political Risks, Effective Procurement Process, Provision of Adequate Finance by the Client; and Effective Communication and Information Management by Design Team. The results obtained from this study would in no small measure be of benefit to both professionals and the academia. In a nutshell, the outcome of this work would assist, project managers, engineers, are other professionals within the built industry on how best to forestall failure and subsequent abandonment as well as provide remedial measures to forecast the expected performance level and requirements of public sector construction projects even before implementation.

The recommendations below were made based on the findings from this study. Detailed and Comprehensive Design by the Contractors should be made available from the onset because if a faulty design that is not comprehensive is put into place, definitely the project is bound to fail right even before its commencement. The professionals in the team should endeavor to make sure all this is in place.

Effective monitoring is also very important and key to the implementation of a project. Adequate monitoring by the project manager must come to bear if a project must succeed. Lack of this would tend to change the direction of the project leading to schedule and cost overruns. Understanding of the project's mission and vision is also key to the successful completion of a project. Understanding the mission implies having a full grip on what is expected of the project right from the conception stage.

Technical knowhow of the project manager is another very important aspect of the entire success story of any project. Most construction projects have technical undertones, and a project manager that is not technically inclined would be a serious problem to the project itself. So this is necessary. Support from top management is also very key to the successful execution of a project. The project manager and entire team members should try to see how they could get along with top management for purposes of getting support in terms of provision of adequate finance and logistics to support the project. Political risks should also be managed properly to avoid any devastating consequence on the project. A better way of handling this is to get acquainted with any change in political administration through good public relations. Effective procurement process and procedures should be free, fair, and transparent. The best person for the job should be given the job based on competence and not through some other means that would be detrimental to the project later on. Provision of adequate finance is also vital. The client should make provision for funds to the project as at when due. And finally, information and communication management is one of the most vital factors for project success. The team members should follow clear cut channels of communication developed so that information on the project may not be lacking thus leading to success.

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