

Determinants of Contractors' Pre-Qualification Criteria in a Recessed Economy Nigeria

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Abstract

The study identified and assessed the existing contractors' pre-qualification criteria; examined the determinant factors for the choice of the pre-qualification criteria in Niger Delta region, Nigeria as its objectives, with the aim of providing information that could enhance contractor's selection in a recessed economy. The study population consisted of the states in the Niger Delta, while the study sample was made up of 75 construction consulting firms and 26 public client organisations randomly selected. Questionnaire were administered on the entire population, out of which 77 (76.24%) were retrieved and used for analysis. The questionnaire provided information on the existing pre-qualification criteria used by contractors in the study area and factors influencing their choices. The collected data were analysed using, Mean Item Score (MIS) and Factor Analysis (FA). The results showed that past performance of contractors (MIS, 4.62) ranked the most important of the existing pre-qualification criterion followed by experience of the contractor (MIS, 4.56) and evidence of incorporation (MIS, 4.52). From the Factor Analysis, 75 factors influencing choice of pre-qualification criteria were reduced to 7 components. The most significant among these was contractor's resources (variance explained 23.68%), followed by project related risk (variance explained 6.10%) and technical management (variance explained 3.22%). The study concluded that past performance of contractors was the most important existing criterion for contractor pre-qualification in the study area among others while the most determinant factor in the choice of these criteria was contractor's resources, which must be considered in the selection of contractors.

Keywords:

Prequalification, Criteria, Contractor, Construction Industry, Recessed Economy.

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Background to the Study

The successful execution of construction projects and keeping within estimated cost and schedules depend on a right prequalification that requires sound contractor selection (Lai, Liu and Wany, 2007). Many construction projects experience time and cost overruns due to wrong choice of contractors. This challenge is more evident in the government contract in which contracts are awarded to the lowest bidder not responsive bidder as they fulfilled prequalification criteria requirement – the awarding strategy of the majority of public project in developing countries including in Nigeria. Prequalification according to Ramani (2000) is a process of selecting contractors based on their qualifications and allowing them to move to the next stage of tender preparation and submission. Nwachukwu (2006) described prequalification as an elimination stage where contractors invited are screened for the purpose of shortlisting qualifiers who would then move on to tendering stage. Plebankiewicz (2010) defined prequalification as a before-tendering procedure which allows choosing the most appropriate contractor from amongst those declaring willingness to participate in the tendering, and will also give confidence to the client. Viewing from the above contributions, the paper defined it as a process used in screening contractor to satisfy the lay down criteria to undertake and bid for a certain construction project before the issuing of plans, specifications, and proposal for next stage. It involves a wide range of criteria for which information supplied by the contractors is often qualitative, subjective, and imprecise in accordance with recessed economy.

In awarding contract, the client or client's consultant will set out criteria that are deemed necessary to fulfil the condition of the current economy. These criteria include: the contractor's historical track record, evidence of financial stability/bank support, experienced personnel/technical support, equipment and technology capability, annual turnover, evidence of local content emphasis and so on. Other criteria could be based on the special characteristics of previous projects involved in before submitting a tender on a particular project (Ramani, 2000). For instance, a company bidding for a hydroelectric dam construction should not be selected if it has not built one before. Despite these criteria, although the contractors prequalification to a great extent precede the basis of a subjective assessment.; Charnes, Cooper, Lewin and Seiford (1994) affirmed contractor prequalification process as an art where subjective judgment, based on the individual's experience, becomes an essential part of the process. Kumaraswamy (2001) and Plebankiewicz (2010) described two types of contractors' prequalification processes to be Registration (Standing List) and Per Project (Short List).

Furthermore, Russell (1996) classified contractor prequalification criteria into three groups namely: Preliminary screening criteria (among others: reference, reputation, past performance; contractor resources (financial, technical, status of current work program; and other items (project specific criteria).while Palaneeswaran and Kumaraswamy (2001) grouped contractor prequalification criteria into three namely: *Responsiveness*:- promptness, realism, completeness, meeting deadlines, correctness and valid information, totally in providing information; *Responsibility*:- project location, obeying the law and complying with local government regulations, standards and bylaws, quality and safety system; and *Competence*:- resources (financial, machinery, plant and equipment, human), experience, constraints (current workload, subcontracts, guarantees). Obiegbu (2005)

classified contractor's prequalification criteria into two namely: basic criteria which scored zero percent (0%) and, graduated criteria which scored hundred percent (100%) but at most the contractor must score 70%.

Based on these classification, Obiegbu (2005) explained that the aim of prequalification is often not only to determine managerial competence of a contractor on the periphery but also to reduce bias, subjectivity, nepotism, and even fraud from the process in a recessed economy as these criteria differ from location to location. As earlier stated, factors influencing the choice of contractors such as experience/technical, trade records, safety records, and staff available and so on are often looked at in most prequalification systems with different perspectives. These factors are often placed in a weighted-score system to evaluate and compare the contractors assets and liabilities.

Statement of the Problem

According to Tran (2000) every prospective client aspires to attain a completed facility of the best possible quality within the specified time while keeping the final cost within the initial budget estimates. However, this aspiration is not always achieved sometime because of the prequalification criteria involved in selecting construction contractors. Ramani (2000) investigated prequalification criteria upon which the contractor screening was based on reducing subjectivity using analytical tool in Saudi Arabia. Ogunsemi and Aje (2006b) made use of only five criteria, out of enormous prequalification criteria identified, to developed a model for contractors' selection to ease clients' and consultants' burden in selecting competent contractor. Olatunji (2006) study revealed high contractor performance through prequalification selection. All these studies ignored the contributions and influences of project location on the prequalification. Previous studies on contractors' prequalification criteria in Nigeria were not location specific while studies on geographical peculiarities of contractors' prequalification with particular reference to Niger Delta region are scarce, hence this study. It is on this background that this study considers examining prequalification criteria influencing the choice of contractor's selection in the award of government-sponsored projects in Niger Delta region of Nigeria.

Aim and Objectives of the study

The aim of this paper is to examine the criteria used in selecting construction contractors in Niger Delta region, Nigeria with a view to enhancing contractors' selection. The specific objectives are to: identify and assess the existing contractors' prequalification criteria in the construction industry; and; examine factors influencing choice of prequalification criteria;

Methodology

The population for the research consist of the entire states within the Niger Delta region of Nigeria. The population was classified into two categories, comprising consultants and public client organisations constituting 101 as the sample for the study. Consultant firms were - 33 engineers, 13 quantity surveyors, and 29 architects; while public organizations were - ministries 12, departments 8, and agencies 6. Given the scope, the structured questionnaire was distributed randomly to the sample size of 101 respondents. The respondents were asked to express their perception of mean item scores of each of the 24 factors influencing the choice

of criteria for prequalification as either extreme, very moderate, moderate, slight or not important. The questionnaires were distributed to respondents, and an interviewer was available to answer questions about the questionnaire and to ensure that the questionnaire administered were correctly responded to. This mode of follow-up communication led to the return of 77 (76.24%) completed questionnaires out of the number sent out.

Review of literature on Prequalification Process

In public bidding, several Multi-Criteria Decision Making (MCDM) methods for contractor prequalification have been developed by various researchers (Russell, 1988; Russell and Skibniwski, 1988; Al-Alawi, 1991; Al-Gobali, 1994; Holt *et al*, 1994; Munaif, 1995) to assist public clients in selecting a qualified contractor to prevent criticism and avoid project delay, failure, misuse of fund and abandonment. Ramani (2000) investigated prequalification criteria upon which the contractor screening was based on reducing subjectivity using analytical tool in Saudi Arabia. Ali (2005) studied efficacy of contractor prequalification models in Saudi Arabia. Olatunji (2006) studied process for selecting contractors for construction works in Nigeria. The study only revealed a strong relationship between contractor performance of construction projects and technical capability. Olatunji (2006) works attaches importance only to technical capability while regarding others criteria as insignificant. Ogunsemi and Aje (2006a) investigated the impact of contractors prequalification on construction project delivery in Nigeria, discovered success in construction project delivery performance in terms of time and quality in the adoption of due process, not minding cost of the project.

Furthermore, Ogunsemi and Aje (2006b) made use of only five criteria, out of enormous prequalification criteria identified, for contractors' selection to assist clients' and consultants' burden in selecting competent contractor and the study was based on perceptions. All these studies ignored the contributions and factor influencing project location at the prequalifying stage. Moreso, there has been no commensurate improvement in the success rate on construction projects. Instead, there have been problems of increased number of claims and disputes, poor quality, cost and time overruns, which have become disappointing to the operation of construction contracts in Niger Delta region. Previous studies on factor influencing contractors' prequalification criteria in Nigeria were not location specific while researchers on geographical peculiarities of contractors' prequalification with particular reference to Akwa Ibom State are scare, hence this research.

Prequalification Criteria for Contractors' Selection in Construction Industry

In construction industry contractors have significant influences upon projects successes. It is quite critical to select sound contractors to achieve this success. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project (Huang, 2011). Zeleny (1982) defined criteria as those attributes, objectives, or goals, which have been judged relevant in a given situation by a particular decision maker. These criteria can be seen as the intrinsic managerial cost and time-sensitive factors by which general contractors, or any manager of construction could improve performance, competitiveness and profitability (Al-Alawi, 1991; Al-Gobali, 1994; Russell, 1990; Russell and Skibniwski, 1990; Clough and Sears, 1996). As discussed below:

Client-Contractor Relationship

Earlier interaction between the owner and the contractor plays a vital role in selecting a contractor as the owner prefers to work again with a contractor that has produced the earlier project at the required cost; time and quality benchmarks (APCC 1998). Plebankiewicz (2010) summarizes some of the contractor prequalification criteria into two group's main criteria and sub criteria as presented in the Table 2.1. The Table explained five (5) basic criteria and twenty one (21) sub criteria that constituent characteristics of contractor prequalification in a simplified form, highlighted the following benefits of prequalification to include: eliminate contractors who are not responsive, responsible and competent; encourage healthy competition among 'eligible' contractors; reduce risk of contractor failure and improve client satisfaction; enhance contractor selection in term of achievement; and serves as an external auditing of the contractor's ability.

Financial Stability

Financial stability makes appearance in almost every prequalifying team's list. This indicates the capacity of the contractor to fully meet financial commitments. Basically this criterion involves evaluating the financial condition of each contractor responding to call for expression of interest. Russell (1990b) indicated the importance of contractor's credit rating, banking arrangements and financial statement to measure the solvency (or liquidity), efficiency and profitability of a contractor, in assessing his financial capability indicated in the Table 2.1. Lai, Liu and Wany (2007) considered financial stability for prequalification as the ratio analysis accounts, bank and credit reference and turnover history

Contractor Experience

Contractor experience entailed past performance based on the type of projects completed in respect to location, nature, size, scope, local and national experience, to determine whether or not it has handled jobs of similar nature and scope. Also it demonstrates a contractor's ability to allocate and spread its resources in an effective manner (Ramani, 2000). In term of national and local experience a contractor is assessed on the familiarity with the local by-laws as well as national legislation that may govern the project. Birrell (1985); Bubshalt and Al-Gobali (1996) affirmed that possessing experience in completing similar projects should be an important evaluation criterion as stated in Table 2.1.

Manpower Qualification and Management

Studies have shown that stability of tenure of personnel matter most for proportion, but employees need a period of stability in a job to deliver of their best. In qualification of key personnel in the management of the project is viewed as being crucial to a successful project outcome, particularly the profitability of the contract (Holt *et al.*, 1994a). It is an obligation of the management to adopt a formal training regime to pass on to employees for smooth management. Russell (1991) reported that 8 out of 14 projects failed because of lack of managerial experience and technical staff. APCC (1998) listed some of the needful a contractor should have as; skill formation, training policy and compliance with award prequalification and statutory obligation and so on, a few as evidence of a contractor performance and commitment to human resource management.

Safety and Health Record

Accidents at construction sites may not only result in a loss of life but also result in increased insurance premium rates on the subsequent projects by the same contractor. It also results in a loss of goodwill. The selection of a contractor with a good safety record can minimize construction accidents and thereby save construction costs (Al-Gobali 1994).

Current Work Load (Capacity)

This criterion sometime known as 'current projects on hand' involves the evaluation of the contractor's manpower, equipment and financial resources contributing to the ongoing projects to determine if its current commitment can influence his performance on the project which is being currently prequalified (Vela, 2000). Completion of current project show actual quality achieved for recommendation (APCC, 1998).

Table 3.1: Prequalification Criteria and Sub Criteria

Criteria	Sub-criteria
Financial standing	<ul style="list-style-type: none">. financial stability. turnover, profit, obligations amounts due. owned financial fund
Technical ability	<ul style="list-style-type: none">. experience. plant and equipment. personnel
Management capability	<ul style="list-style-type: none">. past performance and quality. quality control policy. quality management system. project management system. experience of technical personnel. management knowledge
Health and Safety	<ul style="list-style-type: none">. accidents. health and safety management system. insurance policy
Reputation	<ul style="list-style-type: none">. past failure in completed projects. number of years in construction. past client relationship. co-operation with contractors

Source: Plebankiewicz (2009).

Factors Influencing the Choice of Contractors' Prequalification

Contractor evaluation and selection is a difficult and challenging task plagued with many uncertainties in the economy. Jennings and Holt (1998) observed that uncertainties and complexities are the factors that influence judgment and choice. How then do clients choose contractors to deliver the required projects in this economy?. However, Holt *et al*, (1994) investigated some of the factors influencing choice of criteria and the trade-offs decision which clients are willing to make in order to select the most competent contractors as follows: socio-political influence, change in government, environmental condition, project location, contractor knowledge of geographical area, weather condition, labour and market condition,

method of constructor to deal with claims and dispute contractors' origin. Alphonsus and Mohammad (2015) identified project location, corruption, militancy, compensation issues, communal crises, youth restiveness change in government and economic situation, interference by the political leader, social and cultural factor improper understanding of the project, incompetent technical staff, lack of contractor administrative staff, bribe, and personnel interest shown in Table 2.2 below.

Table 3.2 Criteria Related Factors for Contractors' Prequalification

Factors	Sub- Factors	Related Factors
Financial position	Analysis of Accounts, Bank, Reference,	Financial Soundness, Insurance,
Key Personnel	Credit rating, Liquidity Ratio Experience and Qualified Key Personnel Personnel Year in Company	Business Turnover -Cash Flow Credibility of Key Staff
Workload/Capacity	Current Resource Workload, Equipment Resources, Contractor Capacity to Resumed New Work	Current, Commitment, Available manpower
Project Management Expertise	Management Structure, Project Management Management Monitoring and Control	Cost Control, Scope and Risk Control, Train/Skill for Particular projects
Location	Area of Catchment (local/national) Facilities Location	Office Location to Job Site Location
Organizational Experience	Related Experience, Size and Type of Project Completed	Market and Labour Familiarity, Understanding of Regulation
Past Project Performance	Cost Outcomes, Past Failures Performance, History, Schedule Performance Result from past project	Ability to Deliver, Demonstration Ability Reliability, Track Record
Health safety	Corporate Environment Policy, Safety plan, Safety Incident	Environment compliance, Safety Record
Company Standing	Amount of Past Business, Trade Union Record Litigation, Tendency	Organizational Maturity, Responsiveness and Business Ethic
Tender Price Proposal	Capital Price, Labour Rates, Operating Cost, Return/Benefits, Form of Contract	Program Methodology, Post Delivery Support
Quality Control	Work Quality Record	Certification, Implemented and Quality System

Source: Adapted from Watt et al. (2009)

Contractors' Prequalification Rating in Nigeria

Ratings basically determined upon the contractor's ability to properly finance the work as evidenced by their financial statement and on their competency and responsibility as indicated by the amount and condition of equipment, experience of principal personnel and record of contractor's experience with this and other awarding authorities. The resultant ratings include the Class of work, Maximum capacity rating and Maximum single project rating.

Holt *et al*, (1995) confirmed that contractor prequalification rating in Nigeria has been based on multivariate selection criteria like past performance records for similar projects, financial capacity, management capability, location factor, technical capability in terms of human and mechanical resources, general information about candidate firms, as well as other indices that might be very significant to the success of the project. However, Olatunji (2007b) opined that these variables are often markedly assessed using other sets of sub-variables. He explained further that, Due Process Policy Model (DPPM) is not designed for rigid application in the Nigerian procurement process that is why some criteria carry heavy points on some projects and may be considered less significant on other projects. DPPM used as prequalification basic criteria guide reflects some fundamental information about candidate contractors as having zero weighting. Therefore, absent of these zero weighting scores disqualified competitors. Arguably, these items might be considered imperative to the success of some other projects and be awarded points.

Table 3.2: Basic and Graduate Contractors' Prequalification Rating in Nigeria

Items	Definition	Prequalification Rating	Remark
i-iv	Evidence of incorporation of business name registration, Registration with Federal Ministry of works, Company's audited account for three year and Evidence of tax clearance for three years	0%	Due Process Policy Model (DPPM)
V	Evidence of financial capacity and banking support	15%	Due Process Policy Model
Vi	Professional bodies certificate of experience/technical key personnel	25%	Due Process Policy Model
Vii	Certificate of completion of similar project executed and knowledge of the industry	20%	Due Process Policy Model
Viii	Equipment and Technology capacity	20%	Due Process Policy Model
Ix	Annual Turnover	5%	Due Process Policy Model
X	Faithfulness to Value Added Tax	5%	Due Process Policy Model
Xi	Pencom certificate for three y ears	10%	Due Process Policy Model
Total		100%	

Source: BMPUI (2005) and Olatunji (2008)

In most cases, successful contractors must satisfy the client in terms of facts relating to capabilities, competencies and sound understanding of project peculiarities in terms of evidences of past performance on similar projects (including the presentation of letters of awards and certificates of practical completion on recent and similar completed projects). Moreover, depending on the number of applicants, a successful applicant contractor during prequalification must have scored not less than 70% in the assessment shown in Table 2.2 above. Also, the stipulated criteria and weightings are not permanently fixed. Contract administrators in various public procurement offices have the mandate to review the criteria and the weighting at their discretion; this must be done in fairness, and commitment to openness and accountability (Lopes, Ruddock and Loforte 2002). Based on the forgoing there may be some challenges this rating model prequalification policy is encountered and yet to provide solution to it.

Challenges of Contractors' Prequalification Rating in Recessed Economy of Nigeria

(a) *Presentation Problems:* Evidence of past performance means presentation of recommendation letters from previous clients and certificates of practical completion on similar jobs executed in the last three to five years, not pictures from previous projects executed alone. Olatunji (2008) observed that most contractors with excellent performance records may not have impressive scores during assessments. It is either that the candidate contractor does not have good understanding of how to present basic data required for assessment.

(b) *Vulnerability of paper based Prequalification:* Normally, DPPM's guide for prequalification is based on contractors' information and evidence given on paper records. This provides avenues to assess the firm's capabilities on facts based on documents showing relevant past experience and peculiar reputation in such projects. Also bank financial statement within a valid annual budget is very important. Perhaps, due to time limitations during procurement processes, consultants usually do not have the time and resources to confirm the state of some of the claims of the contractors. This implies that many firms can lay claim to a single individual, without his consent or to untraceable persons (dead, bankrupt, and illegal entities) as the technical members of their firm.

(c) *Prequalification of Consultants:* Latham (1994) and Egan (1998) observed that the problems with the construction industry are not limited to contractors alone. Consultants on construction projects should not be over-protected from prequalification. Perhaps, due to limited time, many construction contracts have been executed without prequalifying consultants. This implies there is no basis for the validation and physical assessment of records regarding the capacities claimed by consultants. Thus, prequalifying the capacity and competence of consultants will improve project delivery process in construction.

(d) *Prequalification and the growth of the Construction Industry:* The assessment of contractors' competencies and capabilities are based on credible financial bases, convincing records of past performance on relevant projects and strong technical strengths. Evidently, the fact that a firm is new and has not undertaken many projects does not mean the firm will fail if given an opportunity and vice versa (Olatunji 2008). The author explained further that, if the technical strength of the firm under assessment is composed of real and experienced

professionals, innovation and growth of the industry may be motivated. Thus, to a reasonable extent, there is a limit to discriminating contracting firms based on records of past performance. Therefore, the growth of the industry may depend largely on the commitment by all stakeholders to be more objective in assessing contractors for selection based on tangible variables at hand rather than using subjective methods.

(e) *Cumbersomeness of Prequalification Criteria:* The assessment criteria are similar to global standards and these have been applied to generate national models for selection of contractors for public works in Nigeria (Olatunji, 2006). The construction industry requires objective assessment criteria to guarantee an effective procurement system. However, it has been a critical challenge for the construction industry to generate universal assessment criteria (Hatush and Skitmore, 1997). There may be basic academic provisions but insisting on professional qualifications may be very cumbersome.

Analysis of Responses

The criteria were then ranked, and the result shown in Table 4.3. 75 factors identified were grouped into 7 component using Factor Analysis (FA) this factors and grouping are shown in Table 4.4. Table 4.2 shows the Kaiser-Meyer-Olkin (KMO) value of 0.734, exceeding the recommended value of 0.6 confirming the suitability of using factor analysis for this study.

Discussion and finding

Existing Criteria for Contractor's Selection

The ranking of the mean item score (MIS) of the existing criteria, Table 4.1, showed that past performance on previous project, experience of the contractor, evidence of incorporation of business registration, experience of technical personnel, experience of the geographical location of the project (the first five criteria and turnover) and profit, healthy/safety management system, contractor consideration for local content and community social responsibility, insurance policy and accidents (the last five among the twenty four criteria).

Past performance on previous project was ranked first with means value of 4.62 in Akwa Ibom State become the most important existing criteria in selecting a contractor seconded by the contractor's experience. Similar results were obtained by Ogunsemi and Aje (2006b) where contractors' performance was ranked first with a mean score of 4.72 among the twenty two variables used. Also a study in Poland by Plebankiewicz (2009) rated "past performance" second with importance index score of 89.04. This implies that, contractors' past performance on previous project presents his success and achievement as a proof of his ability to deliver the intended job successfully therefore create confidence in the client.

Table 4.1 Mean Item Scores and Ranking of the Existing Criteria for Contractors' Selection

Factors	1	2	3	4	5	N	Sum	Mean	Rank
Past performance/quality			1	27	49	77	356	4.62	1
Experience of the contractor		3	2	21	51	77	351	4.56	2
Evidence of incorporation of business registration			9	18	48	75	339	4.52	3
Experience of technical personnel			4	29	39	72	323	4.49	4
Experience of geographical location of the project			6	30	36	72	318	4.42	5
Tax clearance certificate for the past three years		2	9	24	42	77	337	4.38	6
Plant and equipment		2	12	29	32	75	316	4.21	7
Certificate of work already completed		2	17	26	32	77	319	4.14	8
Financial standing		6	21	13	36	77	307	4.04	9
Management knowledge	2		20	25	29	76	307	4.04	9
Quality control policy			30	25	19	74	285	3.85	11
Past failure in completing a project	7	10	5	16	35	73	281	3.85	11
Owner financial fund		7	19	29	20	75	287	3.83	13
Project management system		3	20	38	14	75	287	3.83	13
Registration with the federal ministry of work		6	25	28	17	76	284	3.74	15
Quality management system	1	4	28	26	12	71	257	3.62	16
Number of years in construction		12	21	29	15	77	278	3.61	17
Past client relationship		14	18	31	10	73	256	3.51	18
Co-operation with contractors	2	9	26	25	11	73	253	3.47	19
Turnover and profit									
Healthy/safety management system	3	7	33	17	16	76	264	3.46	20
Contractor consideration for local content and community social responsibility		14	32	17	13	76	257	3.38	21
Insurance policy	2	12	25	29	7	75	252	3.36	22
Accidents	4	11	37	12	11	75	240	3.20	23
	5	23	17	12	12	69	210	3.04	24

Source: Field Survey 2016

Factors Influencing the Choice of Prequalification Criteria

The 75 contractor selection variables in this study area were identified. Factor Analysis (FA) with varimax rotation was used to investigate the significant level among the variables. 75 factors were grouped into 7 groups, representing 60.61% of the variables. The grouping of rotation matrix is as follows: contractors' resource factors, incentive related factors, performance related factors, procurement related factors, managerial factors, and technical personnel management shown in Table 4.2.

Table 4.2: Factor Analysis Grouping Factors/ Variables for Choice of Contractors

Factor Group	Factor Variables	Components							Initial % variance
		1	2	3	4	5	6	7	
Contractor Resources availability	-degree of cooperation	0.72							
	-construction method	0.70							
	-plant resource availability	0.6							
	-caliber of staff	0.59							
	-acceptability of profit margin	0.68							
	-capacity of company	0.67							
	-appropriateness of organisation structure	0.66							23.68%
	-formal training regime	0.65							
	-plant and equipment holding	0.61							
	-quality management system	0.60							
	-health and safety procedure	0.59							
	-response to instruction	0.58							
	-environment aspect	0.58							
	- project location	0.53							
Incentive related factors	-aesthetics and function characteristics	0.51	0.77						
	-promoting good handlers	0.51	0.76						
	-incentive practices	0.51	0.72						15.00%
	-giving bonus to workers	0.51	0.71						
	-litigation history of company	0.51	0.64						
	-regular payment of worker salary	0.51	0.56						
Project risk Related factor	-ability to work as a team								
	-insecurity			0.75					6.00%
	-restiveness			0.73					
	-public relation practice			0.68					
	-environmental aspect (swamping terrain)			0.57					
Performance related factors	-ransom payment			0.53					
	-compliance to environment standard				0.64				
	-flexibility of management				0.62				
	-evidence of timely delivering of project				0.62				5.09%
	-quality assurance control				0.56				
	-past client – contractor relationship				0.55				
	-geographic experience				0.54				
	-utilization of locally available manpower				0.52				
Procurement related factor	-method of material procurement					0.74			
	-procurement system					0.65			
	-credit rating/turnover					0.62			
	-supervision/effective monitoring by experts					0.61			3.88%
	-contractor familiarity with weather condition					0.58			
	-number of experienced specialist					0.58			

Managerial related factor	-division of responsibility	0.71	
	-attention to site welfare and safety	0.66	
	-organisation expertise	0.64	
	-technical alternative	0.60	3.74%
	-tender sum	0.60	
	-tenure with firm	0.54	
Technical management factor	-availability of suitability equipment	0.59	
	-method statement	0.59	
	-availability of key personnel staffs	0.55	
	-project location	0.53	3.22%
	-work program	0.52	
	-prompt remedying of defects	0.52	

The suitability of data for factor analysis was assessed. Table 4.3 shows the Kaiser-Meyer-Olkin (KMO) value of 0.734, exceeding the recommended value of 0.6 confirming the suitability of using factor analysis for this study.

Table 4.3: KMO and Bartlett's Test Details

Item	value
Rotation converged in 7 iterations.	7
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.734
Bartlett's Test of Sphericity	Approx. Chi-Square
	Df
	Sig.
	9587.817
	2926
	.000

Group 1: Contractor's Resource Available Related Factors

Contractor's resource available related factors ranked group 1, comprised 14 variables with ranging from 0.510 to 0.724. It has an eigen value of 17.998 and percentage variance of 23.681% showed in Table 4.2. The variables were: degree of cooperation (0.724), construction method (0.701), plant resource availability (0.685), calibre of staff (0.677), acceptability of profit margin (0.673), capacity of company (0.664), appropriateness of organisation structure (0.653), formal training regime (0.608), plant and equipment holding (0.600), quality management system (0.594), health and safety procedure (0.581), response to instruction (0.581) environment aspect (0.529), project location (0.510). This is generally concerned with the resources of the contractor, that is ability to acquire what it take to exist and be functional at all time (Chan, Scott and Lam, 2002). Cooperation among the team workers is inevitable.

Group 2: Incentive Related Factors

There are three types of incentives; non- financial incentive, semi-financial incentive and incentive reward program. Non- financial incentives this type rely on increasing an employee's sense of satisfaction in his or her work. It is based on the management's

recognition that an employee's work is valuable to the business as a whole, and providing employees with the feeling that project undertaken is inherently meaningful (Liska and Snell, 1992). From the above explanation, factor analysis has grouped 7 variables relating to incentives factor to be considered in choosing contractor for any project. These variables with loading ranging from 0.506 to 0.765, it has eigen value of 4.632 and percentage variance of 15.00% as showed in Table 4.2. These factors represent 15.00% of the total variance explained and emerged as second most importance criteria in the study area for prequalification of contractors.

Conclusion and Recommendations

It is concluded that all the criteria assessed were found to be significant. The most significant criteria included past performance seconded by experience of the contractor in the study area. Among the seventy five (75) factors influencing the choice of prequalification criteria were reduced into seven components using factor analysis namely: contractor's resources availability related factor, incentives related factor, project risk related factor, procurement related factor, performance related factor, managerial related factor, and technical related factor. Contractor's resources availability related factor was the most influential factor in the choice of the criteria while technical factor was the least influential factor for contractor prequalification. The recommendation from the research was that adequate attention should be given to human resources and previous records, as these affect the performance of the contractor to successful delivery. Developing human resources in the construction industry through the provision of incentive and training to workers to boost their morals in the area of specialization. Further research should be carryout on other locations within and outside the Nigeria to help identify key prequalification criteria influencing the choice of contractors.

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