

Contractor Prequalification Criteria (CPC) use in Public Procurement Projects (PPPs) in Nigeria

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Contractor Selection Process is a tedious task for the Decision Makers (DMs) due to multiple criteria involved both at prequalification and tender evaluation stages. It becomes necessary to identify Contractor Prequalification Criteria (CPC) use for Public Procurement Projects in order to assist the Decision Makers (DMs). Thus, the purpose of the study is to assess the frequency of prequalification criteria use for Public Procurement Projects. Survey research design was used and the population comprises construction professionals and public clients organization. This study was carried out at Lagos and the Federal Capital Territory, Abuja in Nigeria. Stratified random sampling technique was used and data were collected using questionnaires. A total of 373 questionnaires were distributed and 290 were used for the analysis. It gives a response rate of 78%. Statistical Package for Social Science (SPSS) was used to analyse the data using frequency, percentage, t-test and Spearman Rank correlation. The findings shown that current fixed asset, skill including professional technical expertise such as qualification with experience, past performance, provision of Health and Safety regulation and capacity of work handled presently were frequently used Contractor Prequalification Criteria (CPC) identified. There is also an agreement between public clients and consulting organisation on the frequency of use Contractor Prequalification Criteria (CPC). In conclusion, public clients and consulting organisation should use the same CPC for public procurement projects to ensure objective judgement of the criteria. The study recommended that current fixed asset, technical skill, past performance, capacity of contractor and provision of Health and Safety should be a yardstick for evaluating CPC.

Keywords: Contractor Prequalification Criteria (CPC), Contractor Selection Process (CSP), Decision Makers (DMs), Public procurement projects, Tendering

INTRODUCTION

The construction industry is unique and complex which entails a lot of risk and uncertainty (Tarawneh, 2004). Though the industry contributes to a nation's Gross Domestic Product (GDP) and aids the social development of a country by creating employment and infrastructure (Adeagbo, 2014; Okoye, 2016), yet there are a lot of challenges facing the industry which emanates from the clients, construction professionals and the contractors. This is basically due to the fragmented nature of the industry with a lot of team players who are involved in the implementation of projects. These team players determine the success or failure of construction projects. Project Team Integration (PTI), especially through communication in deciding the right contractor, helps to prevent time and cost overruns, conflict, substandard work and rework (Zala & Bhatt, 2011). According to Alhazmi and McCaffer (2000) in Huang (2011), the selection of the appropriate contractor for Public Procurement Projects (PPPs) contributes to successful projects in terms of ability to complete the project with reference to time, cost and quality standard.

Selecting contractor for PPPs is a tedious task due to the parties involved (Holt, Olomolaiye & Harris, 1994). However, this has to be done at the early stage of the contract programme, that is, at the design stage. It entails a decision to be made by the client representatives. There is however difficulty in taking the right decision by the Decision Makers (DMs) due to the numerous criteria involved and also putting into consideration the client's goal. As a result of these challenges, several decision tools have been developed to assist the DMs. These decision tools are both qualitative and quantitative in nature. The decision tools include Analytical Hierarchy Process (AHP) (Anagnostopoulous & Vavatsikos, 2006; Ajayi, 2016), Bespoke Approach (BA) (Holt, 1998), Cluster Analysis (CA) (Holt, 1998), Multi-attribute Analysis (MAA) (Holt et al., 1994), Evidential Reasoning Approach (ERA) (Somez, Yang & Holt, 2001), Fuzzy Set Theory (FST) (Marzouk, 2008), Artificial Neural Network(ANN) (Cheng & Li, 2004) and Topsis (Cristobal, 2011; Alpekin & Alpekin, 2017).

According to Hatush and Skitmore (1998) cited in Pongpeng and Liston (2003a), there is the assumption that only one DM takes a

decision as regards the selection process. Pongpeng and Liston (2003a) opine that for government projects, multiple decision makers are involved. As a result of multiple DMs, the problem of assigning weight to each criterion is an issue. This is due to different opinions, experiences, beliefs and judgments on assigning weight to the criterion. Thus, the problem of ranking the criterion becomes an issue among the DMs. It creates subjective judgment, bias and favouritism (Ajayi & Ogunsanmi, 2013). Thus, DMs need to be careful in taking a cohesive decision due to the multi-criteria nature involved in the Contractor Selection Process (CSP) which could be both qualitative and quantitative.

CSP involves prequalification and tender evaluation stages (Ogunsanmi & Bamisile, 1997; Alzober & Yaakub, 2014). At these stages, the DMs are involved and according to Russell (1992), prequalification was identified as one of the decision domain. The prequalification stage is the process before tendering procedures, which allows clients to choose the most suitable candidate from amongst those declaring their willingness to participate in the tendering process. Tender evaluation occurs at the post tender stage. This involves prequalifying contractors who are successful at the prequalification stage (Salama, El-Sawah & El-Samadony, 2006).

Prequalification involves screening of the contractors for PPPs according to a set of criteria. The criteria are subjective, imprecise and qualitative in nature. The criteria include financial, experience, managerial capability, contractor reputation and Health and Safety. These prequalification criteria are usually comprehensive and give a clear picture of the contractors. Most of these contractors provide the information by sourcing for them as a document. This might be the reason why most Nigeria contractors scale through the prequalification exercise (Aje, 2008). It will affect the performance of the project in terms of time, cost and quality because accurate data were not provided by the contractors at the prequalification stage.

An effective prequalification process will help the clients to prevent insolvency and

eliminate incompetent and inexperienced contractor. The process will also act as external auditing of the contractor ability. There have been studies on prequalification in Saudi Arabia (Bubshait & Al-Gobali, 1996), in Australia (Ng, Skitmore & Smith, 1999), in UK (Holt *et al.*, 1994; Jennings & Holt, 1998) in USA (Russell, 1992) in Thailand (Pongpeng & Liston, 2003b), in Jordan (Tarawneh, 2004), in Turkey (Alpekin & Alpekin, 2017) and in Nigeria (Eggunatum, *et al.*, 2012; Ajayi & Ogunsanmi, 2013). No significant studies on the frequency of prequalification criteria being used in public procurement projects.

A related study by Wong, Holt and Cooper (2000) and Cristobal (2011) considered the weakness of using the lowest bidder as the criterion for contractor selection unlike Huang (2011) that suggested the use of lower bidder. Puri and Tiwari (2014) are of the opinion that using the lowest tender price affects the quality of the project. In Nigeria, there are no standardized criteria for public projects thus; clients use different methods in evaluating contractors' capabilities and assigned relative importance to the criteria. This has led to informal relationship between public officials, project teams and contractors. There is therefore a need for assessment of prequalification criteria for project success and objectivity in the procedure of selecting the suitable contractor. A proactive action is required to ensure a value based procurement system that will achieve the expectation of the government in terms of development and economy of the nation. Thus, this study will evaluate the prequalification criteria use for public procurement projects with a view to assist the client on the criteria to be considered for public procurement projects and to enable the DMs to come up with an objective judgment in CSP.

Hypothesis of the study:

1. There is no agreement between client and consulting organisations' on the frequency of use of prequalification criteria.

Prequalification process

Russell and Skibniewski (1988) opined that the actual process of contractor prequalification has received little attention in the past. They

described the contractor prequalification process along with the decision-making strategies and the factors that influence the process. The process entails dimensional weighing, two-step prequalification, dimension - wide strategy, prequalification formula and subjective judgment. Ng and Skitmore (2002) opined that prequalification processes can be viewed from these perspectives: formulation of decision criteria, screening, overall suitability assessment, reviewing and final selection.

According to Spear (2005), prequalification process is an important step in establishing an effective contractor Safety Health and Environment (SH & E) program. The prequalification process involves the appropriate Contractor providing the Client with completed Pre - Qualification Questionnaire (PQQ). The purpose of the questionnaire is to identify the contractor organisation with the effective safety program. It is then evaluated by the clients' representatives.

Prequalification is a decision making exercise that involves input from various parties (Russell & Skibniewski, 1988 in Khosrowshahi, 2001). The criteria are set up by the decision unit within the client organisation. These criteria differ from one organisation to the other. A typical prequalification procedure according to Merna and Smith (1990) in Khosrowshahi (2001) entails, initial selection, request submission - advertisement, receive submission, initial appraisal, initial assessment, subjective and objective assessment, final assessment and invitation to tender.

The use of an in-house contractor database is becoming much more widely accepted and provided it is regularly updated, it can become an essential part of the selection procedure. In some clients' organisation in Nigeria, it is made compulsory that contractors must register with the company before they can be invited to tender. Registration according to Odusami (1988) is of paramount importance. A general list of factors can be considered when selecting contractors, although not all contracts will include all the factors and the importance placed on these factors could vary from project to project and from client to client (Holt,

Olomolaiye & Harris, 1994; Potter & Sanvido, 1994).

Prequalification process entails formulation of decision criteria to form the basis for the prequalification assessment. A prequalification questionnaire is then produced according to the selected criteria. This questionnaire is sent to all interested contractors for completion. The contractors are screened according to decision criteria highlighted by the client's organisation (Holt *et al*, 1994). Table 1 gives a summary of previous researchers and their prequalification criteria. Dimensional weighting method (Russell & Skibniewski, 1988; El-Sawalhi *et al.*, 2007), Two-step prequalification method, Dimension-wide strategy method (Russell & Skienbwski, 1988), Prequalification formula method (Alsugair, 1999) and Subjective judgment method were identified screening procedure to be used.

The Overall suitability assessment is more comprehensive than the above screening process. It involves a number of quantitative and qualitative assessments. The financial, technical and managerial abilities of these contractors are the focus of the investigation at this stage. Those who passed this stage are included in the next stage (Hatush & Skitmore, 1997). In Nigeria, according to Budget Monitoring and Price Intelligences Unit (BMPIU) (2005), the criteria used at the Federal level are evidence of incorporation with the Federal Ministry of Works in relevant category, company audited account for three years stamped by certified auditor, evidence of tax clearance certificate for the last three years, annual Value Added Tax (VAT) registration, technical and personality skill, availability of plant and equipment and recently, evidence of pension contribution, compliance with industrial training fund and verifiable current NSITF compliance certificate. Contractors are required to provide all these documents for the purpose of prequalification. Any contractors without any of these documents are disqualified from prequalification.

The Nigeria construction industry had not been strictly following the prequalification procedure. This is often due to inadequate time available to the prequalifiers for contractors prequalification and the fact that prequalifiers

sometimes base their judgments on paperwork. Thus prequalification in such cases may favour those who can source for this document without having the significant requirement for the project.

When this method is used, contractors on the standing list are reviewed before including them on the tender list. The client representative reassessed the key criteria such as financial standing, management structure, health and safety. Obiegbu (2005) opined that contractors that score above 70% are successful contractor for prequalification. After reviewing the contractors' criteria, those qualified are invited for the final selection. It entails invitation of qualified contractors for tender evaluation. This process is based on the contractors' recent tendering performance and opportunities. These processes are important for competent contractors to be eligible for the tender. At this stage, the ineligible contractors would have been eliminated.

RESEARCH METHOD

Survey research design was used for this study and the population of the study comprises of public clients' and consulting organisation. The list of the construction professionals were obtained from their respective professional bodies. The consulting organisation comprised of Architects (415), Builders (387), Engineers (450) and Quantity Surveyors (450) from the study areas. Stratified random sampling technique was used to select the respondents. The sample size was calculated using Cochran formula. It gives a sample size of 373 with sample ratio of 0.1865. From the sample size calculated, 313 were from consulting firms and 60 were from public clients' organization. A total of 420 questionnaires were distributed and 290 were retrieved and used for the analysis. It gives a response rate of 69%.

$$n_0 \text{ (Cochran formula)} = \frac{t^2 \times s^2}{d^2}$$

Where: n_0 = sample size; t = t value for the acceptable margin of error ($t = 1.96$); s = estimate of variance in the population distribution (standard deviation (SD^2)); d = acceptable margin of error (0.05). This study was carried out in

Lagos state and Federal Capital Territory, Abuja because of high percentages of clients' and consulting organisations in the two cities. The increasing rate of urbanization has resulted in pressure on land use in Lagos; hence it involves a lot of construction activities (Adelekan, 2013) to meet the expectation of its populace. Abuja is the Federal Capital of Nigeria (FGN) and it is centrally located geographically. Abuja is also the seat of government where the majority of construction projects are going on and where government projects are approved. Most organisations, government ministries, and agencies have moved to Abuja, resulting in an increase in population with the migration of construction organisation in order to accommodate the level of development (Adelekan, 2013). The data collection instrument used was questionnaire, this was administered to public clients and consulting organisations in order to avoid the possibility of a low response rate (Field, 2009). 373 questionnaires were distributed and 290 were collected giving a response rate of 78%. Statistical Package for Social Sciences (SPSS) was used for the analysis. Frequency, percentage, t -test for proportion and Spearman Rank Correlation statistical tools were used to generate the result from the data. This study was subjected to a reliability test using pre - test method. The reliability of the scale for the questionnaires was tested using Cronbach's alpha method which was found to be 0.79. The result suggested that the questionnaires are highly reliable and there was an internal consistency. This is judging from the fact that, 0.79 is greater than 0.70 minimum reliability level (Asika, 2002; Field, 2009).

DISCUSSION

Background information of the respondents

From Table 2, 66% of the respondents were from consulting organisation and 59% were from public clients' organisation in Lagos State. In Abuja, 34% were from consulting organisation and 41% were from clients' organisation. Lagos State recorded the highest percentage of consulting and public clients' organisations because it is the commercial and economic nerve centre of the country while

Abuja is the seat of administration in Nigeria. The table clearly shows that 20% Architects, 20% Engineers, 18% Builders and 42% Quantity Surveyors are from consulting organisation. While 20% Architects, 30% Engineers, 4% Builders and 46% Quantity Surveyors are from public clients' organisation. It shows the extent of involvement of Quantity Surveyors in the selection of competent contractors for projects. This is because they report on evaluation and examination of the tender after prequalification of the contractors by checking arithmetic errors and the unit rate to ensure an appropriate contractor is awarded the contract. 42% of the respondents have been with the industry for less than 10 years, 36% between 11 -20years, 17% between 21 – 30 years and only 5% of the respondents had been in the industry for more than 30years in a consulting organisation. For public clients' organisation 34% of the respondents have been in the industry for less than 10years, 43% between 11 – 20years, 20% between 21 – 30 years and 2% for more than 30years.

The table also reveals that majority of projects executed by consulting firms were between 51million – 100 million naira (33%) while the majority of projects executed by public clients' organisation were government projects,

Table 2: Background Information of Respondents

Background Information	Consultant		Public Clients'	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Location				
Lagos	130	66	55	59
Abuja	67	34	38	41
Total	197	100	93	100
Professional Discipline				
Architects	39	20	18	20
Engineers	38	20	28	30
Builders	34	18	4	4
Quantity surveyors	81	42	43	46
Total	192	100	93	100

of value between 101million – 500 million nairas (44%) as indicated in the table. These findings were in agreement with the study of Egwunatum *et al.*, (2012) where the highest ranked project value was over \$1582278.50 (\$1 = ₦158). This is due to the value of the project executed by consulting and public clients' organisations; it thus requires proper screening exercise for contractors selected to man projects to ensure completion to time, cost and quality standard. Public clients' organisation obtained the list of their contractors through advert or media (38%) and from those who have registered with them (26%). The least method of selecting contractors by clients' organisation is through the type of ownership (2%). It therefore implies that contractors that were interested in bidding for projects from any clients' organisations must have registered with that organisation before they could be invited for prequalification and tender evaluation. Therefore, to prevent incompetent contractors from being awarded the contract, clients' organisation ensures competition among the contractors through the use of open method of tendering for purpose of transparency, public accountability and fairness in selecting the appropriate contractor.

Experience in the construction industry				
Less than 10 years	81	42	32	34
11-20 years	71	36	40	43
21-30 years	34	17	19	20
More than 30 years	8	5	2	2
Total	194	100	93	100
Total value of projects executed in Naira (#)				
Less than 50 million	28	18	5	7
51million-100 million	52	33	10	15
101-500 million	48	31	30	44
501million-1billion	28	18	23	34
Total	156	100	68	100
Contractors' list for CSP				
From those contractors who have registered with the client	69	28	29	26
Recommendation from the project consultant	76	30	13	12
Responses through the advert or media	58	23	43	38
Through experience	32	13	15	13
Through company registered	11	4	11	9
Type of ownership	4	2	2	2
Total	250	100	113	100

List of Contractors for Prequalification

From table 3, 80% of consulting organisation obtained the list of contractors for prequalification on standing list for project of certain types and sizes and 20% based on ad – hoc list for a particular project. 76% of clients' organisation obtained the list of contractors on ad – hoc list. It shows that all the respondents from public clients' and consulting organisations agreed that the list of prequalified contractors was obtained from standing list based on the type of projects. Thus, such contractors must have registered with that organisation. In the study of

Jennings and Holt (1998) in UK cited in Huang (2011), it was discovered that most contractors were prequalified using “per project (ad-hoc list for a particular project) however, standing list is usually used by small firms (turnover less than £5M). In a similar study by Holt *et al.* (1995) cited in Huang (2011), on tendering practices in UK, about 70% public and 55% private clients agreed in using standing list to prequalify contractors for award of contract. Huang (2011) however opposed this method because there is usually a gap between the company being prequalified on the standing list and the tendering

procedure and in this period there may be unfavourable changes in the construction company. Thus he advised that instead of

standing list, prequalified contractors should be prequalified using “per project” method

Table 1: Previous Researchers’ on Prequalification Criteria

Prequalification criteria	Sources
Financial capability	Hunt <i>et al</i> , (1966); Merna and Smith(1990); Moselhi(1993); Yusif and Odeyinka (1993); Holt <i>et al</i> , (1995); Bubshait and Al-Gobali (1996); Kumaraswamy (1996); Holt (1996); Russel (1996); Holt (1997); Hatush and Skitmore (1997); Ng and Skitmore (1999); Graham and Hardaker (2001); Palaneeswaran and Kumaraswamy (2001);Mangitung and Emsley (2002); Alarcon and Mourgues (2002); Mahdi <i>et al</i> , (2002); El – Sawalhi <i>et al</i> , (2007); Plebankiewiez (2010); Huang (2011); Idrus <i>et al</i> , (2011); Puthitha (2011); Nieto – Morote and Ruz – Vila (2012); Puri and Tiwari (2014); Alzober and Yaakub (2014)
Experience capability	Bubshait and Al-Gobali (1996); Holt (1996); Palaneeswaran and Kumaraswamy (2001);Mangitung and Emsley (2002); Alarcon and Mourgues (2002); Mahdi <i>et al</i> , (2002); Lai <i>et al</i> , (2004); Topeu (2004); Ogunsemi and Aje (2006) El – Sawalhi <i>et al</i> , (2007); Huang (2011)
Technical capability	Hunt <i>et al</i> , (1966); Merna and Smith(1990); Yusif and Odeyinka (1993); Russel (1996); Hatush and Skitmore (1997); Graham and Hardaker (2001); Topeu (2004); El – Sawalhi <i>et al</i> , (2007); Puthitha (2011); Huang (2011); Nieto – Morote and Ruz – Vila (2012); Puri and Tiwari (2014); Alzober and Yaakub (2014)
Management capability	Merna and Smith(1990); Bubshait and Al-Gobali (1996); Holt (1996); Palaneeswaran and Kumaraswamy (2001);Mangitung and Emsley (2002); Huang (2011); Nieto – Morote and Ruz – Vila (2012); Puri and Tiwari (2014)
Health and Safety	Moselhi(1993); Holt (1997); Ng and Skitmore (1999); Lai <i>et al</i> , (2004); El – Sawalhi <i>et al</i> , (2007); Puri and Tiwari (2014)
Contractors’ reputation	Graham and Hardaker (2001); El – Sawalhi <i>et al</i> , (2007); Huang (2011)
Past performance	Hunt <i>et al</i> (1966); Yusif and Odeyinka (1993); Holt (1996); Holt (1997); Hatush and Skitmore(1997); Mahdi <i>et al</i> , (2002) Topeu (2004); Puthitha (2011); Alzober and Yaakub (2014)
Organisation structure	Merna and Smith(1990); Moselhi(1993); Holt (1996); Holt (1997); El – Sawalhi <i>et al</i> , (2007); Puri and Tiwari (2014); Alzober and Yaakub (2014)

Table 3: List for Prequalification

Prequalification list	Consulting organisation (Freq.)	%	Clients' organisation (Freq.)	%
Standing list for project of certain types and sizes	151	80	65	76
An ad-hoc list for a particular project	39	20	21	24
Total	190	100	86	100

Freq. = Frequency; % = Percentage

Review of Contractors' Information on Standing List

Due to the technicality involved in prequalification and tender evaluation procedure for purpose of selecting an appropriate contractor for a proposed project, it shows that the information submitted by the contractors needs to be reviewed. From table 4, consulting organisation respondents agreed they review contractors' data annually (42%). It was followed by once in a while (32%), and bi-annually (13%).

While clients' organisation also reviewed contractors' data annually (47%) and once in a while (31%). In the study of Huang (2011) on analysis of a selection of project contractor, he agreed that contractor data should be updated in a given period of time due to time lapse between the period contractors is qualified and when it submits its bid. Thus, it is important that contractors' data should be reviewed in support of the study of Huang (2011).

Table 4: Review of Contractors' Information on Standing List

Review of contractors information	Consulting organisation (Freq.)	%	Clients' organisation (Freq.)	%
Never	4	2	3	3
Annually	81	42	41	47
Once in a while	62	32	27	31
Bi-annually	25	13	5	6
Half-yearly	22	11	11	13
Total	194	100	87	100

Freq. = Frequency; % = Percentage

Frequency of prequalification on type of projects

From table 5, it reveals that the most ranked project by consulting organisation were commercial (MIS = 0.83), residential (MIS = 0.79) and industrial (MIS = 0.72) projects. It was followed by religion (MIS = 0.64) and transport (MIS = 0.61) projects. For clients' organisation,

the most ranked projects were commercial projects (MIS = 0.84), residential (MIS = 0.80) and industrial (MIS = 0.73) projects. It was followed by religion (MIS = 0.69) and transport (MIS = 0.66) projects. Overall the most ranked projects were commercial (MIS = 0.83), residential (MIS = 0.80) and industrial (MIS = 0.73) projects. It was followed by religion (MIS

= 0.64) and transport (MIS = 0.63) projects. The respondents in both organisations ranked the type of projects for prequalification the same way. They are commercial, residential, industrial, religion and transport. It could be as a result of the value of the project and their functionality. In the study of Salama *et al.* (2006) in Egypt, they concluded that prequalification should be carried

out no matter how intricate the project. They however, prequalified electromechanical, industrial and utility projects rather than building projects. Egwunatum *et al.*, (2012) study in Niger Delta, Nigeria found out that building construction (41%) are more often prequalified than civil engineering (34%), industrial (13%) and heavy process (13%) engineering.

Table 5: Frequency of Prequalification on Type of Projects

Type of projects	Clients' organisation		
	MIS	MIS	MIS
Commercial	0.83	0.84	0.83
Residential	0.79	0.83	0.80
Industrial	0.72	0.75	0.73
Religion	0.64	0.69	0.64
Transport	0.61	0.66	0.63

Very often = 4; often = 3; rarely = 2; never = 1; MIS = Mean Item Score;

Frequency of Prequalification on Type of Procurements

From the frequency obtained, the highest type of procurements by consulting organisation respondents was construction management (MIS = 0.77) as shown in Table 6. It was followed with design and build (MIS = 0.77), management contracting (MIS = 0.75) and traditional (MIS = 0.75) forms of procurement. The least is turnkey (MIS = 0.74) procurement method. For clients organisation, design and build (MIS = 0.85) form

of procurement were ranked as the highest form of procurement. It could be as a result of high risk involved in design and build form of procurement where design is separated from construction. It is followed with construction management (MIS = 0.79), management contracting (MIS = 0.75) and traditional (MIS = 0.74) forms of procurement. Overall, both organisations ranked the forms of procurement the same way with the highest being design and build (MIS = 0.80) and the least turnkey procurement method.

Table 6: Frequency of Prequalification on Type of Procurements

Type of procurements	Clients' organisation		
	MIS	MIS	MIS
Design and build	0.77	0.85	0.80
Construction management	0.78	0.79	0.78
Management contracting	0.75	0.75	0.75
Traditional	0.75	0.74	0.75
Turnkey	0.74	0.67	0.71

Very often = 4; often = 3; rarely = 2; never = 1; MIS = Mean Item Score;

Frequency of Prequalification Criteria Use by Consulting and Client Organisations

Table 7 shows the frequency of use of contractors' prequalification criteria. Consulting organisation top classified and frequently used financial criteria were current fixed assets (85%), balance sheet statement (81%), subcontractors (77%) and annual turnover (75%). It was followed by income statement (68%), supplier (68%), liquidity (64%), long term borrowing (54%), medium term borrowing (53%) and short term borrowing (52%). For public clients', the top ranked frequently used financial criteria were current fixed assets (81%), liquidity (79%) and subcontractors (78%). It was also followed by income statement (71%), supplier (61%), short term borrowing (61%), long term borrowing (58%) and medium term borrowing (56%). The least frequently used financial criteria from both organisations were profitability (20%; 33%).

For experience criteria, the variables were ordered respectively as; used criteria from consultants' organisation were technical skills (98%), skill including professional technical expertise such as qualification with experience expertise (97%), type of projects (96%) and ability to handle projects (95%) and the least was national or local catchment (52%). It was followed by ability to meet target date (95%), size of the past project completed (94%), ability of skilled craftsmen (93%), level of technology (93%), and ability to perform on site (92%). Public clients top ranked used experience criteria were technical skills (97%), ability to handle project (97%), skill including professional technical expertise such as qualification with experience expertise (96%), type of projects (94%) and ability to meet target dates (94%). It was followed by size of past projects completed (93%), ability of skilled craftsmen (93%), ability to perform on-site (91%), availability to owned construction equipment for quality assurance (90%) level of technology (89%) and ability to control and organize contract (89%). The least ranked frequently used was national or local catchment (65%).

For managerial capability criteria, the most used criteria from both organisations are: past performance (97%; 96%), quality control

programme and quality of works on past projects (96%, 95%), quality workmanship (89%; 83%) and possession of quality assurance certificate (79%; 73%). For health and safety criteria, the most identified variables from both organisations were provision of health and safety regulation (90%; 88%), company safety policy (87%; 89%), and level of adherence to health and safety regulation (86%; 88%) and the least ranked was experience in noise control (38%; 54%). Contractors' reputation and image criteria, top ranked frequently used from both organisations were the amount of projects executed in the past 5 years (90%; 85%), permanent place of business (76%; 81%), capacity of work handled presently (96%; 87%) and financial penalties previously levied in respect of failures to perform the terms of contract (67%; 70%) and the least was litigation tendency (50%; 60%).

The results show that organisation prequalified contractors but there are no particular prequalification criteria been used. Thus clients' organisations advertise for contractors using open method of tendering and attached an expression of interest which stated the prequalification criteria for the projects. Different prequalification criteria were been used depending on the type of projects or procurement method for the project. In the study of Hatush and Skitmore (1997) cited in Sonmez *et al*, (2001) found out that clients used similar set of contractor selection criteria but they were ranked differently. Russell (1996) cited in Huang (2011) listed contractor prequalification criteria used as preliminary screening criteria (references, reputation, past performance), construction resources (financial, technical, status of current work program) and project specific criteria. While Palaneeswaran and Kumaraswamy (2000) divided prequalification criteria into responsiveness, promptness, realism and completeness, meeting deadlines, correctness and valid information and totality in providing information, responsibility, obeying the law and complying with local government regulations, standards and bylaws, quality system and safety system, competence recourse (financial, machinery, plant and equipment, human resources), experience, constraints (current workload, subcontracts and guarantees).

Table

Prequalification criteria	Clients'								
	N	F	%	N	F	%	N	F	%
A. Financial criteria									
Current fixed asset	17	14	85	84	75	81	25	22	8
	5	9					9	4	7
Subcontractors	18	14	77	81	63	78	26	20	7
	1	0					2	3	8
Balance sheet statement	17	14	81	88	57	65	26	19	7
	5	2					3	9	6
Annual turnover	17	13	75	84	63	75	26	19	7
	9	4					3	7	5
Income statement	17	13	68	87	62	71	26	19	7
	7	3					4	5	4
Liquidity	17	11	64	84	66	79	25	17	6
	3	1					7	7	9
Supplier	17	12	68	83	51	61	26	17	6
	9	1					2	2	6
Long term borrowing	17	91	54	78	45	58	24	13	5
	0						8	6	5
Short term borrowing	17	90	52	86	52	61	25	14	5
	2						8	2	5
Medium term borrowing	16	90	53	78	44	56	24	13	5
	9						7	4	4
profitability	16	33	20	75	25	33	25	58	2
	4						9		4
B. Experience criteria									
Skill including professional technical expertise such as qualification with experience	19	18	97	90	86	96	28	27	9
	1	6					1	2	7
Technical skills	18	18	98	89	86	97	27	26	9
	4	0					3	6	7
Ability to handle project	19	18	95	93	90	97	28	27	9
	0	1					3	1	6

7: Use of Contractors' Prequalification Criteria

Type of past projects completed	18 9	18 2	96	90	85	94	27 9	26 7	9 6
Ability to meet target dates	18 3	17 3	95	90	85	94	27 3	25 8	9 5
Size of past projects completed	18 5	17 4	94	90	84	93	27 5	25 8	9 4
Availability of skilled craftsmen	18 6	17 2	93	89	83	93	27 5	25 5	9 3
Level of technology	18 1	16 9	93	89	79	89	27 0	24 8	9 2
Ability to perform on site	18 4	16 9	92	92	84	91	27 6	25 3	9 2
Availability of owned construction equipment for quality assurance	19 1	17 1	90	93	84	90	28 4	25 5	9 0
Ability to control and organize contract	18 5	16 5	89	92	82	89	27 7	24 7	8 9
Availability of supervisors	18 8	16 5	88	90	73	81	27 8	23 8	8 6
Ability to efficiently integrates resources	18 5	15 9	86	92	75	82	27 7	23 4	8 5
National or local catchment	17 4	90	52	83	54	65	25 7	14 4	5 6

C. Managerial Capability criteria

Past performance	18 2	17 7	97	88	84	96	27 0	26 1	9 7
Quality control programme and quality of works on past projects	18 8	18 0	96	92	87	95	28 0	26 7	9 5
Quality of workmanship	18 8	17 0	90	89	74	83	27 7	24 4	8 8
Possession of quality assurance certificate	18 4	14 5	79	93	68	73	27 7	21 3	7 7

D. Health and Safety criteria

Provision of health and safety regulation	19 3	17 4	90	86	76	88	27 9	25 0	9 0
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Company safety policy	19 3	16 8	87	89	79	89	28 2	24 7	8 8
Level of adherence to health and safety regulation	19 4	16 7	86	86	76	88	28 0	24 3	8 7
Safety record available	18 8	14 6	78	87	66	76	27 5	21 2	7 7
Confidence in design and flexibility in accommodating design input by client	18 8	14 3	76	86	65	76	27 4	20 8	7 6
Accident book	18 7	11 2	60	86	56	65	27 3	16 8	6 2
Experience in noise control	19 0	72	38	84	45	54	27 4	11 7	4 3
E. Contractors' reputation and image									
Capacity of work handled presently	19 3	18 5	96	86	75	87	27 9	26 0	9 3
Amount of projects executed in the past 5 years	19 4	17 5	90	87	74	85	28 1	24 9	8 9
Permanent place of business	19 2	14 7	76	85	69	81	27 7	21 6	7 8
Past and present experience in regard to legal claims	19 1	13 7	72	84	66	79	27 5	20 3	7 4
Financial penalties previously levied in respect of failures to perform the terms of contract	19 0	12 8	67	84	59	70	27 4	18 7	6 8
Litigation tendency	17 9	90	50	84	50	60	26 3	14 0	5 3

N = Number, F =Frequency, % = percentage

Level of Agreement between Public Clients and Consulting Organisations

From table 8, there was an agreement between public clients' and consultant organisation on frequency of use of contractors' prequalification criteria because, t-test calculated ($t_{cal.}$) for financial, experience, managerial capability, health and safety and contractors' reputation and image ($t_{cal.} = 9.13, 13.98, 6.99, 5.93, 9.80$) is greater than t-test tabulated ($t_{tab.}$). Thus, the alternate hypothesis (H_1) is accepted. The

Spearman rank correlation (r) for public clients' and consulting organisations as indicated in Table 8 shows a positive correlation among the variables. From this study, it shows that prequalification criteria requirements for any construction projects were according to the clients' objectives/goal, hence the consultant must comprehend the effort of the clients' for project performance in terms of time, cost and quality. Mangitung and Emsley (2002) study on decision criteria for periodic prequalification in

the UK found that there was no significant difference between the frequency of use of periodic prequalification criteria among client and contractor using chi-square. This study

opposes that of Mangitung and Emsley (2002) probably because the methodology differs.

Table 8: Agreement between Public Clients' and Consulting Organisation on Frequency of Use Prequalification Criteria

Prequalification criteria	Spearman rank correlation Public clients' (r ₁)	Spearman rank correlation Consultants (r ₂)	t _{cal.}	t _{tab.}	Sig.	Remark
Financial	0.95	0.95	9.13	2.262	S	H ₁ accepted
Experience	0.97	0.97	13.98	2.179	S	H ₁ accepted
Managerial capability	0.00	0.97	6.99	3.182	S	H ₁ accepted
Health and safety	0.96	0.96	5.93	3.182	S	H ₁ accepted
Contractors' reputation and image	0.98	0.98	9.80	2.776	S	H ₁ accepted

$\alpha = 0.05$; t_{cal.} = t-test calculated; t_{tab.} = t- test tabulated; Sig. = Significant; H₁ =Alternate hypothesis

CONCLUSION AND FURTHER STUDIES

This study attempts to assess frequently used contractor prequalification criteria for public procurement projects. Prequalification is the screening of contractors by a set of criteria in order to prepare the prequalified contractors for tendering thus it required a systematic procedure for selecting these prequalified contractors. The results from this study show that contractors are prequalified from a standing list from the clients' organisation. That implies that such contractors must have registered with the client organization before they could be included in the prequalification list. Such list of prequalified contractors is reviewed annually as indicated in this study. It will ensure expunging the incapable contractors from being involved in CSP. Design and Build procurement method and commercial form of project was identified as the most rank frequency prequalification process among others.

The most frequently used contractor prequalification criteria were current fixed assets, technical, skill including professional technical expertise such as qualification with experience

expertise, type of projects, ability to handle projects, past performance, quality control programme and quality of works on past projects, quality workmanship, provision of health and safety regulation, company safety policy, amount of projects executed in the past 5 years and permanent place of business. The results show that organisation prequalified contractors but there are no particular prequalification criteria been used. Thus clients' organisations advertise for contractors using open method of tendering and attached an expression of interest which stated the prequalification criteria for the projects.

Different prequalification criteria were been used depending on the type of projects or procurement method for the project. There is an agreement between public clients and consulting organization on frequency of use contractor prequalification criteria. In conclusion, prequalification criteria requirements for public procurement projects should be according to clients' objectives and goals. Thus the

consultants must comprehend the effort of the clients in ensuring the project is completed within time, cost and quality standard. According to Jenning and Holt (1998), the prequalification process in the UK lacks assessment prior to tender and long-term confidence. However, in Nigeria, the prequalification process is being

assessed but in-depth investigation of the contractors' data is lacking. Having seen the importance of prequalification to CSP, greater effort should be given to the exercise to ensure only successful prequalified contractors is invited for tendering.

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