

Potential Attributes of Contractors' Prequalification Criteria for Civil Engineering Project: Essential Tools for Project Administration

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Abstract: Several research efforts have been made to establish the acceptability of contractors' prequalification criteria as basis for choosing a contractor to handle the delivery of projects with emphasis placed on the reliability of contractors' prequalification criteria to yield expected result. No matter the choice of the criteria adopted in selecting the contractor, its appropriateness becomes manifest during execution. Therefore, the essential ingredients needed to meet the demands of smooth administration of civil engineering project is portrayed in the various attributes associated with the criteria adopted during contractors' prequalification exercise. Hence, this study purposely delves into these attributes as a way of exploring the potentials of contractors' prequalification criteria geared towards enhancing their reliability to ensuring hitch-free administration of civil engineering project. Its scope comprises clients, contractors and consultants engaging in civil engineering projects. This study shows that contractors' prequalification criterion for civil engineering project is five-dimensional while its potential attributes are essential tools depicting the diverse civil engineering project administration areas where contractors' competence is mostly needed.

Keywords: Prequalification, Contractor, Prequalification Criteria, Potential Attribute, Civil Engineering Project, Contractor Selection Process, Project Administration

1. Introduction

Nigeria construction industry play indispensable role by meeting diverse human infrastructural and shelter needs through appropriate construction projects provided in accordance with man's specification for accommodation and convenience [1]. Obviously, the various construction projects that may be desired can be derived from the products of three distinct classifications of construction project. These comprise building, civil engineering and heavy/industrial engineering projects [2] and [3]. In case of civil engineering, [4] and [5] opine that it is a unique and special sector of the construction industry which happens to be the first engineering activity while human activities rely upon its products for various activities, such as to live, work, exchange and communicate, depending on owner's need. Civil engineering products are apparently in form of

structures and buildings. In this case, design and supervision responsibilities rest upon Civil Engineers. Moreover, previous studies reveal that civil engineering projects are distinctly characterized by type, nature, complexity and resource requirements as depicted in [6], [2] and [3]. The research result indicated in [7] show that civil engineering projects possess peculiar characteristics in respect of dealing with nature, large-scale construction activities, complex structures and often take longer time to achieve. These attributes constitute project uncertainties as far as civil engineering project is concerned. Similarly, [8] describes peculiar civil engineering project's characteristics as risks, believed to emanate from a number of factors, such as weather, environmental issues, traffic mix and growth, contract duration and availability of resources for the contractor to carry out the work. The effect of the risks was noted to be a threat to smooth administration of civil

engineering project. Apart from this, [9] opines that risks are detrimental to achievement of project's set target. On the other hand, [7] further explain that civil engineering project often experience change of design, quantity of work, material, time and cost of construction. This suggests that managing civil engineering project can be problematic, demanding involvement of relevant construction project administration tools. In view of this [10] posits that realization of civil engineering projects that meet set target require planning, organizing, coordinating and controlling.

2. Study Background

Literatures evidently reveal that contractors to handle the delivery of project are often screened based on a number of selection criteria [11 - 13]. This is usually done by evaluating contractors' competence in terms of past performance, business location, technical capability, financial soundness, resources, quality assurance among others [1, 12 and 13]. The primary purpose of the screening exercise, which takes place during prequalification of contractors, is to determine contractors' suitability and competence to deliver project at predetermined standard. Bearing in mind that responsibility to manage civil engineering project from inception to successful completion, under the supervision of client's representatives, rest upon the selected contractor, who must have been screened on the scale of a number of predetermined criteria. This makes it imperative for civil engineering project stakeholders to be conversant with the inbuilt construction administration attributes of contractors' prequalification criteria for civil engineering project. Moreover, civil engineering projects are apparently prone to challenges, possess peculiar characteristics, bring together people of different background and sited in specific location. Therefore, it behoves on civil engineering project contractors' prequalification criteria to be potentially endowed with features that are capable of ensuring effective administration of projects. Additionally, civil engineering project contracts, like other construction contracts, are signed by client and contractor, making them parties to the contract while the consultants are representatives, acting on behalf of the client. It is worthy to mention that government holds the statutory instrument needed by contractors to operate while the project, which always has specific location, is the entity that brings all stakeholders and other participants together. In view of this, it is not out of place to state that administration of civil engineering project requires the involvement of different categories of people and organizations whose participation may be direct or indirect. This presumes that contractor prequalification criterion for civil engineering project takes cognizance of relevant project stakeholders and other entities acting in different capacity as far as administration of project is concerned.

3. Research Objectives

The two objectives addressed in this study are stated below.

- a) to identify the project administration attributes portrayed by contractors' prequalification criteria for

civil engineering project.

- b) to assess the degree of importance attached to the client (owner), contractor (constructor), proposed project (assembler), environment (host community) and government (statutory holder) by contractors' prequalification criteria for civil engineering project

4. Need for the Study and Contribution to Knowledge

To avoid duplication of ideas, this study dwells on the project administration attributes of contractors' prequalification criteria for civil engineering project rather than emphasizing on contractors' prequalification criteria as basis for selecting the most competent contractor which has appeared in several research results. Therefore, this work exhibits the potential attributes of contractors' prequalification criteria for civil engineering project which is the driving force propelling the effectiveness of contractor's prequalification criteria. By implication, this study serves as a way to diversify and bring about further studies towards boosting previous knowledge in respect of contractors' prequalification criteria for civil engineering project. The result is an essential tool for civil engineering project managers and other stakeholders to appreciate the worth of contractors' prequalification criteria as far as administration of civil engineering project is concerned.

5. Review of Related Literature

According to [1] and [14], the responsibility of Nigeria construction industry is three-fold. These comprised provision of shelter, infrastructural facilities in addition to providing jobs for different classes of people, including construction professionals such as Architects, Quantity Surveyors and Engineers, Contractors (main and sub-contractors), suppliers as well as laborers employed by contractors. In view of this, it noted the indispensability of Nigeria construction industry in the development of the nation, ascribing its importance to the industry's significant contribution to Nigeria economic growth. In another dimension, the health of the economy of any country depends on the performance of the construction industry as posited in [15]. Therefore, the performance of the construction industry is a determinant of national economic growth and well-being [14]. As part of the construction industry, [4] submits that civil engineering industry produces civil engineering projects that play crucial role in meeting infrastructural needs of the people. Projects in this aspect are usually wide in scope comprising diverse areas of specialization. In [2] and [3], it was revealed that civil engineering projects are generally complex requiring vast resources and usually take longer time to construct. Customarily, civil engineering projects are initiated by clients, designed and supervised by Engineers, who carry out site investigation and maintenance [16]. Commenting on the peculiarities of civil engineering projects,

[4] believes that civil engineering project is an instrument that brings people from different cultural background and nationality together. Furthermore, it portrays civil engineering project as a class of construction mostly affected by weather condition with nature playing significant role in their design. These evidently connote the existence of management of human, material, and financial resources as well as the environment in the process of administering civil engineering projects.

However, the process of selecting contractors to handle the delivery of a construction project involves two distinct stages. These comprise prequalification and tender/bid evaluation according to [11], [13] and [17]. These stages involve decision making by clients and consultants. Decisions taken determine whether the project will be successful in terms of predetermined standards [18]. As a result of this, it was advised that the two stages in contractors' selection process must be strictly followed so as to ensure emergence of the most suitable contractor to handle the delivery of construction project. Prequalifying contractors was noted to involve prejudging contractors' capability and competence towards determining their suitability and laying sound foundation for achievement of satisfactory product [17]. This submission presupposes that contractors' prequalification criteria possess the potential attribute needed to determine contractors' ability to effectively handle project delivery. From literatures, prequalification was defined in various ways. For instance, [18] portrays prequalification as a process of assessing contractors' suitability by either the client or his representatives based on a number of predetermined criteria. Meanwhile, the exercise is primarily designed to determine qualified contractors among those who signified intention to participate in the selection exercise. Going by the definitions of some researchers, it is worthy of note that contractors' prequalification criteria is potentially characterized to eliminate unqualified contractors so as to ensure emergence of the most qualified contractor.

As a result of research efforts in the area of contractor's prequalification criteria, [11 - 12],[19 - 20] and Procurement act 2007 cited in [21] enumerate a considerable number of contractors' prequalification criteria. These studies reflect that contractors are either mono-criterially or multi-criterially prequalified. According to [13] and [17], contractors can summarily be assessed based on a number of major prequalification criteria, comprising technical capability, financial capability, managerial capability, general information, past performance and health and safety records, as well as relationship and environmental and socio-political criteria. In spite of this, it is evident that different degree of importance is usually placed on one prequalification criterion over the other. For instance, [22] argue that less importance has often been accorded contractor's management performance, stresses its imperativeness to construction project performance. In the opinion of [23], past project performance, technical expertise and cost are top ranking contractors' prequalification criteria with less importance attached to organizational experience, workload and

reputation. In its contribution, [24] is of the opinion that project client is at liberty to prequalify contractor based on one criterion and submit that contractor's experience is mostly favored. In line with standard practice, contractors will be asked to submit evidence of possessing these requirements relating to the selected criteria which will be verified by the decision making body formed by the client in order to establish the genuineness of the contractors' claims. On the other hand, the contractor is expected to rely on the potential endowments of the contractors' prequalification criteria during administration of projects so as to enjoy an exercise that is devoid of bottle-necks.

Considering the technicality of the activities involved in the process of contractor selection coupled with the importance of selecting the most suitable contractor, clients do engage consultants whose sole responsibility would be choosing the most suitable contractor for the client. Part of the purpose of contractor selection process is to investigate contractors based on appropriate selection criteria. Consequently, the choice of the contractors' prequalification criteria may be largely dependent on the prevailing circumstances in addition to client type and project characteristics such as type, magnitude and cost [11]. In view of this, contractors' prequalification for civil engineering project recognizes owners' requirements that constitute the objectives of the project which the consultants and contractor must strive to achieve so as to get the client satisfied [25 and 26]. Corroborating this opinion, [11] and [19] submit that contractors' prequalification criteria has no standard number, believed that it depends on the client and present project characteristics. This assertion, suggests a correlation between these factors and contractors' prequalification for civil engineering project. In spite of this, consultants rely on contractors' ability to effectively and efficiently utilize, during execution of projects, attributes that characterizes the prequalification criteria adopted during contractor prequalification.

6. Methodology

The primary data used in this study were obtained from Quantity Surveyors, Civil/Structural Engineers, Clients and Contractors, engaging in civil engineering project through questionnaire survey. The questionnaire presented seventy (70) contractors' prequalification sub-criteria under nine (9) main contractors' prequalification criteria which allowed flexibility in respondents choice of contractors' prequalification criteria perceived to be peculiar to civil engineering project. The questionnaire requested respondents to indicate their choice of option by scoring on a 5-point scale so as to obtain the ordinal data to determine the relevance of each criterion. Frequency and percentile were utilized in analyzing the data relating to background information while factor analysis was carried out via principal components analysis method of extraction for data reduction in respect of the potential attributes of contractors' prequalification criteria for civil engineering project. It

identified underlying variables that explains the pattern of correlation within a set of observed variables by reflecting a small number that best explains most of the variance observed in a much larger number form. As a matter of necessity, the data were checked for sufficiency by comparing the 156 valid responses obtained with the minimum 150 benchmark recommended in [27], indicating that the data were adequate. However, the data under consideration were subjected to further tests by conducting Kaiser-Meyer-Olkin (KMO) adequacy test and Bartlett's sphericity test. According to [28], the KMO measure represent the ratio of the squared correlation between variables to the squared partial correlation between variables while Kaiser-Meyer-Olkin (KMO) statistics value range between 0 and 1. The closer the Kaiser-Meyer-Olkin (KMO) value approaching 1, the compact it the pattern of correlation among the variables. Hence, [29] suggested a bare minimum Kaiser-Meyer-Olkin (KMO) value of 0.50 for an acceptable factor analysis value. The Kaiser-Meyer-Olkin (KMO) adequacy test and Bartlett's sphericity test conducted on the data yielded 0.838 and 0.000 respectively at significant level of 5% [$p < 0.05$] signifying that the data were adequate and qualify for factor analysis. The contractors' prequalification criteria were subjected to principal component analysis [PCA] and grouped using eigene value rule to determine the number of factors. In this case, the contractors' prequalification criterion having eigen value of 1 and above were selected. The eigen value of each contractor's prequalification criterion represented the amount of the total variance explained by that prequalification criterion. This assisted in determining the number and identifying the various relevant potential attributes. The result yielded fourteen (14) factors which represented the potential attributes of the contractors' prequalification criteria for civil engineering project.

Table 1. KMO and Bartlett's test result.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.838
Approx. Chi-Square	9895.5
	Df 2415
Bartlett's Test of Sphericity	Sig 0.000

7. Results and Discussion of Findings

7.1. Background

This study samples the perception of respondents in respect of contractors' prequalification criteria for civil engineering project towards identifying their project administration potential attributes. As a matter of necessity, respondents were requested to indicate their years of experience in order to establish their length of time in the organization where they work. From Table 2, few (4%) of the respondents records less than 15 years of experience while about 20% has between 16 and 20 years of experience. That of almost half (48%) of the respondents is between 21 and 25 years with only 28% having between 26 and 30 years of experience. From the result, the years of experience of majority (96%) of the respondents falls between 16 and 30

while the average years of experience of all respondents is approximately 23 years. This is considerably high signifying their eligibility to provide the data needed for this study.

Table 2. Years of experience of respondents.

Years	Frequency	Mid Point	Percentage
%			
≤5	2	2.50	1.30
6-10	2	8.00	1.30
11-15	2	13.00	1.30
16-20	31	18.00	19.90
21-25	75	23.00	48.10
26-30	44	28.00	28.20
Mean=22.83			
Total	156	92.50	100.00

From Table 3, a total of 26 respondents representing about 17% have attempted prequalification exercise ranging between 16 and 25 times. Similarly, seven (7) of the respondents indicates their prequalification exercise at 5 times and below. This figure represents about 5% of the total respondents. While 12 of the respondents experience between 11 and 15 prequalification exercises, only 9 participated in between 6 and 10 prequalification exercise. These figures accounts for about 8% and 6% of the total respondents respectively. Having indicated the number of prequalification exercise attempted by the respondents, it is important to determine the success rate recorded in those prequalification exercises. Results indicate that respondents succeed in one prequalification attempt and another. Almost three quarter (72%) of the respondents succeeded in between 21 and 30 prequalification attempts. A Total of 17 respondents, amounting to about 11% of the total respondents, succeeded in the region of 16 and 20 prequalification attempts. However, the success rate recorded by about 10% of the respondents range between 11 and 15 prequalification exercises while only few (7%) of the respondents succeeded in ten (10) prequalification attempts and below.

In other to establish the involvement status of the respondents in civil engineering projects, Table 3 further reveals that all the respondents were involved in the execution of one civil engineering project and another. Sequel to this, about two third (66%) of the respondents have successfully handled between 26 and 30 civil engineering projects. While 28 of the respondents, representing 18% of the total responses, were involved in between 16 and 25 civil engineering projects, about 9% handled ten(10) civil engineering projects and below. Only 7% of the respondents got involved in 12 civil engineering projects. Hence, a general overview of the result indicates that the number of prequalification attempts, successes and civil engineering project handled increased simultaneously with the respondents' years of experience. This result establishes that the respondents were involved in contractor selection process, implying that they were conversant with contractors' prequalification criteria for civil engineering project. Furthermore, the civil engineering projects handled by the respondents affirm their involvement in the administration of civil engineering projects.

Table 3. Prequalification record of respondents.

Year	Prequalification exercise attended since inception		Successful prequalification exercise		Civil engineering projects handled since inception	
	Freq	%	Freq	%	Freq	%
≤5	7	4.5	3	1.9	6	3.8
6-10	9	5.8	8	5.1	8	5.1
11-15	12	7.7	15	9.6	11	7.1
16-20	13	8.3	17	10.9	12	7.7
21-25	13	8.3	113	72.4	16	10.3
26-30	102	65.4	0	0	103	66.0
Total	156	100.0	156	100.0	156	100.0

7.2. Potential Attributes of Contractors' Prequalification Criteria for Civil Engineer Project

Summary of the potential attributes of contractor's prequalification criteria for civil engineering project is shown in Table 4. The first potential feature in the list is organizational risk management. This attribute shows that organizational risk management is an integral part of contractor's prequalification criteria for civil engineering project. Contract management forms part of the inherent features of civil engineering project contractor's prequalification criteria. Moreover, commitment to organizational and interpersonal relationship emerged as another potential characteristic of contractors' prequalification criteria for civil engineering project. Consolidating on previous experience and success ranks among the potential attributes portrayed by contractors' prequalification criteria for civil engineering project. Furthermore, conflict management and disputes resolution constitute another inherent attribute of contractors' prequalification criteria for civil engineering project. The result also shows that project characteristics are portrayed in the potential attributes of contractors' prequalification criteria for civil engineering project. In addition, the seventh potential attribute of contractors' prequalification criteria for civil engineering project include financial and funding arrangement. The essence, by this result, is to monitor payments to the contractor and expenditure on the project. Production management is another potential attribute of contractors' prequalification criteria for civil engineering project. This inherent feature signifies that civil engineering project involve a wide range of activities both in the contractors' yard and construction on the site, requiring proper coordination and monitoring through effective production management tools and system.

Table 4 further depicts that relationship between contractor and the client is another potential characteristic of contractors' prequalification criteria for civil engineering project. This inherent attribute sought to establish whether the contractor had any past dealings with the client, which is an essential tool to determine whether the contractor is reputable or not. Moreover, quality assurance made the list of the inherent attributes of contractors' prequalification criteria for civil engineering project. This encompasses all activities and measures needed to be put in place to achieve a product that

can stand the test of time. Also, protection of employees' and third party's interest is conspicuously among the potential attributes of civil engineering project contractors' prequalification criteria. Commitment to statutory organizations and host community also ranks among the peculiar inherent features of contractors' prequalification criteria for civil engineering project. This attribute is connected with contractor showing evidence of registration with and tax payment to statutory organizations of the government. Revealing the benefit to accrue to the community where the proposed project is to be located is another potential attribute of contractors' prequalification criteria for civil engineering project. This implies that contractors' prequalification criteria for civil engineering project recognize the importance of positively impacting on the host community and its citizenry. It can be inferred that the purpose is to prevent any form of disturbance that can be caused by community members to smooth administration of civil engineering project. Interpersonal interest is the last but not the least among the inherent attributes portrayed by contractors' prequalification for civil engineering project.

Table 4. Potential attributes of contractors' prequalification criteria for civil engineering project.

S/N	Potential attributes
a.	Organizational risk management
b.	Contract management
c.	Commitment to organizational and interpersonal relationship
d.	Consolidating on previous experience and success
e.	Conflict management and dispute resolution
f.	Project characteristics
g.	Financial and funding arrangement
h.	Production Management
i.	Establishment of relationship with client
j.	Quality assurance
k.	Employee and third party interest protection
l.	Commitment to statutory organizations
m.	Commitment to host community
n.	Establishment of interpersonal relations

7.3. Classifications of Contractors' Prequalification Criteria for Civil Engineering Project

To further the study on the potential attributes of contractors' prequalification criteria for civil engineering project, it is imperative to identify the various direct and indirect stakeholders and other entities it considers. The

result depicted in Table 5 indicates that contractors' prequalification criteria for civil engineering project recognize five different categories of entities. It possesses contractor related criteria, which scores 60%. This is the highest, denoting that larger proportion of contractors' prequalification criteria for civil engineering project is contractor inclined. This is followed by project related criteria, which polls over 21%. This is moderately high and considered appropriate meaning that proposed project is adequately taken into consideration by contractors' prequalification criteria for civil engineering project. Moreover, the proportion (7%) accounted for by government related criteria is very low, indicating that few government documents are expected from tendering contractors as far as civil engineering project is concerned. Client and environment related contractors' prequalification criteria for civil engineering project polls about 6% respectively. This is extremely low implying that little cognizance is accorded the project client and the environment where the proposed project is to be sited.

Table 5. *Classifications of prequalification criteria for civil engineering project.*

Classification	NO	%
Contractor criteria	42	60.00
Project criteria	15	21.44
Government criteria	5	7.71
Client criteria	4	5.71
Environmental criteria	5.71	5.71
Total	70	100.00

8. Discussion of Findings

Findings show that the respondent's average years of experience is considerably high, implying that it is sufficient to give room for them to acquire relevant experience to justify their eligibility to provide useful and reliable data for this study. However, all the respondents attempted considerable number of successful prequalification exercise and successfully handled the execution of reasonable number of civil engineering projects. Thus they have experienced contractor's prequalification process thereby making them conversant with the various contractors' prequalification criteria for civil engineering projects. By implication, involvement of the respondents in the delivery of civil engineering projects offers them opportunity to experience administration of civil engineering projects.

Civil engineering project apparently expose people to construction and associated risks which demands putting appropriate combating measures in place by civil engineering contractors. Hence, it can be inferred that the purpose might be to avoid, reduce, mitigate and cushion the effect of risks in case of occurrence. Therefore, this result aligns with the result in [30] which recommends implementation of risk management because of its imperativeness to achieving project objectives irrespective of type and size of project. Considering the opinion in [10], civil engineering projects require planning, organizing, coordinating and controlling to

be successful. On the premise that these activities are management inclined, this study signifies that civil engineering project require effective contract management system to succeed. Moreover, acquiring and maintaining sound track records by civil engineering contractors is also very important. In view of the result in [14], which views track record as the most important criterion for the award of contracts for construction projects; this study confirms and provides the assurance of a successful civil engineering project if awarded on track record basis. The possibility of conflict and/or dispute occurring while executing civil engineering project exist because it obviously bring together people of different tribe, ethnic, color and culture. When conflict and/or dispute occur, this study is of the opinion that there should be an appropriate measure to deal with such so as not to degenerate into crisis, which can be detrimental to smooth administration of the project. Considering the result in [31], which indicate that construction project disputes has a number of sources, this result believe that the essence of managing conflicts/disputes is to ensure that the effect of such conflict and/or dispute do not constitute a threat to management of civil engineering project. This attribute takes care of what should be done in the event of conflicts and/or disputes. However, probing into contractor's past and present project is highly imperative. This serves as a pointer to indicate whether the contractor had experienced project of similar characteristics to that of the proposed project. It thus inferred that contractors that had handled similar projects have competitive advantage over other bidders. Such contractor is most likely to have acquired enough administration experience to deliver the proposed project if eventually awarded the contract. Going by the submission in [32], this study took cognizance of the importance of uninterrupted cash-flow during execution of civil engineering project. As a result of the importance of funding to the administration of civil engineering project, contractors' prequalification criteria for civil engineering project acknowledges the need for alternative funding arrangement to ensure continuous operation, even when project faces funding problems from the client.

This research reflects the importance of production management, indicating that evidence to show contractors' capability to execute the project as designed is required from civil engineering contractors. Hence, civil engineering contractors have to understand the drawings and specifications, and appropriately refer to them with active participation of the technical staff to avoid failure during project execution. Going by the result in [33], construction contracts are better awarded on reputation basis. In same vein, this study infers that awarding civil engineering project contracts to contractors with sound relationship with the client will guarantee achievement of expected result. Furthermore, it is important to emphasize that adoption of quality strategies and monitoring quality achievement measures are essential to administration of civil engineering project. This tends towards checking for conformity with specification and quality testing for conformity with

established standards. This result supports the opinion in [34], which states that adoption of quality management strategies is essential to achieving quality product. Moreover, this study depicts that investigating into arrangements to cushion the effect of any losses suffered by employees of civil engineering contractors while carrying out their activities is mandatory during prequalification process.

However, civil engineering contractors' commitment is not limited to satisfying only the project client but extended to fulfillment of obligations to the government. The evidence, which must be presented during prequalification process, is an instrument that gives the contractor authority to operate. However, the likelihood of existence of relationship between the contractor and client is an attribute of contractors' prequalification criteria for civil engineering project. The nature of the relationship, which may be sound or defective, will be based on assessment of past dealings between the contractor and the client. Consequently, the contractor will be better placed during prequalification if their relationship is sound. In line with the opinion in [35], this study infers that the nature of the relationship between client and contractor can be established by monitoring the past dealings with each other. This will eventually show whether the contractor is reputable or not. From another perspective, it is important to establish whether any form of relativity, which may affect the administration of civil engineering project, exist between the client and the contractor. The reason for this is attributable to contracting as a business that anybody can venture into, with private individual, corporate and public institutions as clients of civil engineering project of any type and magnitude at any time.

Moreover, majority of contractors' prequalification criteria for civil engineering project tend towards project contractor with remarkably high premium placed on the proposed project. Hence, very little recognition is accorded the project client, government and the environment where the proposed project is to be sited. This might be connected with the obvious reason that contractors perform greater role in the administration of civil engineering project, especially in the procurement of materials and mobilizing human and machinery needed to transfer what was designed to the ground. The reason for this result might be connected with the opinion in [24] which indicate that construction contractors have greater influence on projects. In spite of this, it can be deduced that contractors' prequalification criteria for civil engineering project considers various entities.

9. Conclusion and Recommendation

Consequent upon the foregoing, it is important to conclude that prequalification experience of civil engineering project client, consultants and contractors depends on their years of experience, which eventually dictate their experience in the administration of civil engineering project. Hence, civil engineering project participants' experience in the administration of civil

engineering project increases with their years of experience. Inherent characteristics of contractor's prequalification criteria for civil engineering project are essential tools that reveal civil engineering contractors' internal ability so as to establish their capability to successfully administer the delivery of civil engineering project. Contractors' prequalification criteria for civil engineering project are potentially characterized to establish the nature of the relationship between the project client and the contractor. Also, potential attribute of contractors' prequalification criteria for civil engineering project shows whether contractors' experience is commensurate with the demands of the proposed project by indicating whether they had handled project of similar or same type with similar or same magnitude. In addition, contractors' prequalification criteria for civil engineering project are potentially featured to determine whether a contractor is responsible or not by investigating into contractors fulfillment of obligations to government. Potential endowment of contractor's prequalification criteria for civil engineering project is capable of eliminating disharmonious working environment in the area where the proposed project is located. Moreover, contractors' prequalification criteria for civil engineering project is potentially attributed to additionally reveal contractors' physical capability, commitment to sound relationship, ability to utilize available resources to deliver project within predetermined standard and fulfillment of obligations to government and host community as demanded by administration of projects. Furthermore, contractors' prequalification criteria for civil engineering project is five-dimensional, equipped with criteria relating to the client (owner), contractor (constructor), proposed project (assembler), environment (host community) and government (statutory holder). This is considered appropriate since it reflects a broader appreciation of contractors' prequalification criteria for civil engineering project, which is needed for a better appreciation of civil engineering project. Despite this, contractors' prequalification criteria for civil engineering project focuses more on the contractor and the proposed project with little consideration for government, the client and the project environment.

Consequently, it is imperative to recommend that civil engineering project contractors be enlightened on the need to intensify efforts towards winning more jobs so as improve on their chances of involvement in the administration of civil engineering projects. This is necessary in other to be opportune to fully explore the potential attributes of contractors' prequalification criteria for civil engineering project. The five-dimensional potential attributes of contractors' prequalification criteria for civil engineering project enumerated in this study should be strictly considered while making the choice of prequalification criteria determining factors for civil engineering project contractors. Hence, none should be prioritized at the expense of the other so as to guarantee adequate criteria for prequalifying civil engineering project contractors.

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