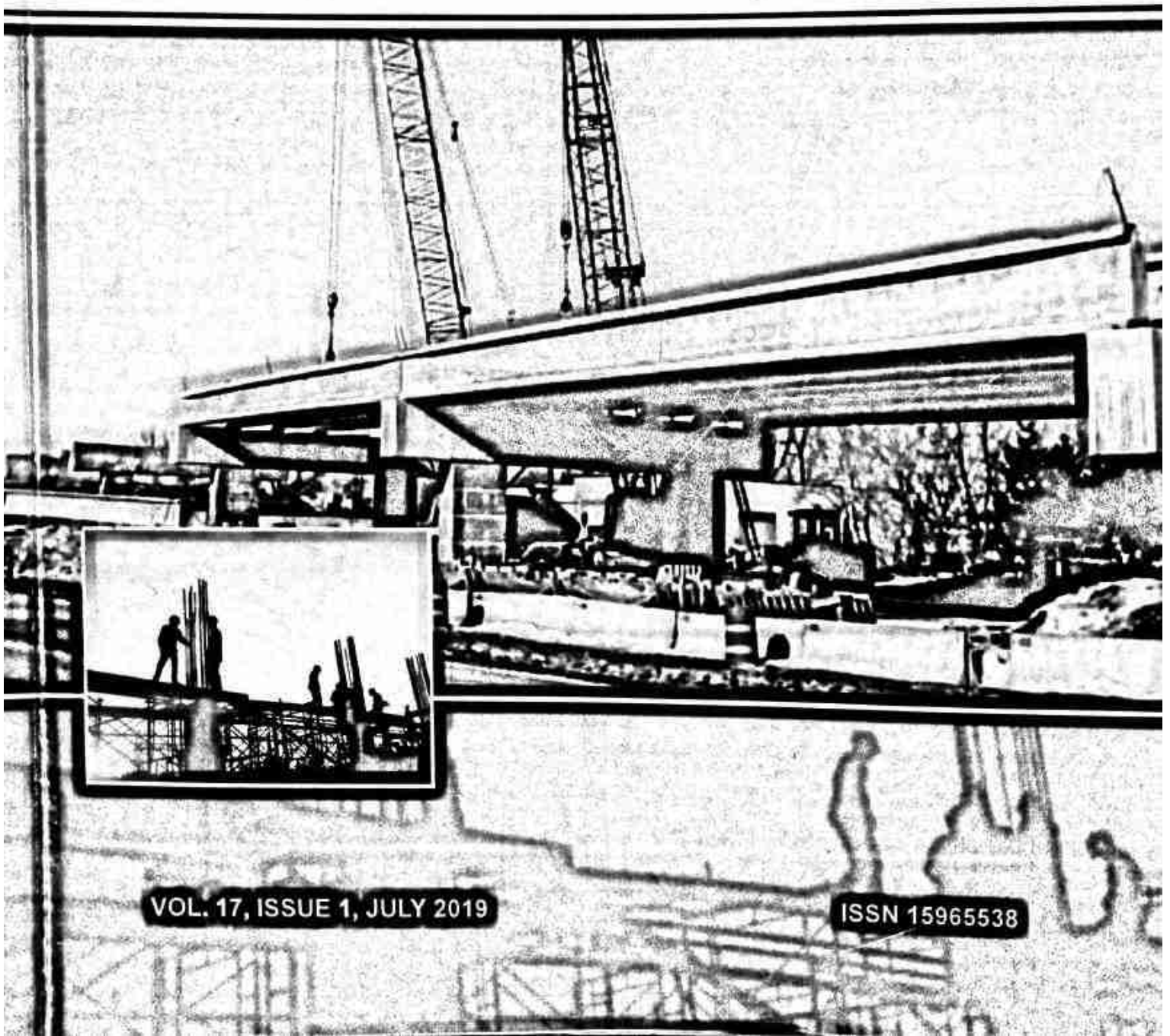


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MEASURES FOR EVALUATING ETHICAL PERFORMANCE OF CONSTRUCTION PROJECTS IN NIGERIA- AN EXPLORATORY APPROACH

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Abstract

Globally, the measurement of project performance is on the parameters of time, cost and quality variables, even though other equally important metrics like ethics exist. Particularly in Nigeria, ethical performance is a vital metric of the overall performance of a project given the embedded culture of corruption in public sector projects. Scales for measuring ethical performance of projects are nearly non-existent in Nigeria. Drawing from extant literature, the 2007 Public Procurement Act together with learnings from an ethnographic study of an erosion control project in Anambra State, Nigeria, this study therefore, explored metrics for measuring ethical performance in public infrastructure projects in Nigeria. The study concludes that the development and implementation of a measurement scale for unethical practices at the pre-award and post-award stages of the nation's public sector projects, is an imperative. The study recommends that governments at all levels should undertake ethical performance evaluation of their completed projects, and categorise the projects based on their ethical performances.

Keywords: Ethical performance, metrics, project performance, public projects.

Introduction

Project management literature has paid close attention to the measures of project performance over the years. From its inception in the 1950s (Cleland & Garcis, 2006), project management's interest has centred predominantly on the planning, control, monitoring and coordination of the factors that affect project outcome. Understandably, the protection of the clients' and other stakeholders' interests is a key objective of project management. These interests traditionally comprise time, cost, and quality criteria of project performance. Over time, other

project objectives have been added especially client/stakeholder satisfaction (Ika, 2009) within which ethics falls.

Ethical issues are often under-reported in projects, especially, in cases where the project apparently met the time, cost and quality criteria. In practice, the attainment of these criteria, may mask serious unethical conducts that could tarnish the image of the project participants when exposed. An example is where a chief executive awarded a project to a firm in which he has an interest (Larson & Gray, 2014). It will not matter that the firm delivered the project as expected.

An appropriate inquiry into the award process will recommend sanctions to be made against the chief executive which will be supported by other stakeholders in the project. Construction industry projects are very competitive. The projects, owing to their crucial role in the socio-economic development of a nation often involve high cost of procurement. In consequence, project awards are used by the government as monetary policy, trade 'warfare' and economic empowerment instruments. Often times, the moral principles of nations' construction procurement processes are questionable.

Across the globe, corruption and other unethical practices are considered to be pervasive in the construction industry (Al-Sweity 2013; Kenny, 2007; Alatu 2007; Ameh & Odusami 2010a). Procurement related bribery is reported to account for as much as 57% of bribery in some countries (Organisation for Economic Co-operation and Development, 2014). Corruption costs up 30% of a project's price in Europe and Japan (Ogbu & Asuquo, 2018; PwC EU Services and Ecorys, 2013). A widely accepted estimate of losses due to corruption in Nigerian construction industry does not exist currently. Despite the seriousness and high prevalence of unethical construction procurement practices, widely adopted metrics (indicators) for measuring the extent of unethical practices and conducts in the nations array of projects unfortunately do not exist. As shown above, most times, authors tend to only give after-the-fact estimates of the percentage of corruption that occurred in a country's construction industry as a whole rather than report on individual projects.

It is presently difficult, therefore, to objectively compare the ethical performance of two similar projects within a country or across countries. This current situation denies policymakers the opportunity to pinpoint the activities in a procurement process that are critically prone to corruption. For instance, Kenny (2007) hinted that the point at which corruption occurs in a procurement process can vary from bribes designed to manipulate budgeting decisions, those designed to cover up poor quality construction work, to the theft of materials on site. Ethical measures are required across the construction procurement value chain

to assess the level of compliance to stakeholders' ethical expectations from projects. The absence of such a tool implies absence of measurable targets of ethical performance for procurement personnel and lack of ethical performance benchmarks for projects. Unfortunately, there are no alternative evaluation standards to objectively assess this important, but often neglected project objective.

In spite of the above, there seems to exist a general disinterest of researchers in developing or crafting an appropriate ethics-based project performance evaluation scales. A review of construction industry corruption research by Dalyop, et al. (2017) did not reveal any attempts to evolve metrics for measuring the ethical performance of projects in Nigeria. Metrics exist for the measurement of the other project performance indices. For example, project time performance can be measured as the ratio of the actual and to the planned durations of a project. Project quality can be measured as the number of reworks, while project cost performance can be taken as the ratio of the final account sum to the initial contract sum. These metrics enable thresholds to be set for the purposes of project control. Developing measurable performance indices for construction procurement ethics will greatly aid the improvement of the ethical performance of construction projects in Nigeria. From the foregoing discussion, this paper explores the metrics for the measurement of construction project ethical performance with a view to deriving a scale for ethical performance evaluation of projects in Nigeria.

Ethics in the Construction Industry

Ethics generally refers to the rightness or wrongness of a person's goals and the means of attaining those goals (Poon & Hox, 2010). Abu Hassim, Kajewski and Trigunaryah (2010) included the psychological processes of thinking, reasoning and judgements as parts of the processes that must be ethical. To be ethical is to conscientiously adopt the moral virtues of fairness, honesty, integrity, objectivity and reliability (Masou, 2009). Construction workers and professionals generally have disincentives to be fair and honest in their business dealings

(Poon, 2004). Construction is a multidisciplinary industry. Workers' earnings in the industry are tied to their productivity, and the professionals are in a web of relationships that create business and personal ethical dilemmas. Little efforts are expended in imbuing ethical values in construction industry professionals during their educational and vocational trainings (Wyschal, 2015). Ameh and Odusami (2010b) opined that the predominant ethical philosophy of construction industry professionals in Nigeria is *situationalism*. This ethical disposition implies that the ethical conducts of the professionals are premised on the prevailing circumstances, and are, therefore, subject to vary under different conditions (Fewings, 2008). In contrast, the 2007 Public Procurement Act and its subsidiary regulations prescribe ethical expectations from public procurement personnel in the conduct of government's procurement processes. Thus, such professionals' choices of actions in the face of ethical dilemmas are legally delimited rather than situational. It is, therefore, possible to design an ethical performance scale for public sector procurement officers which will be underpinned by the PPA 2007 and its subsidiary regulations.

Ethical Performance Evaluation Scales

Performance is the degree to which an objective is achieved. Ethical performance is the level of ethical attainment in a project. Various authors have attempted to estimate the extent of ethical attainment of different research subjects. Schwartz and Weber (2006) developed an instrument to measure the level of national business ethics activity for countries. The instrument was not individual-centric and contained dimensions covering: academia, business, social, business ethics organisation, government activity, social activist groups and media coverage. The intentment of the instrument is to rate countries, which could give a general overview of a country's ethical climate, but, does not help much in understanding the ethical performance of projects.

Forsyth (1980) developed an ethics position questionnaire (EPQ) to enable classification of individuals by their ethical ideologies. The EPQ has 10 statements related to each of relativism and idealism. In this scale, an individual's ethical ideology can be: 1)

situationalist - if he has high scores in both idealism and relativism, 2) absolutist - if he has high scores in idealism but low scores in relativism, 3) subjectivist - if he has low scores in idealism, but high scores in relativism, and; 4) exceptionists - if he has low scores in both idealism and relativism. Thus, Forsyth's (1980) scale while useful for identifying the class of a person's ethical ideology, is not suitable for measuring the ethical performance of a construction procurement process.

Reidenbach and Robin (1990) proposed a multidimensional ethics scale (MES) that measures the rationale that individuals use in making ethical decisions. The scale presents individuals with ethical scenarios as a way for carrying out the ethical evaluation. In this scale, an individual rates himself on the constructs - justice, relational, egoism, utilitarian, and deontology scales. Reidenbach and Robin's (1990) MES has been used primarily in the retail and marketing fields. The measures for each of the constructs of the MES are not construction industry-specific and will be unsuitable for gauging the ethical outcome of a construction project.

Richtermeyer, Greller and Valentine (2006) used the corporate ethical value (CEV) scale to measure employees' perception of the corporate ethical values of their organisations. The scale was primarily intended to provide feedback to an organisation's policymakers on the ethical performance of its managers at different levels. In this scale, respondents are expected to rate five statements related to 1) the extent to which employees perceive that managers are acting ethically in their organisations 2) the extent to which employees perceive that managers are concerned about the issues of ethics in their organisations, and; 3) the extent to which employees perceive that ethical (unethical) behaviour is rewarded (punished) in their organisations (Hunt, Wood & Chonko, 1989). In the end, the CEV is organisation-focused, rather than project focused.

Newstrom and Ruch's (1975) ethical measurement scale comprised of 17 items each of which reflected a dimension of unethical behaviour. It was intended for the measurement

of unethical behaviour when engaged by a marketing professional. It is, however, difficult to ascertain if the scale would be useful for construction procurement ethical performance measurement since the dimensions used are not reflective of construction projects. For example 'remove company supplies for personal use' and 'use company time for no-company benefits or for personal business' were used as operational labels in the Newstrom and Ruch's (1975) scale. Akaah and Lund (1994) proposed a six-construct scale for ethical behaviour measurement namely: personal use, passing blame, bribery, padding of expenses, falsification and deception. The study's constructs quite closely mirror those that may be useful in the construction industry. However, the constructs were derived using exploratory factor analysis that was based on non-construction industry descriptors. It is argued here that an ethical performance scale for construction projects must be obtained by using construction procurement-based descriptors to derive measurement constructs. This will reduce the impairment of the instrument's validity. An ethics measurement instrument should be able to measure what it is expected to measure (i.e. it must be valid) and be free from errors in measurement (reliable) (Bucar & Drnovsek, 2004).

Besides being non-construction industry specific, most of the scales discussed above depend on the subjects rating themselves. Waychal (2015) objected to this approach, and instead discussed an approach in which the subjects rated themselves and were rated by their peers as well based on hypothetical projects. The "constant sum scale" proposed by Waychal (2015) was not demonstrative enough to make room for replicability of the study. Besides, none of the scales is reflective of Nigeria's construction industry. As a result they are ill-suited for rating the ethical performance of public projects in Nigeria.

From the above discussions, a suitable template for measuring project ethical

performance should ideally possess the following characteristics:

1. Be based on construction procurement obtained descriptors
2. Address construction stakeholder ethical concerns
3. Avoid desirability bias
4. Contain carefully derived reliable and validated constructs
5. Be reflective of the socio-political environment in which it is to be used.

Stakeholders Affected by Project Ethical Performance

Ethical behaviour is an attempt to satisfy one's conscience and/or others' expectations in the choice of actions. Projects typically have stakeholders who may be internal or external to it. A stakeholder is simply understood as someone who may affect or be affected by a project (Olander, 2006). Ethics is context dependent; hence it tends to vary for different climes (Ogbu & Asuquo, 2018). Social norms and ethical values often find their ways into statute books, and in the end underpin societal notions of right and wrong. The definition of project stakeholders can be broadened to include the government, citizens, civil society groups, professional bodies, and so on. Each of the stakeholders' expectations place moral burdens on those directly involved in the procurement of the project. Figure 1 shows a typical inter-ethical expectation in a project. Normally, a project should be conceived based on end user expectations, whether the end user is also the client or not. End users expect that the available budget will be optimally used to meet their expectations and this should be measurable and demonstrable. Once the end user expectations have become known to the client, an ethical burden ensues. The client must transmit the end users' expectations to the consultants in the form of a brief, and follow up to ensure that the least possible amount is expended in meeting most needs of the end users. For this to happen, the process of consultant selection must be free of bias and extraneous considerations.

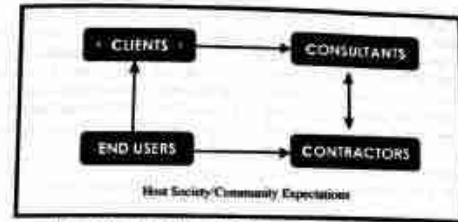


Figure 1: Typical Inter-ethical Expectations in a Project

For design-bid-build projects, the client's expectations (derived from the end users' expectations) are in turn transmitted to the contractor through the consultants. In selecting a contractor for the project, the client and his consultants must eschew bias in line with the stakeholders' expectations. However, this is not the only time the consultants are expected to be ethical during the project. Instances of gratification-induced connivances between the contractor and the consultants (e.g. during valuations and vetting of claims) to defraud the client should be avoided. In this paper, proxies for measuring such unethical practices are proposed. Table 1 presents ethical expectations of project stakeholders from one another as argued in this study. Most of these expectations have been addressed in one way or the other in the Public Procurement Act 2007 (PPA 2007).

In Nigeria, agitations to shore up the ethical performance of public procurements led to the enactment of the PPA 2007 and Public Procurement laws in about twenty-four states of the federation including Lagos, Rivers, Edo, Delta and Taraba (Agbor 2012; Usman 2014). Effectively, these laws make certain aspects of the general procurement ethics, not only morally, but legally compelled. What is lacking, however, is an instrument to measure the level of adoption of the principles enunciated in the laws for which this paper supplies a framework.

Laws Underpinning Public Procurement Ethics in Nigeria

The Public Procurement Act 2007

The PPA 2007 constitutes the basis of ethical procurement in Nigeria. It is enforceable in projects with up to 35% of funds sourced from the Federation's share of the Consolidated Revenue Fund. Although the law covers for both procurement and disposal of government property, the imports of its provisions weigh heavily on construction procurement. Many states in Nigeria have enacted their own public procurement laws based on the PPA 2007 template. The PPA 2007 established institutions for public procurement oversight and control (The National Council on Public Procurement, the Bureau of Public Procurement (BPP) and Tenders Boards of Ministries, Departments and Agencies). It prescribed the methods for approval of projects, bidding and bid evaluation, and stated the conditions for award of projects and for the punishment of offenders. As enunciated in the objectives of the BPP, the PPA 2007 sought among other things to ensure: (i) the application of fair, competitive, transparent, value-for-money standards and practices for the procurement and disposal of public assets and services; and (ii) the attainment of transparency, competitiveness, and cost effectiveness in the public sector procurement system. These lofty ethical goals have no generally acknowledged indices by which they may be objectively measured for construction projects.

Table 1: Typical Ethical Expectations of Project Stakeholders to a Project

Stk	Stakeholder	Ethical Expectations
1	CLIENT (from the consultants)	<ol style="list-style-type: none"> 1. Tenders to estimate from competition and to reflect the market price of the project 2. No conflict of interest by project teams 3. Project teams to exhibit incorruptibility 4. Consultants to give honest/factual professional advice 5. Project teams to exhibit demonstrable fairness and objectivity 6. Exhibition of standards of care and competence. Consultants not to accept engagements for which they are not competent 7. Maintenance of the confidentiality of the client's information
2	CLIENT/CONSULTANTS (from the contractors)	<ol style="list-style-type: none"> 1. Bid/bid avoidance 2. Factual prequalification data 3. Safe construction methods 4. Adherence to specifications 5. Factual/bid claims 6. Act to avoid damages to the works/give early warning signals
3	CONTRACTORS (from clients)	<ol style="list-style-type: none"> 1. Adherence to budgetary allowances/funds availability for the project 2. Unbiased/No conflict of interests 3. No bid shopping 4. Prompt honouring of certificates 5. Bid/bid avoidance 6. Objective award of the project to the rightful winner
4	END USERS (from clients)	<ol style="list-style-type: none"> 1. Available budget to be optimized in meeting end user expectations 2. Design to address end user expectations including functionality and maintainability issues
5	END USERS (from contractors)	<ol style="list-style-type: none"> 1. Project to be of the expected quality 2. Timely completion of the project 3. Scope of project to be covered 4. End user training/operating manuals to be issued 5. Safety induction of end users at commissioning
6	HOST SOCIETY (from all project participants)	<ol style="list-style-type: none"> 1. Compliance to laws/professional codes of conduct 2. Mitigation of environmental impacts of projects 3. Local content utilization

Source: Ogbu (2018)

The Public Procurement Regulations (Goods and Works) 2007

In the exercise of its mandate as the regulator of public sector procurement in Nigeria, the BPP made the Public Procurement Regulations (Goods and Works) (PPRGW) 2007, which essentially prescribed the steps to be taken during

procurement to attain the objectives of the PPA 2007. By virtue of section 5 (a) and (b) of the PPA 2007, the BPP has powers to explain the PPA 2007, and to formulate procurement policies for government's procuring entities. Hence, the regulations published by the BPP has a binding force on all public procuring entities with respect

to projects in which the PPA 2007 applies. The PPRGW 2007 expounded on the methods for attaining a transparent, fair and value-for-money bidding and award of contracts in the public sector. It is, therefore, a veritable instrument for resolving ethical dilemmas during construction procurement, especially at the tendering, bid evaluation and award stages. The results of extant studies raise doubts as to whether public procurement officers defer to the PPRGW 2007 when faced with ethical dilemmas.

Generally, laws are underpinned by morals. Consequently, the provisions of the PPA 2007 and the PPRGW 2007 not only represent the federal government's policies on public procurement, they also show the minimum expected level of moral conduct for those directly involved in government's procurement. This notwithstanding, it can be noticed that the PPA 2007 and the PPRGW 2007 focus more on project approval and contractor selection, and pay less attention to the conducts of the procuring entities, consultants and contractors during the construction and defects liability period. This may be because unethical practices are more intense at the tendering stage (Ogbu & Asuquo, 2018). Arguably, ethical issues in construction contracts transcend the project approval and contractor selection stages. For example, clear rules do not exist to prevent a connivance between the contractor and the consultants to approve unexecuted variations. Likewise, no overt provisions were dedicated to ensuring that contractors carryout their works in a manner that does not endanger the lives of their workers and the society. These matters are usually covered in the conditions of contract which can be easily amended.

Materials and Methods

This paper seeks to identify and bring to the fore objective indices for measuring the ethical performance of construction projects in Nigeria. Its primary focus is on public sector construction projects using the design-bid-build procurement route. It is usual that the public sector will set down procurement best practices, which the private sector can emulate. Secondly, it is known that the most prevalent procurement route in Nigeria is the competitive design-bid-build

approach. This approach often witnesses attempts by different interests to influence the outcome of the bidding process with a view to making personal gains at the detriment of public good. Observably, the project end users are seldom consulted in the project procurement processes, thus subjecting their interests to ethical abuses.

This study is exploratory in nature, as such, two approaches were adopted. First, the provisions of the PPA 2007 and the PPRGW 2007 were explored to identify measures of ethical performance. The Public Procurement Regulations (Goods and Works) 2007 (Federal Republic of Nigeria, 2007) was explored to identify (1) the requirement of each clause (2) the moral construct which each clause aimed to protect (3) an objective ethical metric for assessing compliance to the requirement; and (4) the stakeholder whose interest each clause seeks to protect. This approach is justified by the fact that law is the minimum moral (Spicerbe, 2016) and discretionary actions are delimited by law (Anago, 2018). Therefore, obedience to the law is the most basic of what it means to be ethical. Secondly, an ethnographic study was conducted to identify other measures of (un)ethical performance based on a recent erosion control project in which one of the authors participated. The approach offers a good insight on how construction practice plays out (Pink, Tutt & Dainty, 2012). The ethnographic study entailed:

- (1) a careful study of the contract documents
- (2) informal interviews with the consultants on objective ways to (i) identify contractor collusion (ii) identify dishonest claims from the contractor (iii) assess the quality of construction (iv) measure cost overrun (v) measure reduction in scope
- (3) observations of the contractor's approach to construction in relation to the safety of the workers
- (4) recording of the comments and reactions of the host community to the project

Characteristics of the Case Project

The project was sited in Anambra State (south-east Nigeria) (contract value > N500,000,000.00). Funding for the project was jointly obtained from the Federal Government of

Nigeria, the Anambra State Government and the World Bank. An advertisement contract was used based on the Bureau of Public Procurement's Standard Bid Document contract. Contractors bided competitively for the job, which was eventually awarded to the lowest responsive bidder. In order to be successful, contractors often present false qualifying documents, and unrealistic unit rates during such bidding processes. During construction, they try to make up for their lapses using unethical means. In this case project, however, the contractor was simultaneous supervised by the World Bank, the Federal Project Management Unit, the State Project Management Unit and the Consultants. Consequently, objective (measurable) indices were required to provide quick feedbacks on the ethical performance of the project. The robustness of the project supervision provided opportunity for the researcher to interact with various members of the project team to obtain their views on the pertinent issues to this research. The project team members were all registered with their relevant professional bodies, and were therefore considered as possessing valuable insight in the subject matter of interest to this study.

The study was undertaken in year 2015, and observations were recorded on a daily basis. One of the authors participated in site meetings, site supervision and measurements on the contractor's side. The findings of the study were tabulated for simplification and consideration.

Results and Discussion

Table 2 was developed from the exploration of the PPGWR 2007 and shows the questions obtained from the clauses of the PPGWR 2007. The questions essentially seek to elicit answers to the project participants' level of compliance with the regulations. Table 2 also identifies the ethical construct to which the question relates and suggests how it may be measured and the stakeholders' interest being protected by each clause. For example, Clause 9 (which relates to section 16(6) of the PPA 2007 identifies eligibility requirements for bidding and executing government contracts. Bidders are usually required to present all or some of the eligibility documents during bidding. To measure

the ethical conducts of the procurement officers in a project, pertinent questions to be answered include:

"Did the bidders have the necessary documents to bid in the contract (e.g. Tax clearance certificate, Industrial Training Fund and National Pensions Commission registrations, etc)".

The response to this question will be indicative of the level of the procurement officers' integrity, and the reliability of the bidding process. It is expected that the ratio of the number of eligibility documents presented by the bidders during bidding to the total number of eligibility documents required will not be less than one. If this point is satisfied, the project earns a positive ethical mark, otherwise it scores zero. The client as well as the public will be negatively affected if an unqualified contractor is allowed to participate in a bidding process, and run a greater risk of project failure if the contractor wins.

Although the PPGWR 2007 is a legal document, its provisions may be ignored by public procurement officers. Previous studies noted that procurement officers sometimes behave unethically even when they know the legal consequences of doing so (Mason, 2009). Unlike Forsyth (1980) which sought to classify individuals by their ethical ideologies, the proposed method in Table 2 focuses primarily on rating the ethical performance of projects in terms of contractor selection. Further, its focus is on the project rather than on the individuals involved unlike the case in Reindenschach and Robin (1990).

It is acknowledged that the PPGWR 2007 laid much emphasis on contractor selection and award of contract, and dwelt much less on what happens at the post contract stage. To accommodate the measurement of the ethical expectations of the stakeholders at the post-contract stage, the authors carried out an ethnographic study of a project to observe how unethical practices in a project can be identified. The report of the relevant findings of the study is shown in Table 3. Table 3 shows the stage of procurement, the criteria to be used for determining unethical practice, the suggested approach to measuring the unethical practice and

the suspected or likely unethical practice. For example, one of the indicators of collusion amongst contractors is withdrawal of the lowest bidder. Another is the ratio of the lowest evaluated responsive bid to the bid that came second in rank to it. If a bid was withdrawn, and the ratio of the bid ranked first (which was withdrawn) to that ranked second is low (< 0.7), that is, $\frac{Bid A}{Bid B} < 0.7$

where Bid A = lowest evaluated responsive bid and Bid B = second lowest evaluated responsive bid. Then something is wrong. Likewise, if the ratio of the bid ranked second to the consultant's estimate is high (≥ 1.10), that is $\frac{Bid B}{CE} \geq 1.10$

where CE = consultant's estimate, then, it is likely that the contractors colluded to force the client to accept the second bid. Thus, the ethical performance of the project is lowered.

The measures used in Table 3 are supported by previous studies on ethics. For instance, collusion is a well-known unethical practice of contractors (Abdul-Rahman et al., 2010; Wells, 2013; Bowen et al., 2007). In the

simplest form of collusion, bidders agree (before submission of tenders) on which of them should win the contract, and how the rest will be 'settled' by the successful bidder. Consequently, the rest of the bidders will submit high bids, enabling their chosen (lowest) bidder emerge as the lowest evaluated responsive bidder. This practice is anti-competitive, and compels the client to award the contract to the contractor's chosen bidder at an uncompetitive price. Before now, not many authors had looked into how the occurrence of collusion may be objectively investigated. It may be argued that a contractor could withdraw his tender for some other reasons, and that the first runner up bidder may have been inadvertently high without any intention to serve the purpose of colluding contractors. The response to this line of thought is that that is why the ethical performance measurement scale proposed in this work uses multiple criteria in the attempts to triangulate the ethical performance of the project. Thus, no single criterion is sufficient to base an opinion about the ethical performance of the project.

Table 2: Measures of Ethical Performance from the Public Procurement (Goods and Works) Regulations 2007

S/N	Section of the PFCMA 2007 being addressed	Outcomes to be assessed	Measures to be used	Ethical Construct being protected	Stakeholders of Interest
1	9	a. Did the contractor have the capacity (in terms of financial resources, materials, labour etc) to execute the project? b. Did the contractor have the necessary documents to bid in the contract (eg. Tax clearance certificate, ITF and PFCMA registration etc)	The ratio of the number of resources furnished by it in relation to the number required to bid/execute the contract. Score is positive if the ratio is greater than or equal to one. Otherwise, score zero.	Integrity, Reliability	Client, Public
2	11, 42, 34, 36, 47, 113, 114	Was the entire cost of the project, incurred by a private bid? Were the appropriate authorities' approvals obtained prior to procurement?	Score is positive if evidence of approval by the appropriate authority is available. Otherwise, score zero.	Transparency, Accountability	Public
3	16	Are the records of the procurement proceedings available for inspection within a period of 30 years?	Score is positive if there is a comprehensive record of the procurement proceedings at the time of inspection. Otherwise, score zero.	Transparency, Accountability	Public
4	17 to 21	Were procurement complaints attended to and resolved in the course of procurement?	Score zero. If there are pending procurement complaints at the time of inspection.	Integrity	Contractor
5	18 to 24, 28	Is procurement properly regulated to allow for procuring users' to have a properly constituted Tender Board and Procuring List?	Score is positive if a properly constituted Tender Board exist with a list of names of approved contractors.	Reliability	Contractor
6	30	Is there evidence of contract signing?	Score is zero if evidence exists that contract was signed and evidence to the contrary is not available. Otherwise, score zero.	Integrity	Public
7	40	Was the appropriate performance/monitoring method adopted? a. National competitive bidding or international competitive bidding b. Restricted tendering (bidding is limited to a chosen few contractors), two stage bidding (technical and financial bidding), single source procurement (direct contractor selection or negotiated contract) or request for quotation	Score is positive if the appropriate monitoring method was used. Otherwise, score zero.	Reliability	Contractor
8	43, 44, 45	a. Was prequalification done in accordance with the prior financial threshold of the project in accordance with regulation? b. Were bidders as did not properly allowed to bid? c. Did the bid-awards used to select the prequalification information from bidders specify the reasons for prequalification/qualification?	Score zero. If any of the answers is no. Otherwise, score is positive.	Integrity, Transparency	Public, Contractor
9	46	Were bidders given to file an appeal (up to 21 days) to follow the prequalification to bid information?	Score is zero if bidders were not given up to 21 days to submit the prequalification to bid information.	Transparency	Contractor
10	48	Were bidders advised the up to 14 days prior to award of bid?	Score is zero if bidders were not advised or if the advertisement did not set up to 14 weeks except if evidence exists that no advertisement was placed. Score is positive if advertisement was done in at least one of the media. Otherwise, score zero.	Transparency	Contractor
11	50, 51, 52	Are there complaints that the project was awarded to: a. An agent or agent's relative? b. On the procuring authority's behalf? c. On the PFCMA's behalf? d. An immediate family member of the PFCMA?	Score is zero if any of the above is true. Otherwise, score is positive.	Confidentiality	Contractor
12	53	Was bidder's technical proposals treated with confidentiality?	Score is zero if a non-regulated person visit that a contractor's technical proposal was not treated with confidentiality.	Confidentiality	Contractor
13	55	For restricted bidding, Was a list of contractors made and approved (closed prior to invitation for bid)?	Score is positive if the list of contractors who participated in a restricted bidding was approved prior to the invitation to bid. Otherwise, score zero.	Transparency, Accountability	Public
14	57, 58, 59, 60, 115, 116, 117	When bid opening was required, were contracts awarded to bidders with highest bid values/lowest prices?	Score is zero if the winning contractor did not furnish a bid level, or if the successful bid/lowest priced prior to the award of contract. Otherwise, score is positive.	Integrity	Public
15	61, 62, 63, 64, 65	Did the successful contractor withdraw from signing the contract without being penalized in any way?	Score is zero if in circumstances that a winning contractor withdraws from the bidding, 500000 without being penalized. Otherwise, score is positive.	Reliability	Client
16	67	Were there conditions or compliance of competing with bid?	Score is zero if a compliance is not signed that a bid was prepared with. Otherwise, score is positive.	Reliability	Contractor

17	69	Was standard bid provisions carried over unchanged by a bid evaluation report based on the PFCMA's standards?	Score is positive if a standard bid evaluation report is available. Otherwise, score zero.	Reliability	Contractor
18	71	Was the contract awarded based on the corrected bid price?	Score zero if the contract was initially awarded based on an incorrect initial contract sum.	Contractors	Client
19	100	For projects in a high risk area of the economy, was the contract awarded to a contractor for reasons of domestic preference was given, but was not stated in the bid invitation documents score zero. Otherwise, score is positive.	Score zero if the bid evaluation did not consider that as a criterion for award.	Competition/Ethical	Client
20	106	If domestic preference was used in the evaluation, was it initially stated in the bid documents?	Score zero if domestic preference was given, but was not stated in the bid invitation documents score zero. Otherwise, score is positive.	Transparency	Contractor
21	107	a. Was a pre-qualification exercise carried out prior to award of the contract to the successful contractor? b. Did the pre-qualification exercise confirm that the successful prequalification responses of the contractor still exist?	Score zero if no pre-qualification exercise was carried out or if its report was not submitted. Otherwise, score is positive.	Integrity	Client
22	108, 109, 110	a. Were reasons given for the procuring entity for rejecting all submitted bids in the procurement process? b. Was a written approval obtained prior to the cancellation of the bidding process?	Score is positive if a written reason was given for the cancellation and an approval was obtained. Otherwise, score zero.	Transparency	Client
23	112, 114	a. Was the contract awarded to the lowest evaluated responsive bidder? b. Was the successful contractor required to fulfil other obligations other than the ones specified in the bid documents before he will be awarded the contract? c. Was a formal contract awarded between the parties?	Score is positive only if the successful contractor is the lowest evaluated responsive bidder, and a formal contract was awarded between the parties within the stipulated time frame. Otherwise, score zero.	Integrity	Contractor
24	112, 143, 144, 145	a. Was performance security provided by the successful bidder prior to the execution of contract agreement? b. Did the contractor provide a performance security before the initial funds were released? c. Does the provided performance security cover up to 20 days after issuance of completion certificate?	Score is positive if a performance security covering up to 20 days after issuance of completion certificate was provided by the successful contractor prior to contract execution. Otherwise, score zero.	Integrity	Client
MAIN ASPECTS OF BID DOCUMENTS					
25	137	Was the contract award/signed the original terms of the contract?	If fluctuation was paid/where the original contract was fixed-price, score zero. Otherwise, score is positive.	Integrity	Client, Public
26	138, 139, 140	Were the contract terms appropriate (reasonable) to cover quality, time and damage?	Score is positive if an incentive clause for quality of performance was included in the contract. Otherwise, score zero.	Competition/Ethical	Contractor
Main Aspects of the Contract Documents					
27	141, 142, 143	a. A bill for material status fee, was payment made based on valuation? b. Was the advance payment progressively received? c. Was the advance payment within the stipulated percentage (10-15% of contract sum)?	Score is positive only if all three (3) questions were answered in the positive. Otherwise, score zero.	Integrity	Client, Public
28	145	Did the Engineer make changes to the works that are more than 10% of the contract price without prior approval from the client?	Score is zero if any change order leading to >10% of the contract price was made without prior authorization by the approving authority. Otherwise, score is positive.	Integrity/Accountability	Client
29	147	Is retention for contract completion (10-15% of contract sum)?	Score is positive if the retention is within stipulation. Otherwise, score zero.	Finance	Contractor
30	154	Are the total amount of performance security and retention money within stipulation (< 20% of contract sum)?	Score is positive if the total amount is within stipulation. Otherwise, score zero.	Finance	Contractor
31	157	a. Were PFCMA followed by the procuring entity, within stipulated time (< 50 days) after award of PFCMA? b. Were contract a part of additional documents?	Score is positive if PFCMA were followed within stipulated time. Otherwise, score zero.	Finance	Contractor

Table 3: Identified Measures of Project Performance

Sl. No	Stage	Likely Unethical Practice	Ethical Practice Indicators	Suggested Measurement
1	Procurement	Collusion	Withdrawal of the lowest responsive bid	Score zero if the lowest responsive bid is withdrawn. Otherwise score is positive
2	Procurement	Collusion	If the lowest evaluated bid was withdrawn, then check the ratio of lowest evaluated responsive bid (Bid A) to the value of the bid ranked second (Bid B)	Score zero if $\frac{Bid A}{Bid B} \leq 0.7$ Otherwise score is positive
3	Procurement	Collusion	If the lowest evaluated bid was withdrawn, then check the ratio of the value of the bid ranked second (Bid B) to the consultant's estimate (CE)	Score zero if $\frac{Bid B}{CE} \geq 1.10$ Otherwise score is positive
4	Construction	Kickback	Original scope of project divided by the final scope	Score zero if $\frac{Initial Scope}{Final Scope} > 1$ if $\frac{Final Cost}{Initial Cost} \geq 1$ Score zero. Otherwise score is positive Note: if the original scope decreased but the final cost of the project is higher than the initial contract price, the ethical performance of the project is lowered
5	Construction	Kickback	Ratio of number of elements saved in the course of the project to the total number of elements in the project	Particularly in building projects, variations should not affect any element. If it does, it lowers the ethical performance of the project. Score zero if $\frac{No. of element saved}{Total no. of elements} \geq 0.5$ Otherwise score is positive
6	Construction	Kickback	Cost overrun	Cost overrun should not exceed 20% of initial contract sum. Score zero if $\frac{Final Cost}{Initial Cost} \geq 1.2$ Otherwise score is positive
7	Construction	Kickback	Ratio of value of variations to total contingency sum	$\frac{Total Cost of Variation}{Contingency sum} \geq 1.0$ Score zero if $\frac{Final Cost}{Initial Cost} \geq 1.1$ Otherwise score is positive
8	Construction	Kickback	Increase in the value of cost significant elements	Cost overrun should not exceed 20% of initial contract sum. Score zero if $\frac{Final Cost}{Initial Cost} \geq 1.2$ Otherwise score is positive
9	Construction	Four quality work	Number of instructions to make good	Score zero if the number of instructions to make good exceeds 3. (Otherwise score is positive)
10	Construction	Four quality work	Ratio of number of elements of the project that the contractor was asked to make good to the total number of elements in the building	Score zero if $\frac{Total number of elements to make good}{Total number of elements in the project} \geq 0.2$ Otherwise score is positive
11	Construction	Four quality work	Number of failed tests	In post tests where continuous testing of materials or works is necessary, the number of failed tests should not exceed 1 if the contractor is ethical. Score is positive if number of failed tests < 5. Otherwise score zero.
12	Construction	Four quality work	Number of collapses	Every collapse is an indication of an unethical practice at one level or the other. Score zero if any portion of the works (conspicuous or permanent) collapsed in the course of construction. Otherwise, score is positive.
13	Construction	Four quality work	Number of accidents	Every site accident is an indication of an unethical practice at one level or the other. Score zero if there is a report on an accident leading to death or injury.
14	Defects liability period	Four quality work	Value of defects reported during defects liability period	Score zero if the value of making good defects exceeds 10% of the initial contract sum, the contractor was unethical. Score zero if $\frac{Cost of making good defects}{Initial Cost} \geq 0.1$
15	Procurement	Environmental degradation	Ratio of value of environmental protection or impact mitigation works to the initial contract sum	Score zero if $\frac{Value of Environmental Impact mitigation works}{Initial Project Cost} < 0.25$ Otherwise, score is positive.

Conclusion

Appropriate scales are lacking for the measurement of ethical performance of construction projects globally, as such, this paper has attempted to suggest some through a rigorous exploratory approach. At the end of the study, 31 measures of ethical performance based on the PPGWR 2007 as well as 15 measures based on a 2015 ethnographic study of an erosion control project in Anambra State, Nigeria were obtained. Based on this study, it is possible to develop an ethical performance scale for projects using existing laws and regulations. Likewise, the ethical conduct of project team members is reflected in the administrative culture of the project. This paper has also suggested how certain objective measures can be obtained and used in evaluating the ethical performance of a construction project. To exemplify, it is possible for consultants to connive with a contractor so that the client will be made to overpay the contractor with the expectation of a reward ("kickback") to the consultants. In some cases, the scope of a project may be reduced without a corresponding reduction in its price, with or without the connivance of the client's representatives. Performance thresholds are required to flag suspicious contract administration practices by persons involved in construction projects. This paper suggests that if:

$$\frac{Initial\ Scope}{Final\ Scope} > 1 \text{ and } \frac{Final\ Cost}{Initial\ Cost} \geq 1$$

then the ethical performance of the project is lowered.

Limitations and Areas for Further Studies

Weights have not been assigned to the ethical performance measures obtained in this study. In the authors' view, such weights should be products of a study on the severity of each of the (un)ethical practices identified. However, the paper indicates when such weights should be positive, and when they should be scored zero, based on how they are viewed ethically. Future studies should test the reliability and validity of the ethical constructs of the instruments proposed in this study as suggested by Bojar and Drnovsek (2004).

Recommendations

1. Stakeholders should increase emphasis on the ethical performance of projects alongside other traditional measures of project performance in all future projects in Nigeria especially those executed under the design-bid-build procurement route.
2. Governments at all levels should undertake ethical performance evaluation of their completed projects, and re-categorise them based on their ethical performances. This will compel project teams to be mindful of existing laws, regulations and codes of ethics in all projects within their purview. Besides, such a categorisation will clearly expose unethical project managers and other project stakeholders and by so doing they will lend themselves to ethical conduct.
3. Level of ethical conduct expressed in the form of indices should be used as a prequalification criterion for selection of project consultants and contractors in the future.
4. The measurement scales proposed in this study can be adopted by the BPP for evaluating the ethical performance of construction projects in furtherance of its core mandate of transparency in the nation's projects.
5. It is also recommended that the scales be adopted in the conduct of construction contract auditing by QS professionals.

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