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IMPACT OF LOWEST BID AWARD SYSTEM ON PUBLIC CONSTRUCTION PROJECTS IN ABUJA

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ABSTRACT

The lowest bid award system widely used in public construction projects, has raised concerns about its impact on project outcomes. This system prioritizes cost savings over other factors, potentially compromising project quality, timely completion and overall value. The study aimed to investigate the impact of lowest bid award system on public construction projects in Abuja. Research design used is the survey method, population comprises of Architects, Quantity Surveyors, Builders and Engineers and instrument used in collection of data is Questionnaire. A probability sampling method (simple random sampling technique) was adopted. 120 Questionnaires were administered and 82 were correctly filled and returned (68.33% response rate). Data collected were represented in tables and analysed using statistical method which includes Frequencies, Percentiles, Mean Item Scores (M.I.S) and Rankings. Regression analysis was also used to assess the impact of lowest bid award system on public construction projects delivery. The results revealed that, Simplified bid evaluation process, Faster project award and commencement, and Incentivizes contractors to optimize their pricing strategies are topmost benefits of lowest bid award system. Project budget and cost management, Quality of work and materials, and Safety performance and incident rates are topmost impacts of lowest bid award system on public construction projects delivery. In conclusion, Strong positive simple correlation exists between impacts of lowest bid award system and public construction projects delivery with (the value of R= 0.723) and finally, Two-Stage Tendering method, Qualifications-Based Selection method and Cost-Benefit Analysis method are topmost alternative bid evaluation methods that could provide better outcomes for public construction projects. It was recommended that, Built environment professionals and project owners should intensify efforts aimed at mitigating the negative impacts of the lowest bid award system on public construction projects delivery by adopting a risk-based approach to bid evaluation, i.e. identifying potential risks associated with each bid.

Keywords: Award system, Bid evaluation methods, Lowest bid, Public construction, Projects.

INTRODUCTION

In public construction works, the lowest bid award system is almost universally accepted since it is not only ensuring a low price but also provides a way to avoid fraud and corruption (Irtishad, 2008). In Nigeria, the most common method of awarding contract is the least responsive bidder or price-based method, which has inherent flaws of high competition and minimum performance; these incompetent practices pose a serious risk and problems. According to Rizwan *et al*., 2008, while the low bid procurement system has a long-standing legal precedence and has promoted open competition and a fair playing field. A long concern expressed by owners and some of their industry partners is that of a system based strictly on lowest price provides contractors with an incentive to concentrate on cutting bid prices to maximum extent possible (instead of concentrating on quality enhancing measures) even when a higher cost produced would be in the owner's best interest, which makes it less likely that contracts will be awarded to the best performing contractors who will deliver the highest quality projects. As a result, the low bid system may both result in the best value performance for money expanded or the best performance during and after construction.

Moreover, the traditional low-bid approach tends to promote more adversarial relationship rather than cooperation or co-ordination among the contractor, the designer and the owner and generally faces increased exposure to contractors' claims over design and constructability issues (Rizwan, 2008). Currently, the public sector procurement of construction is largely based on the lowest bid award system. The customary practice of awarding contracts to a lowest bidder was established to ensure the least cost for completing a project (Irtishad, 2008). There is emerging acceptance to award of projects to contractors who quote low rates with lowest bidder anticipation of getting jobs. This approach accounts for delay in project completion at the stage of costing a design, production of procurement and construction, documentation of projects poor performance and total cost of the projects increases (Asworth and Hogg, 2002). The lowest bid award system widely used in public construction projects, has raised concerns about its impact on project outcomes. This system prioritizes cost savings over other factors, potentially compromising project quality, timely completion and overall value (Chan *et al*., 2011). It therefore became imperative to assess the impact of competitive low-bid awarding system on performance and public work projects delivery (in

terms of schedule, cost, quality, time and safety) in Nigerian construction industry.

Hence, the study aims to investigate the impact of lowest bid award system on public construction projects. The objectives of the study are: to identify benefits of lowest bid award system in public construction projects, to assess impact of lowest bid award system on public construction projects delivery and to evaluate alternative bid evaluation methods that could provide better outcomes for public construction projects. The study centred on public construction projects in Abuja based on its strategic position as the Federal Capital Territory and massive ongoing construction works.

LITERATURE REVIEW

Lowest Bid Award System in Public Construction Projects

The latest developments and desires in different aspects of human life, has directed the professionals in construction industry to use alternative methods of project delivery systems (Cheek, 2017). However, the bidding and project awarding systems are still largely in their basic form. If a client wishes to muddle through these new trends and invite acceptable bidders, it is necessary to clarify and develop pre-determined selection criteria and the objective of the prequalification and bid evaluation processes (Hatush and Skituno, 2009).

In Nigeria, major client procurement of construction industry is Government of Nigeria and the most common procurement method is the lowest-bid process which has not seen much advancement and is still in tier old form in which contracts are awarded to a responsive contractor who offers the least price. In last twenty to thirty years, the client is provided by prequalification with a list of contractors that are invited to tender on a regular basis. There are unambiguous benefits and distinct pitfalls to the lowest-bidder bid awarding system. It compels the contractors to lower their costs, usually through innovation and modernization, to ensure they win bids and maintain their profit margins. In addition, the process is beneficial specifically to the public sector because of the transparency and simplicity, an important criterion of public policy (Cheek, 2017). However, allowing projects to be awarded based on the least price has inherent flaws such as: delays in meeting the contract duration, increment of final projects cost due to high variations, tendency to compromise quality and adversarial relationship among contracting parties, non-existence of real competition during contractor's selection, excessive time overruns and low bid award

procedure (Thomas, 2010). Moreover, the low-bid award system encourages unqualified bidders compromising quality and escalation of the final project cost from the estimated cost (Lemma, 2010). According to Abera, 2010, Government of Nigeria has statutes requiring submission of competitive bids for construction projects as per Nigerian Engineering Council (NEC) and Public Procurement Regulatory Authority (PPRA). It requires public organizations to award such contracts to the lowest responsible bidder. PPRA provided that, public works procurement by procuring agencies shall use open competitive bidding as the principal method of procurement for procurement of goods, services and works. However, it appears that the lowest bidder system as practiced in Nigeria has consequence that effect upon contractor's performance on project delivery. For example, in National Competitive Bidding practice where the lowest bid is accepted, there is apparently some of winning contracts failing to complete or experiencing several delays because of unreasonably low bids that negatively affect the performance of the contractor selected (Anvuur *et al*, 2009). Further report by Anvuur *et al*., (2009) asserted that the low bids are common practice in the industry; the hope is that the difference can be made up in claims.

Subsequently, recent studies by Rizhearll *et al.,* (2008) indicate that in Nigeria and other developing construction economies, the most common method of awarding contract is the lowest bid or priced based method with inherent flaws of highly competitive and minimum performance. Rizwan *et al*., (2008) identified a number of factors which affect the performance of contractors in the context of low bid practices. Given the similarities (in terms of low bid practices) in the construction practice in those developing countries, there is little doubt that the trends observed might be different in Nigeria. Therefore, in the context of low bid practices, it is important to understand what is meant by performance of contractors selected using lowest bid award system.

Performance of Contractors Selected Using Lowest Bid Award System

Performance has been described as the degree of achievement of certain effort or undertaking. It relates to the prescribed goal of objectives which form the project parameter (Chitkara, 2005). From project management perspective, it is all about meeting or exceeding stakeholder's needs and expectations from a project. It invariably involves placing consideration in three major project elements i.e. time, cost and quality (Pheng *et al*., 2006). It has been pointed out that in today's highly competitive and uncertain

business environment, the client who as the major stakeholder want speedy delivery of their project with early start of construction work, certainty of performance in terms of time, quality and cost value for money for their investment, minimal exposure to risk and early information of design (Coast *et al*., 2009). Although many tend to focus on the elements of cost, quality and time, others are also important parameters of project performance by the needs of the clients. It is prudent that at every stage of the project delivery, some kinds of check are done to ascertain discrepancies.

Thus, performance measurement as described by Neely (2005) is the set of metrics used to quantify both the efficiency and effectiveness of action. Furthermore, Alkali *et al*., (2003) indicated that performance measurement is a management tool which has the power to focus attention on desired behaviour and results. This means that measuring performance allows an organization to objectively determine what is working and what is not. In order to measure performance or calculate the effect of any given change on the construction process, one must first determine the appropriate key performance indicators (KPIs) to focus on measures to impact on project delivery. However, Ofori *et al*., (2012) have indicated that measuring performance is a complex problem. This is because every contractor is unique in terms of the manner in which he follows design specification, method of delivery, administration and composition of team members. Performance measurement is a good exercise to undertake. In that, Steven *et al.,* (2010) asserted that performance measurements are needed to track, forecast and ultimately control the success of project.

Despite the importance of performance measurement, it has not been widely implemented in construction companies and information on the performance of the construction industry as a whole is also scarce (Dayana *et al*., 2010). For example, in Nigeria according to Amu *et al*., (2010), the untimely completion of construction projects has been found to be a major setback in the construction industry. Earlier, Odusami and Olusanya (2010) have indicated that projects executed in Lagos metropolis experienced an average delay of 57% planned duration for most projects. Therefore, an improved contractor performance can lead to increase client satisfaction improvement in reputation and competitiveness in the market (Ogunsemi and Jagboro, 2010). However, contractor performance is critical to the success of any construction project which is the determinant of cost, time

and quality standard because the contractor converts the design into practical reality (Xiao and Proverbs, 2010).

In discussing the link between construction success and performance, the lowest bidder is one whose bid contains the lowest total amount when compared with other bids submitted for the same work. There is definite risk associated with the low bid awarding system. A number of studies have shown that the lowest bid does not guarantee the lowest cost. Also, the contractor with the lowest bid is the most likely to have an understanding of the cost of project (Capen *et al.*, 2010). Lowest bidders are required to complete a construction project that no one else was willing to do at that price (Wolfsetter, 2014). Herbsman and Elis (2015) also indicated that selecting a contractor based solely on price greatly diminishes the important criteria such as time and quality. Low bid price as the award criterion encourages unqualified contractors to submit bids along with bidders that submit a very low bid with the intent of recovering their losses through change orders and claims, also known as predatory bidding (Crowley and Hancher, 2011). That low bid is not necessarily the best value. This research hypothesized that this system is potential for too much open competition in public sector construction procurement. It further discussed that by examining past construction projects data from several public sector agencies, it identified a threshold at which price cutting by the winning contractor is no longer fair competition but predatory bidding. It is generally recognized that both the performance of an organization and its long-term effectiveness are impacted by the mode of their selection, Procurement of contractors is a key factor in the success of organizations in many different industries, including the construction industry (Cameron and Quinn, 2002). A common performance matrix for construction clients is the ability to minimize the amount of cost escalation on projects. The means of obtaining the best value under this system is to award a contract to the responsive bidder that is willing to fulfill the terms of the contracts for the lowest cost values as main selection criteria.

RESEARCH METHODOLOGY

The research design used for the study is the survey method. The population of the study comprises of Architects, Quantity Surveyors, Builders and Engineers from different sectors which are relevant to the field of the study, and has a wide knowledge on the benefits, impacts and alternative bid evaluation methods on the lowest bid award system on public construction projects. The instrument used in collection of data is

questionnaire which consists of various options of which the respondents are to mark one of the options on a five (5) point Likert scale based on their experience in the use of procurement methods. A probability sampling method (simple random sampling technique) was adopted for the study. Structured close-ended Questionnaires were self-administered to the respondents in the selected ministries and private firms. 120 Questionnaires were administered and 82 were correctly filled and returned, accounting for 68.33% response rate. Data collected from the survey were represented in tables and analysed using statistical method which includes Frequencies, Percentiles, Mean Item Scores (M.I.S) and Rankings. Regression analysis was also used to assess the impact of lowest bid award system on public construction projects delivery.

RESULTS AND DISCUSSIONS

This section of the paper shows details of results and discussions concerning the objectives of the study.

Table 1: Years of Experience in the Construction Industry

Years of Experience	Frequency	Percentage (%)
1 – 5 Years	16	20
6 – 10 Years	10	12
11 – 15 Years	16	20
16 – 20 Years	28	34
Over 20 Years	12	14
Total	82	100

Source: Field Survey (2024)

The information presented in Table 1 shows that 20% of the respondents have been practicing their profession in the construction industry for 1–5 years, 12% of the respondents have 6–10 years of experience, 20% of the respondents have 11–15 years of experience, 34% of the respondents have 16–20 years of experience and 14% of the respondents have been practicing their profession for over 20 years. This shows that all the respondents have enough years of working experience in the construction industry and capable of contributing constructively to the subject of the discourse.

Table 2: Benefits of Lowest Bid Award System in Public Construction Projects

Benefits	MIS	Ranks
Simplified bid evaluation process	4.19	1
Faster project award and commencement	4.07	2
Incentivizes contractors to optimize their pricing strategies	3.95	3
Promotes a level playing ground for all contractors	3.88	4
Increased competition among contractors	3.77	5
Reduced project costs	3.70	6
Faster payment processing for contractors	3.31	7
Reduced administrative burden on project owners	3.12	8
Potential for increased local participation and economic growth	3.03	9
Compliance with public procurement regulations	3.03	9
Transparency and accountability in the bidding process	2.97	11
Encourages innovation and efficiency among contractors	2.84	12
Supports government initiatives for cost-effective public spending	2.56	13

Source: Field Survey (2024)

The analysis of the identified benefits of lowest bid award system in public construction projects from Table 2 above reveals that, Simplified bid evaluation process, Faster project award and commencement, and Incentivizes contractors to optimize their pricing strategies with MIS of 4.19, 4.07 and 3.95 were considered topmost benefits of lowest bid award system in public construction projects and therefore ranked 1st, 2nd and 3rd respectively. Conversely, Transparency and accountability in the bidding process, Encourages innovation and efficiency among contractors and Supports government initiatives for cost-effective public spending with MIS of 2.97, 2.84 and 2.56 were considered least benefits of lowest bid award

system in public construction projects and therefore ranked 11th, 12th and 13th respectively.

The finding shows that, Simplified bid evaluation process, Faster project award and commencement and, Incentivizes contractors to optimize their pricing strategies are topmost benefits of lowest bid award system in public construction projects. This is in conformity with the study of Hatush and Skituno (2009) who opined that, more clarifications on the use of bid evaluation processes will enhance project delivery.

Table 3: Impact of Lowest Bid Award System on Public Construction Projects Delivery

Impacts	MIS	Ranks
Project budget and cost management	3.98	1
Quality of work and materials	3.76	2
Safety performance and incident rates	3.72	3
Dispute resolution and litigation	3.37	4
Project completion rates and abandonment	3.37	4
Post-project evaluation and lessons learned	3.22	6
Environmental impact and sustainability	3.18	7
Project timelines and milestones	3.18	7
Change orders and contract variations	3.03	9
Communication and collaboration among project teams	3.00	10
Risk management and mitigation strategies	2.86	11
Contractor performance and reliability	2.71	12
Stakeholder satisfaction and engagement	2.59	13

Source: Field Survey (2024)

The Table 3 above shows the analysis of the assessed impact of lowest bid award system on public construction projects delivery. The analysis reveals that, Project budget and cost management, Quality of work and materials, and Safety performance and incident rates with MIS of 3.98, 3.76 and 3.72 were considered topmost impacts of lowest bid award system on public

construction projects delivery and therefore ranked 1st, 2nd and 3rd respectively. However, Risk management and mitigation strategies, Contractor performance and reliability, and Stakeholder satisfaction and engagement with MIS of 2.86, 2.71 and 2.59 were considered least impacts of lowest bid award system on public construction projects delivery and therefore ranked 11th, 12th and 13th respectively.

The finding also shows that, Project budget and cost management, Quality of work and materials, and Safety performance and incident rates are topmost impacts of lowest bid award system on public construction projects delivery. This is in agreement with the result of Thomas (2010) which revealed that, allowing projects to be awarded based on the least price has inherent flaws and impacts on construction projects.

Table 4: Model Summary (Regression Result of Impact of Lowest Bid Award System on Public Construction Projects Delivery)

Indicator	Coefficient
R	0.723
R^2	0.776
Adjusted R^2	0.751
Std. Error of the Estimate	0.451

Source: Field Survey (2024)

The regression results in Table 4 shows the associations of the impacts of lowest bid award system with public construction projects delivery. The value of R= 0.723 represents simple correlation which shows the relationships between impacts of lowest bid award system and public construction projects delivery while value of R^2= 0.776 represents thirteen (13) impacts studied. It shows that holding other factors constant, 77.6% of the variances in impacts are explained by the variations in public construction projects in Abuja. The value of adjusted R^2= 0.751 represents the coefficient of determination and 0.451 is the value of standard error of estimate. Therefore, this summarily shows that, there is a strong positive simple correlation between impacts of lowest bid award system and public construction projects delivery.

Table 5: Alternative Bid Evaluation Methods that Could Provide Better Outcomes for Public Construction Projects

Alternative Bid Evaluation methods	MIS	Ranks
Two – Stage Tendering method	4.02	1
Qualifications – Based Selection method	3.99	2
Cost – Benefit Analysis method	3.86	3
Best Value Procurement method	3.81	4
Hybrid Bid Evaluation methods	3.81	4
Life - Cycle Costing method	3.75	6
Partnering and Collaborative Contracting methods	3.66	7
Early Contractor Involvement method	3.66	7
Design - Build method	3.61	9
Public – Private Partnerships methods	3.57	10
Electronic Bid Evaluation methods	2.84	11
Artificial Intelligence (AI) – Based Bid Evaluation methods	2.73	12
Multi – Criteria Decision Analysis method	2.65	13

Source: Field Survey (2024)

Alternative bid evaluation methods that could provide better outcomes for public construction projects were evaluated in Table 5 and the analysis reveals that, Two-Stage Tendering method, Qualifications-Based Selection method and Cost-Benefit Analysis method with MIS of 4.02, 3.99 and 3.86 were considered topmost alternative bid evaluation methods that could provide better outcomes for public construction projects and therefore ranked 1st, 2nd and 3rd respectively. Nevertheless, Electronic Bid Evaluation methods, Artificial Intelligence (AI)-Based Bid Evaluation methods and Multi-Criteria Decision Analysis method with MIS of 2.84, 2.73 and 2.65 were considered least alternative bid evaluation methods that could provide better outcomes for public construction projects and therefore ranked 11th, 12th and 13th respectively. The finding reveals that, Two-Stage Tendering method, Qualifications-Based Selection method and Cost-Benefit Analysis method are topmost alternative bid evaluation methods that could provide better outcomes for public construction projects. Furthermore, the analysis in Table 4 displayed other ten (10) alternative bid evaluation methods with MIS ranging between 3.81 and 2.65. This is not unconnected with the

findings of Cheek (2017), Herbsman and Elis (2015) in their studies which stated that, the latest developments and desires in different aspects of human life, proposes the professionals in construction industry to use alternative methods of project delivery systems.

CONCLUSION

The study was aimed at investigating the impact of lowest bid award system on public construction projects in Abuja. It identified the benefits of lowest bid award system in public construction projects, it assessed impact of lowest bid award system on public construction projects delivery and it evaluated alternative bid evaluation methods that could provide better outcomes for public construction projects.

The following conclusion was therefore reached based on the summary of findings:

All the respondents had enough years of working experience in the construction industry and contributed constructively to the subject of the discourse. Simplified bid evaluation process, Faster project award and commencement, and Incentivizes contractors to optimize their pricing strategies are topmost benefits of lowest bid award system in public construction projects. Project budget and cost management, Quality of work and materials, and Safety performance and incident rates are topmost impacts of lowest bid award system on public construction projects delivery. There is a strong positive simple correlation between impacts of lowest bid award system and public construction projects delivery with (the value of R= 0.723). Finally, Two-Stage Tendering method, Qualifications-Based Selection method and Cost-Benefit Analysis method are topmost alternative bid evaluation methods that could provide better outcomes for public construction projects.

RECOMMENDATIONS

From the conclusion reached for the study, the following recommendations were put forward:

I. Notwithstanding the benefits derivable from the use of the lowest bid award system, public construction project owners should streamline the process for better projects value-for-money approach through a combination of factors, including price, time, quality and contractor experience.

II. Built environment professionals and project owners should intensify efforts aimed at mitigating the negative impacts of the lowest bid award system on public construction projects delivery by adopting a

risk-based approach to bid evaluation, i.e. identifying potential risks associated with each bid.

III. Project owners and construction professionals in the industry should consider alternative bid evaluation methods that could provide better outcomes for public construction projects.

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