RESEARCH ARTICLE

INVESTIGATING BEST PRACTICES IN BUDGETING FOR PROCUREMENT DEPARTMENT: A CASE OF THE NATIONAL ENVIRONMENTAL STANDARDS AND REGULATION ENFORCEMENT AGENCY, ABUJA

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ABSTRACT

This study explores optimal budgeting practices for procurement departments in public sector institutions, using the National Environmental Standards and Regulations Enforcement Agency (NESREA) in Nigeria as a case study. Employing a mixed-methods research design that integrates surveys and interviews, this study examines critical inefficiencies in the procurement budgeting process of NESREA. These inefficiencies encompass delays in approval workflows, misalignment with strategic objectives, inaccuracies in data, and inadequate responsiveness to market fluctuations. The research is anchored in the frameworks of Public Choice Theory, Resource-Based View, and Performance-Based Budgeting, which elucidate the institutional, behavioral, and operational challenges identified. The findings indicate that while NESREA exhibits moderate effectiveness and compliance, there are evident deficiencies in transparency, risk management, and interdepartmental coordination. Based on empirical evidence, the study advocates for the digitization of approval processes, improved interdepartmental communication, the adoption of automated budgeting tools, the establishment of contingency reserves, and a closer alignment of budgeting efforts with national development goals. These recommendations are intended to enhance procurement performance, financial accountability, and strategic coherence. The implications of this study extend beyond NESREA, providing practical insights for broader public financial management reform in Nigeria. It contributes to the body of knowledge by linking theoretical models with practical applications and offering a context-specific framework for improving budgeting practices in environmental and regulatory public institutions.

Keywords: Public procurement, budgeting practices, NESREA, strategic alignment, government compliance, data reliability.

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1.0. INTRODUCTION

Budgeting within procurement departments is a fundamental component of financial governance in the public sector. It not only aligns institutional resources with operational requirements and strategic objectives but also facilitates transparency, performance evaluation, and effective risk management (OECD, 2019). In the Nigerian context, effective procurement is closely tied to budgeting discipline, particularly in regulatory agencies like the National Environmental Standards and Regulations Enforcement Agency (NESREA).

Public procurement represents a significant share of government expenditure, and budgeting provides the mechanism to plan, control, and evaluate that expenditure. According to Nmecha et al. (2023), inefficiencies in procurement budgets often result in contract inflation, delays, and poor service delivery. At NESREA, the budgeting process encounters several challenges, including delays in approvals, inadequate budgetary allocations, misalignment with strategic plans, and inconsistent adherence to procurement laws. The literature has extensively recognized budgeting as a facilitator of performance and accountability.

As noted by Schick (2003) and Cokins (2009), contemporary public budgeting fulfills both a control function (to prevent overspending) and a strategic function (to facilitate goal achievement). In the context of procurement, this entails not only preventing wastage but also ensuring that the institution efficiently acquires goods and services that support its mandate. An analysis of NESREA's current budgeting practices reveals a moderately structured framework. The agency employs a multi-step process that includes budget planning, proposal submission, interdepartmental reviews, and top management approvals. However, these steps frequently result in prolonged lead times for procurement activities, as documented in both the quantitative and qualitative phases of the recent study. Furthermore, limited involvements of technical departments, poor coordination, and lack of automated budgeting systems have impeded responsive budgeting.

Nmecha et al. (2023), in their study of procurement systems in Nigerian public institutions, emphasized that delayed procurement approvals and lack of cost analysis mechanisms significantly escalate project costs. Their findings are consistent with observations at NESREA, where respondents indicated that budgets are misaligned and do not adequately

reflect procurement needs. The authors further advocate for the integration of performance-based budgeting to enhance procurement planning and mitigate fiscal leakages.

A significant emerging issue from this case is the impact of unpredictable market fluctuations. Given that procurement items are often subject to price volatility, such as fuel and technical equipment, NESREA's static budgeting system is challenged in accommodating these changes. Contemporary literature suggests the adoption of contingency budgeting and predictive analytics to address such uncertainties (Menifield, 2020). These tools enable organizations to proactively adjust procurement plans in response to market dynamics. Additionally, the study identified deficiencies in compliance with procurement regulations, particularly due to inconsistent interpretation and inadequate monitoring frameworks. This finding aligns with Nmecha's recommendation for agencies to develop standardized procurement checklists and invest in compliance management systems. Such measures ensure that budgeting not only facilitates procurement but also aligns with statutory obligations under Nigeria's Public Procurement Act.

Another key contribution of the study is the observed disconnect between budgeting and strategic objectives. While NESREA has a defined strategic plan, the budgeting process often lacks structured input from policy and planning units. This fragmentation limits the organization's ability to channel funds into priority areas. A more integrated approach, such as Strategic Budgeting, can align departmental requests with overarching institutional goals (Kaplan & Norton, 2001).

In conclusion, this study reinforces the centrality of budgeting to effective procurement management. The NESREA case illustrates both the promise and pitfalls of current practices. As suggested by Nmecha et al. (2023) and other scholars, reforms must focus on automation, compliance enforcement, and strategic integration. These changes can foster a more transparent, responsive, and goal-oriented procurement system that not only benefits NESREA but sets a precedent for the Nigerian public sector at large.

1.2. Problem Statement

NESREA's procurement budgeting process is plagued by multiple challenges that undermine its operational efficiency and environmental mission. Key issues include cost

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unpredictability, weak compliance with government regulations, poor resource allocation, unreliable data for planning, lack of transparency, and misalignment with strategic goals. These problems lead to project delays, financial penalties, stakeholder mistrust, and ineffective environmental enforcement. In context of the research gap, there are indications that empirical studies on budgeting in environmental procurement in Africa, particularly Nigeria, is lacking. Research that has already been done frequently ignores behavioral and institutional factors or does not relate theory to procurement practice. By examining NESREA's procurement budgeting in Abuja, this paper fills in these gaps by providing recommendations and insights unique to the environment.

The study aims to identify best budgeting practices to improve NESREA's procurement performance and their overall effectiveness.

1.3. Aim and Objectives

The primary aim of this study is to investigate and identify optimal practices in budgeting for procurement within the National Environmental Standards and Regulations Enforcement Agency (NESREA), Abuja. The specific objectives of this study are as follows:

1. To analyze the current budgeting practices at NESREA.

2. To assess the impact of unpredictable costs and market fluctuations NESREA's budgeting.

3. To evaluate NESREA's compliance with government budgeting guidelines and procurement regulations.

4. To examine the accuracy and reliability of data in NESREA's budgeting process.

5. To explore the integration of NESREA's budgeting process with its strategic goals.

1.4. Research Questions

To achieve the stated objectives of this study, the following questions will be explored.

1. What are the current budgeting practices within NESREA procurement Department?

2. How do unpredictable costs and market fluctuations impact NESREA's budgeting for procurement?

3. To what extent does NESREA comply with governmental budgeting guideline process?

4. How accurate is the data used in NESREA's budgeting process?

5. How well is NESREA's budgeting process integrated with its strategic goals?

1.5. Hypotheses

The following hypotheses will be tested to provide answers to the research questions:

$H0_1$: There is no significant relationship between the current budgeting practices at NESREA and the efficiency of procurement budgeting.

$H0_2$: There is no significant relationship between unpredictable costs and market fluctuations and NESREA's budget overruns.

$H0_3$: There is no significant relationship between NESREA's compliance with governmental budgeting guidelines and procurement regulations and its financial stability.

$H0_4$: There is no significant relationship between the accuracy and reliability of data used in NESREA's budgeting process and the effectiveness of budget formulations and resource allocations.

$H0_5$: There is no significant relationship between the integration of NESREA's budgeting process with its strategic goals and the alignment of budget allocations with the agency's long-term objectives.

2.0. CONCEPTUALIAZTION, THEORY AND EMPIRICAL FRAMEWORK

2.1 . Conceptual Review

Budgeting in procurement ensures accountability, financial control, and strategic alignment. Key elements include strategic planning, forecasting, stakeholder participation, transparency, and performance indicators. Challenges encompass cost unpredictability, compliance issues, inefficient resource utilization, and inaccurate data. To enhance efficiency and transparency, best practices recommend employing data- driven technologies, engaging stakeholders, and aligning budgeting with organizational objectives.

2.2. Theoretical Review

The Resource-Based View (RBV) prioritizes strategic capabilities as budgeting priorities; Principal-Agent Theory emphasizes communication and incentive issues between authorities and departments; Performance-Based Budgeting links spending to outcomes, requiring clear KPIs and robust monitoring; Public Choice Theory explains inefficiencies in public budgeting through self-interest and accountability gaps; and Public Choice Theory is justified for this study due to its realistic insights into public sector inefficiencies.

2.3. Empirical Review of Literature

Studies reveal that budgeting has an impact on service delivery, with institutional dynamics, reforms, and culture all influencing the results. Technology, legal frameworks, and strategic planning are indicators that increase accountability and efficiency in procurement. Green budgeting, stakeholder involvement, and participatory approaches are beneficial to environmental agencies. NESREA has problems with low public awareness and lax enforcement.

3.0. METHODOLOGY

3.1. Research Design

To enhance comprehension, the study uses a mixed-methods approach with an explanatory sequential design, analyzing quantitative data (from surveys) first and then qualitative data (from interviews).

3.2. Research Methodology

Based on pragmatism, the study encourages methodological flexibility by integrating qualitative and quantitative approaches and values workable solutions. Using established theories as a guide, a logical approach was adopted. Structured questionnaires were used to collect the data, and semi-structured interviews were used to put the findings in context.

3.3. Population and Sampling Techniques

The population for this study was drawn from 200 employees of NESREA whose work anchor on procurement and budgeting. To determine the sample size, Krejcie & Morgan's

Table was adopted and a total sample size of 132 drawn for this study. Stratified random sampling is used as a sampling technique to guarantee departmental representation.

3.4. Information Gathering : Quantitative: offline surveys using a 5-point Likert scale that are structured Qualitative: For more in-depth understanding, semi-structured interviews.

3.5. Validity and Reliability

Dependability: Cronbach's Alpha (≥ 0.7) was used for confirmation, and a pre-test was conducted for improvement. Validity: confirmed by concept validation and expert assessments; thematic analysis was used to validate qualitative data.

3.6. Method of Data Analysis

Demographics: Tables of frequency distribution Quantitative: ANOVA and descriptive statistics. Qualitative: Key patterns are identified by thematic analysis with coding

4.0. RESULTS PRESENTATION AND DISCUSSIONS

4.1. Presentation of Results

To evaluate and enhance procurement budgeting practices within NESREA, emphasis wwere placed on the effectiveness, regulatory compliance, adaptability, data integrity, and alignment with strategic objectives.

Table 1: Alignment of Research Objectives with Findings

SN	Objectives	Summary of Findings
1	Examine current budgeting practices	Participants generally agreed that NESREA's budgeting process is functional (Mean = 3.59), but raised concerns about approval delays and lack of flexibility.
2	Evaluate the effect of cost unpredictability and market fluctuations	Moderate consensus (Mean = 3.52) showed these factors impact procurement. Existing contingency measures help, but better forecasting tools are needed.
3	Assess compliance with governmental regulations	High perceived compliance (Mean = 3.63), although lapses in consistency and regulatory updates were noted.
4	Determine data accuracy and reliability	Data is largely seen as reliable (Mean = 3.62), yet affected by manual entry issues and incomplete records. Automation is recommended.
5	5. Examine budgeting alignment with strategic goals	Strong alignment observed (Mean = 3.66), but gaps remain between short-term budgets and long-term planning.

Source: Authors' Analysis (2025).

Table 2: Alignment of Research Questions with Findings

Research Question	Evidence from Findings	Conclusion
What are the current budgeting practices?	A structured multi-step process exists, but faces issues like delays and misalignment with actual needs.	Well-documented
How do cost fluctuations affect budgeting?	They significantly influence planning. Emergency fund reallocations and supplier negotiations are common. Forecasting requires improvement.	Addressed
How compliant is NESREA with regulations?	Compliance is generally strong, supported by internal audits. However, departmental inconsistencies persist.	Addressed
How reliable is the data used in budgeting?	Centralized systems are in use, but manual errors and data gaps are challenges. Automation and capacity-building are keys.	Answered
Is budgeting aligned with strategic objectives?	Generally well-aligned, though integrating short-term budgeting with long-term planning remains a challenge.	Clearly addressed

Source: Authors' Analysis (2025).

Table 3: Hypothesis Testing (ANOVA Analysis)

Null Hypothesis (H_0)	Finding	Conclusion
No significant differences exist in perceptions of budgeting across themes.	ANOVA F = 19.81; P < 0.00001 → Highly significant difference across themes.	╋ Rejected

Source: Authors' Analysis (2025).

Interpretation:

Stakeholders perceive meaningful differences across various aspects of budgeting, including effectiveness, cost sensitivity, compliance, data reliability, and strategic integration. The study's findings fully support its aim, objectives, and research questions. The **mixed-methods design** effectively captured both quantitative trends and qualitative depth, offering a comprehensive understanding of NESREA's procurement budgeting landscape.

Key takeaways:

Strengths: Strong performance in regulatory compliance and strategic alignment.

Improvement Areas: Budget approval delays, Weak cost forecasting system

Data quality and reliability issues

Gaps between short-term actions and long-term strategic goals

These insights not only benefit NESREA but also serve as a guide for other Nigerian public institutions aiming to modernize and strengthen their procurement budgeting frameworks.

4.2. Discussion of Findings

This study set out to evaluate the budgeting practices for procurement at the National Environmental Standards and Regulations Enforcement Agency (NESREA), focusing on effectiveness, regulatory compliance, adaptability to market fluctuations, data reliability, and strategic alignment. The use of mixed-methods, explanatory sequential design enabled a holistic exploration of these dimensions. The findings offer critical insights into both the strengths and weaknesses of NESREA's budgeting system, many of which resonate with themes in existing literature and theory.

Effectiveness of Current Budgeting Practices

The study found that NESREA's budgeting process is generally regarded as effective by internal stakeholders, with a mean score of 3.59. This supports the conceptual claims of Bogsnes (2016) and Mullins (2017) that structured budgeting improves financial discipline and decision-making. However, respondents also noted significant operational challenges, including bureaucratic delays in budget approvals and a lack of flexibility in reallocating funds when priorities shift. These inefficiencies echo concerns highlighted in public sector literature, particularly within the Nigerian context, where administrative bottlenecks frequently stall project execution (Scott & Enu-Kwesi, 2018).

Impact of Unpredictable Costs and Market Volatility

The influence of market fluctuations on procurement budgeting was recognized, with a mean agreement score of 3.52. Respondents described frequent disruptions caused by inflation, currency instability, and supply chain inconsistencies. Although contingency mechanisms exist, the study revealed a gap in advanced forecasting tools, which limits proactive financial planning. This finding aligns with Greenwood and Hanke (2022), who emphasize that public institutions often struggle to adjust to market volatility due to rigid budgeting systems and outdated forecasting models.

Compliance with Government Regulations

Compliance with federal procurement and budgeting guidelines is another area of relative strength, with a mean score of 3.63. NESREA has implemented audits and internal

controls to support regulatory adherence. Nonetheless, inconsistencies across departments and challenges with updating procedures to reflect new regulations persist. This pattern is consistent with findings by Alsharari (2022), who noted that while regulatory frameworks exist, internal capacity and consistent application remain stumbling blocks for many government agencies.

Accuracy and Reliability of Budgeting Data

Reliable data is a cornerstone of effective budgeting, and NESREA's current systems are seen as moderately reliable (mean = 3.62). However, challenges remain due to manual data entry errors, incomplete datasets, and a lack of integration between digital platforms. These issues undermine the accuracy of projections and resource allocations. The results reinforce the need for automation and real-time data systems, as recommended by Belokrylova et al. (2021), who found that digital procurement tools significantly enhance budget transparency and efficiency in public institutions.

Strategic Alignment of Budgeting with Organizational Goals

Strong strategic alignment was observed (mean = 3.66), indicating that NESREA's budget planning is generally consistent with its long-term environmental goals. However, some disconnect remains between annual budgets and broader multi-year strategies. This mirrors the challenges outlined in the performance-based budgeting literature (Parmenter, 2015), where organizations often struggle to integrate short-term fiscal planning with long-term outcomes unless KPIs are clearly defined and monitored.

Perceptions across Budgeting Themes

The ANOVA analysis revealed statistically significant differences in how respondents perceived various aspects of budgeting (F = 19.81, p < 0.00001). This indicates that NESREA employees do not experience budgeting practices uniformly. For instance, while strategic alignment and compliance were rated highly, concerns around cost unpredictability and data reliability suggest uneven maturity across different areas of the budgeting process. These differences may point to departmental silos or inconsistent training and implementation standards.

Institutional Challenges and Opportunities

The study's qualitative data reinforced the need for systemic improvements. Participants identified the lack of automation, insufficient training on budgeting tools, and inadequate internal communication as persistent challenges. Despite these limitations, there is optimism regarding recent reforms and leadership interest in performance-based budgeting. According to the Resource-Based View (RBV), this situation presents an opportunity: by investing in distinctive internal capabilities—such as trained personnel, robust data systems, and strategic frameworks—NESREA can cultivate a competitive advantage in public sector budgeting.

Synthesis and Broader Implications

Collectively, these findings underscore the importance of aligning budgeting practices with strategic intent, regulatory frameworks, and real-time data capabilities. NESREA has made commendable progress in compliance and strategic alignment, which provide a strong foundation. However, deficiencies in data quality, responsiveness to market fluctuations, and operational efficiency highlight areas where targeted reforms are necessary.

This study contributes to the limited body of empirical research on environmental procurement budgeting in Nigeria. It supports the application of Public Choice Theory, particularly in explaining the bureaucratic inefficiencies and accountability gaps found in NESREA's processes. Additionally, it affirms the relevance of Performance-Based Budgeting in promoting outcome-oriented financial planning.

5.0. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Effective procurement budgeting is a cornerstone of public sector performance. While NESREA exhibits commendable efforts, this study identifies critical areas for enhancement, including delays in budget approvals, challenges in data accuracy, and limited responsiveness to cost fluctuations. Implementing the proposed recommendations can significantly enhance NESREA's procurement outcomes and serve as a replicable

model for other Nigerian government agencies. Reforming budgeting practices in public institutions must prioritize strategic alignment, responsiveness to external risks, and inclusive decision-making. As procurement remains a central pillar in achieving sustainable public service delivery, optimizing budgeting frameworks will be key to ensuring accountability, efficiency, and alignment with broader development goals.

5.2. Recommendations

Simplify approval workflows to reduce procurement lead times by digitizing processes and integrating workflow automation tools. Enhance inter-departmental coordination through regular, structured communication such as budget planning workshops and cross-functional review sessions. Adopt automated budgeting tools to improve data accuracy and operational efficiency, minimizing manual entry errors and enabling real-time budget tracking. Establish contingency reserves and apply predictive analytics to better manage risk, especially in light of fluctuating market conditions affecting procurement costs. Standardize compliance procedures by developing uniform checklists and offering routine training to ensure consistency and awareness across departments. Integrate strategic planning into the budgeting process by ensuring that departmental budgets clearly reflect and support national development priorities.

5.3. Contribution to Knowledge

1. This study contributes to the body of knowledge in three significant ways: Context-specific insight: It provides one of the few empirical assessments of procurement budgeting practices within an environmental regulatory agency in Nigeria, offering grounded insights into institutional challenges and opportunities.

2. **Theoretical application**: By integrating public choice theory, resource- based view, and performance-based budgeting, the study bridges theory with practice, demonstrating how behavioral and institutional dynamics influence budget implementation.

3. **Practical framework for reform**: The study offers a comprehensive, evidence-based framework for improving budgeting processes in public procurement—valuable to policymakers, public administrators, and scholars interested in public financial management in developing countries.

Competing Interest

The authors have declared that no conflicting interest exist in this manuscript.

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