

From Tendering to Governance: Exploring e-GP Implementation Barriers

Md. Abdur Rashid^{*,a,1}, Mohammad Shorif Uddin^{b,2}, Shahin Ara Begum^{c,3}

^aNational Academy for Planning and Development, Dhaka, Bangladesh

^bGreen University of Bangladesh, Dhaka, Bangladesh

^cAssam University, Silchar, India

*Corresponding Author: rashid.eee.cse@gmail.com

Abstract

Electronic Government Procurement (e-GP) has become a critical digital governance mechanism for enhancing transparency, accountability, efficiency, and competitiveness in public procurement. However, the effectiveness of e-procurement depends not only on technological implementation but also on institutional readiness, operational capacity, and supportive regulatory frameworks. This study investigates the implementation challenges of the e-GP system within the Roads and Highways Department (RHD) of Bangladesh and identifies strategies for improving procurement governance. A qualitative research approach was employed through Key Informant Interviews (KIIs) involving 206 Procurement Entity (PE) officers representing various procurement roles, including PE users, Tender Opening Committee (TOC) members, administrators, and Tender Evaluation Committee (TEC) members. The findings reveal that although e-GP has improved procurement digitalization, approximately 86% of respondents continue to experience challenges related to procurement time, operational processes, system functionality, and institutional procedures. Key challenges include lengthy tender evaluation processes, excessive documentation requirements, and delayed financial clearance, incomplete digitalization of evaluation activities, weak document verification, and coordination difficulties among procurement committees. The study also identifies governance challenges, including limited participation of small and medium contractors, and continued dependence on physical documentation. These findings indicate that digital procurement transformation requires more than technological adoption; it requires integrated institutional and governance reforms. The study recommends strengthening system reliability, automating procurement processes, improving effective banking integration, expanding user training, and developing competitive procurement mechanisms to transform e-GP into a comprehensive digital procurement governance system.

Keywords: Electronic Government Procurement; Public Procurement; Digital Governance; Procurement Transformation; Procurement Challenges; e-Procurement.

I. INTRODUCTION

Public procurement is a strategic government function that directly influences economic development, public service delivery, and the efficient utilization of public resources. As governments increasingly pursue digital transformation, information and communication technology (ICT) based procurement systems, commonly known as electronic procurement (e-procurement), have become an important governance innovation for enhancing transparency, accountability, and efficiency. The adoption of e-procurement is driven by the need to overcome the limitations of conventional procurement practices, including lengthy administrative procedures, high transaction costs, limited transparency, and opportunities for corruption and collusion. Previous studies consistently demonstrate that e-procurement improves managerial performance, reduces procurement cycle time, lowers transaction and administrative costs, and strengthens transparency and accountability in public procurement processes [1],[2],[3]. Consequently, digital procurement has become an integral component of public sector modernization and good governance initiatives worldwide.

Empirical evidence from various countries further confirms the positive impact of e-procurement on procurement performance and governance quality. In Ghana, the adoption of e-procurement has resulted in lower purchasing costs, improved contract compliance, faster procurement cycles, and enhanced employee productivity [4]. Similar findings have been reported in Kenya and Malaysia, where electronic procurement systems improve transparency, data accuracy, procurement monitoring, and managerial decision-making [5],[6]. These international experiences demonstrate that the successful implementation of e-procurement depends not only on technological advancement but also on institutional capacity, regulatory support, and organizational readiness. Accordingly, international organizations such as the OECD and the World Bank advocate digital procurement as a key instrument for promoting competitive, transparent, and accountable public procurement systems [7], [8].

In Bangladesh, public procurement reform has progressed substantially through the establishment of the Electronic Government Procurement (e-GP) system by the Central Procurement Technical Unit (CPTU) in 2011 under the Ministry of Planning. Developed in accordance with World Bank recommendations, the web-based e-GP platform was designed to manage the entire procurement process electronically within a secure and paperless environment [9],[10]. Since its implementation, the system has been adopted across most public organizations and has significantly improved procurement transparency, administrative efficiency, and governance practices [11], [12]. More recently, the World Bank approved the Strengthening Institutions for Transparency and Accountability (SITA) Project to support the development of second-generation e-GP systems, reflecting Bangladesh's continued commitment to strengthening digital public procurement and improving institutional governance [13].

Despite these achievements, numerous implementation challenges continue to constrain the effectiveness of Bangladesh's e-GP system. Technical limitations, weak banking integration, inadequate training, insufficient ICT infrastructure, unreliable internet connectivity, cybersecurity concerns, and resistance to organizational change remain significant barriers to achieving the full benefits of electronic procurement [14],[15],[16],[17]. Within the Roads and Highways Department (RHD), operational challenges are further aggravated by procedural delays involving the Tender Opening Committee (TOC) and Tender Evaluation Committee (TEC), payment gateway limitations, and policy inconsistencies that affect both Procurement Entity (PE) officials and bidders [18],[19],[20]. These persistent issues indicate that technological implementation alone is insufficient to ensure effective procurement governance without adequate institutional support and organizational capacity.

Another emerging concern relates to the quality of competition within Bangladesh's e-procurement system. Healthy competition is widely recognized as a fundamental principle of public procurement because it promotes value for money, efficiency, transparency, and accountability [1],[7]. However, Transparency International Bangladesh [21],[25] reports that the top 5% of contractors currently control nearly 30% of all electronic procurement contracts, while the proportion of single-bid tenders increased from 13.89% in 2012 to 22.82% in 2023. These trends suggest increasing market concentration, declining bidder participation, and potential monopolistic practices that threaten procurement integrity despite the adoption of digital procurement systems. Previous studies similarly argue that technological innovation alone cannot eliminate procurement inefficiency when institutional reforms, supplier diversity, competition policies, and regulatory enforcement remain weak [22],[23],[17].

Although previous studies have extensively examined e-procurement adoption, transparency, governance, and technological implementation, important knowledge gaps remain. Existing research has largely focused on macro-level evaluations, technology acceptance, or quantitative assessments of e-procurement performance, providing limited understanding of operational challenges experienced by procurement practitioners within specific public organizations. In particular, empirical evidence concerning the Roads and Highways Department remains scarce, despite its strategic role in managing large-scale infrastructure procurement in Bangladesh. Moreover, few studies have simultaneously investigated implementation barriers from the interconnected dimensions of procurement time, cost, and operational processes using qualitative evidence obtained directly from practitioners. Addressing

these gaps is essential for producing context-specific knowledge capable of supporting institutional reform and improving procurement performance.

Therefore, this study investigates the implementation challenges of the electronic government procurement (e-GP) system in the Roads and Highways Department of Bangladesh through Key Informant Interviews involving 206 Procurement Entity (PE) officers. The study contributes to the existing literature by providing practitioner-based evidence on institutional, operational, and external barriers affecting e-procurement implementation and by examining these challenges through the dimensions of time, cost, and procurement processes. Furthermore, the findings generate policy-oriented recommendations, including improvements in evaluation procedures, banking integration, digital infrastructure, capacity-building programs, and advanced procurement mechanisms such as e-auctions. Accordingly, this study seeks to answer the following research question: What are the implementation challenges of the electronic government procurement (e-GP) system in the Roads and Highways Department (RHD) of Bangladesh? The primary objective is to critically examine the institutional, operational, and external obstacles affecting e-GP implementation and to propose evidence-based strategies for strengthening procurement efficiency, transparency, accountability, and competitiveness in Bangladesh's public infrastructure sector.

II. METHOD

This study employed a qualitative research design to investigate the implementation challenges of the Electronic Government Procurement (e-GP) system within the Roads and Highways Department (RHD) in Bangladesh. A qualitative approach was considered appropriate because the study aimed to obtain an in-depth understanding of the institutional, operational, and technological barriers experienced by procurement practitioners during e-procurement implementation. Rather than measuring the effectiveness of the system statistically, the research sought to capture contextual experiences, perceptions, and practical challenges related to procurement time, cost, and processes. Following [24], qualitative inquiry enables researchers to explore complex organizational phenomena by examining participants' experiences and interpretations within their actual working environments. Therefore, Key Informant Interviews (KIIs) were utilized as the primary data collection technique to obtain first-hand insights from officials directly involved in RHD's e-procurement activities.

Primary data were collected through face-to-face KIIs conducted with Procurement Entity (PE) officers across different administrative levels of RHD. The data collection period was from February to March 2020. The interview process allowed researchers to explore respondents' experiences through flexible discussions, clarification questions, and detailed explanations regarding challenges encountered during e-GP implementation. The interviews focused on three major analytical dimensions: (1) time-related challenges, including delays in tender evaluation, system performance, and procurement cycle completion; (2) cost-related challenges associated with procurement efficiency and transaction management; and (3) process-related challenges involving evaluation procedures, documentation requirements, system usability, policy implementation, and institutional coordination. The study covered RHD's extensive organizational structure, consisting of 11 zones, 31 circles, and 70 divisions across Bangladesh. During the data collection period, 206 Procurement Entity (PE) officers participated in the KIIs, representing various roles including PE users, PE administrators, Tender Opening Committee (TOC) members, and Tender Evaluation Committee (TEC) members. The diverse participation of these key stakeholders ensured comprehensive practitioner-based evidence regarding the operational realities, institutional constraints, and improvement opportunities of the e-GP system within RHD.

III. RESULTS AND DISCUSSION

The findings of this study were obtained from 206 Key Informant Interviews (KIIs) involving PE officers within the Roads and Highways Department (RHD), Bangladesh. The respondents represented various operational roles directly involved in the implementation and management of the Electronic Government Procurement (e-GP) system. Among the participants, 61 respondents (29.6%) were PE users who actively operated the e-GP platform for procurement activities, while 55 respondents (26.7%) were members of the Tender Opening Committee (TOC). In addition, 14.1% of

respondents represented PE administrators responsible for system administration and procurement coordination, whereas 4.9% were Tender Evaluation Committee (TEC) members directly involved in technical and financial evaluations. The diversity of respondents' roles indicates that the findings reflect experiences from multiple stages of the procurement process, including tender preparation, submission, opening, evaluation, and contract-related activities. Therefore, the collected evidence provides a comprehensive understanding of the practical challenges encountered during e-GP implementation in RHD.

The qualitative analysis revealed that although the implementation of e-GP has improved the digitalization of public procurement processes in RHD, substantial challenges remain in achieving a fully efficient, transparent, and competitive procurement environment. Approximately 86% of PE officers reported experiencing challenges related to e-procurement implementation, particularly in terms of procurement time, operational processes, system functionality, and institutional procedures. This finding demonstrates that the existence of an electronic platform does not automatically guarantee effective digital transformation. Instead, successful e-procurement requires the integration of reliable technology, efficient administrative procedures, institutional readiness, and supportive regulatory mechanisms. This result supports previous studies emphasizing that e-procurement effectiveness depends not only on technological adoption but also on organizational capacity and governance structures [16], [7].

One of the dominant challenges identified by respondents was related to procurement time efficiency. PE officers highlighted that the tender evaluation process remains highly time-consuming despite being conducted through the e-GP platform. A major concern was the evaluation matrix applied in the Limited Tendering Method (LTM), where a large number of bidders may participate in a single procurement package. Respondents reported that requiring TEC members to examine extensive documentation before reaching evaluation decisions. Although electronic submission reduces the burden of physical document collection, the evaluation stage remains complicated due to the volume of information that must be reviewed. This situation indicates that e-GP has successfully transformed the submission and communication stages but has not fully optimized the evaluation and decision-making stages. Therefore, the expected reduction in procurement cycle time has not been fully achieved.

Another time-related challenge concerns the financial clearance process following the issuance of the Notification of Award (NOA). Respondents explained that although the procurement decision is processed electronically, the release of tender security deposits and bills still depends heavily on manual banking procedures, resulting in prolonged waiting periods. The delay in completing security clearance affects subsequent procurement activities and reduces overall procurement efficiency. Furthermore, system reliability was identified as a critical factor influencing procurement delays. Several respondents reported experiencing server errors, slow loading responses, and system interruptions during important procurement stages. For example, an NOA submission process that should theoretically require only a few minutes could take several hours. These findings indicate that infrastructure reliability remains a fundamental requirement for achieving the efficiency objectives of digital procurement.

The study also identified significant challenges associated with procurement processes, particularly regarding the incomplete digitalization of tender evaluation activities. Although tender advertisement, submission, and opening have been integrated into the e-GP platform, many evaluation activities continue to rely on manual procedures. Respondents reported that TEC members frequently need to download and review hundreds of pages of tender documents, with some evaluation processes requiring examination of 400–500 pages of supporting materials. This condition contradicts the fundamental objective of e-procurement as a paperless and automated procurement system. The persistence of manual verification demonstrates that digital transformation within RHD remains partial rather than comprehensive.

Coordination difficulties among TEC members were also identified as a significant operational barrier. Since TEC members are often located in different offices, reaching collective decisions requires additional communication and coordination efforts. Furthermore, respondents highlighted difficulties in verifying contractor documents because some bidders submit scanned files

that are unclear, incomplete, or difficult to interpret. These document-quality issues increase the workload of evaluation committees and may create inconsistencies in procurement decisions. The findings suggest that improving e-GP effectiveness requires stronger document verification mechanisms, standardized digital formats, and improved system features that support collaborative evaluation processes.

The findings further revealed several system usability and security issues affecting daily e-GP operations. Respondents reported that user accounts could become locked after entering incorrect passwords three times, while the recovery process was considered complicated and inefficient. Although this security mechanism is intended to protect the system from unauthorized access, the absence of a simple recovery mechanism may interrupt procurement activities. Respondents suggested introducing mobile-based verification or other digital authentication methods to improve both security and usability. This finding highlights the importance of balancing cybersecurity requirements with operational convenience in public digital platforms.

Beyond technical and operational issues, the study identified important institutional and policy challenges influencing procurement competitiveness. Approximately 80% of respondents considered the existing e-GP policy guideline introduced in 2011 to be generally adequate; however, many respondents emphasized that several provisions require updating to address current procurement realities. A major concern was the evaluation matrix, which respondents believed may unintentionally limit participation among small and medium-sized contractors. According to participants, the current evaluation mechanism often favors contractors with greater financial and technical capacity, allowing a limited number of large contractors to dominate procurement opportunities. This situation is consistent with broader concerns regarding contractor concentration and declining competition within Bangladesh's e-procurement environment [21],[25].

The issue of competition is particularly important because public procurement effectiveness depends not only on transparency but also on ensuring fair market participation. The findings indicate that some new and smaller contractors experience difficulties competing because of strict qualification requirements and evaluation criteria. Respondents argued that while contractor capacity assessment is necessary to ensure project quality, excessive emphasis on capacity indicators may reduce supplier diversity and contribute to market concentration. This finding supports previous research suggesting that digital procurement systems alone cannot eliminate monopolistic tendencies without complementary institutional reforms, competitive policies, and supplier development strategies [7],[16].

Another governance-related concern identified by respondents was the possibility of fraudulent or inaccurate documentation submitted by bidders. Several PE officers reported difficulties verifying financial capacity documents, experience certificates, and other supporting materials because verification processes are not fully integrated into the digital platform. Respondents recommended that banks and PE offices should be directly involved in electronically verifying contractor financial documents and previous project experiences. Such integration would strengthen procurement integrity, reduce fraudulent practices, and improve confidence in electronic tender evaluation.

The study also found that digital transformation within RHD remains incomplete because several activities still require physical documentation. Respondents highlighted that evaluation reports, post-inspection procedures, and audit requirements frequently involve printed documents despite the existence of the e-GP platform. This situation increases administrative workload and reduces the efficiency gains expected from electronic procurement. The continuation of paper-based practices indicates that digital procurement reform should focus not only on introducing electronic systems but also on redesigning organizational processes to eliminate unnecessary manual procedures.

Regarding future improvements, the majority of respondents expressed strong support for upgrading the current e-GP system. Approximately 72% of participants recommended revising the existing e-GP guidelines 2011, while 91.57% supported integrating an e-auction mechanism into the current procurement platform. Respondents suggested several improvements, including establishing time limits for TEC evaluations, completing all procurement documentation digitally, enabling single-click document downloads, integrating online contract management, automatically excluding

blacklisted contractors, strengthening banking cooperation, and providing continuous training for PE officers and contractors. These recommendations indicate that practitioners recognize the potential of e-GP but believe that system improvement and institutional reform are necessary to maximize its benefits.

In short, the findings demonstrate that e-procurement implementation in RHD has achieved important progress in modernizing public procurement; however, several systemic barriers continue to limit its effectiveness. The challenges identified are not merely technological but involve interconnected institutional, procedural, and governance issues. The weak financial integration, limited supplier competitiveness, and insufficient user capacity suggests that digital procurement transformation requires a broader reform approach. These findings reinforce [1] argument that e-procurement can improve efficiency and accountability, but they also extend previous research by demonstrating that practical implementation barriers may prevent these theoretical benefits from being fully realized. Similarly, consistent with [7],[16], this study confirms that transparency and efficiency improvements require strong institutional frameworks, competitive supplier environments, and continuous system development.

Therefore, strengthening e-GP implementation in RHD requires moving beyond technology deployment toward comprehensive digital governance reform. Future improvements should focus on enhancing system reliability, automating evaluation procedures, integrating financial verification mechanisms, improving contractor participation, strengthening cybersecurity, and developing continuous capacity-building programs. Such reforms are essential for transforming e-GP from a digital tendering platform into a fully integrated procurement governance system capable of promoting efficiency, accountability, transparency, and fair competition within Bangladesh's public infrastructure sector.

IV. CONCLUSION

This study examines the implementation challenges of the Electronic Government Procurement (e-GP) system within the Roads and Highways Department (RHD) of Bangladesh through qualitative evidence obtained from 206 Procurement Entity (PE) officers. The findings demonstrate that although e-GP has significantly contributed to the digital transformation of public procurement by improving electronic tendering, transparency, and administrative efficiency, its implementation has not yet fully achieved the expected objectives of an efficient, accountable, and competitive procurement system. The study reveals that approximately 86% of PE officers continue to experience challenges related to procurement time, operational processes, system functionality, and institutional procedures. The major operational constraints include lengthy tender evaluation processes, excessive documentation requirements, delays in financial clearance, incomplete digitalization of evaluation and audit activities, and coordination difficulties among procurement committees.

Furthermore, this study highlights that the challenges of e-GP implementation in RHD extend beyond technical limitations and reflect broader institutional and governance issues. The existing evaluation mechanisms, limited supplier participation, contractor concentration, incomplete digital verification systems, and continued dependence on physical documents demonstrate that digital procurement transformation remains partial. To maximize the benefits of e-GP, comprehensive reforms are required, including updating procurement guidelines, improving evaluation mechanisms, strengthening banking and financial integration, automating verification procedures, enhancing cybersecurity, expanding training programs, and integrating advanced features such as e-auctions and online contract management and auditing system. The study contributes to the existing literature by providing practitioner-based evidence of e-procurement implementation barriers within a major public infrastructure organization, demonstrating that successful digital procurement requires a balanced approach combining technological innovation, institutional reform, and competitive procurement governance. Ultimately, transforming e-GP into a fully integrated digital procurement ecosystem is essential for strengthening transparency, accountability, efficiency, and fair competition in Bangladesh's public procurement sector.

REFERENCES

- [1] K. V. Thai, "Public procurement re-examined," *Journal of Public Procurement*, vol. 1, no. 1, pp. 9–50, 2001, <https://doi.org/10.1108/JOPP-01-01-2001-B001>.
- [2] A. Neupane, J. Soar, and K. Vaidya, "Evaluating the anti-corruption capabilities of public e-procurement in a developing country," *The Electronic Journal of Information Systems in Developing Countries*, vol. 55, no. 2, pp. 1–17, 2012, <https://doi.org/10.1002/j.1681-4835.2012.tb00390.x>.
- [3] Y. M. Bretschneider, J. Stritch, M. Darnall, and J. L. Hsueh, "E-procurement system adoption in local government: The role of procurement complexity and organizational structure," *Public Management Review*, vol. 23, no. 12, pp. 1817–1839, 2021 <https://doi.org/10.1080/14719037.2021.1874497>
- [4] S. Suzzy (2019). Challenges of E-Procurement Adoption in the Ghana Public Sector: A Survey of in the Ministry of Finance. *Scholarly Journal of Arts & Humanities*. Vol. 1, Issue 7, pp. 44-80, <https://doi.org/10.15373/22501991>
- [5] B. C. Basheka, "Public procurement reforms in Africa: A tool for effective governance of the public sector," *International Journal of Procurement Management*, vol. 2, no. 1, pp. 49–65, 2009. <https://doi.org/10.1504/IJPM.2009.021793>
- [6] S. Croom and A. Brandon-Jones, "Impact of e-procurement: Experiences from implementation in the UK public sector," *Journal of Purchasing and Supply Management*, vol. 13, no. 4, pp. 294–303, Dec. 2007, <https://doi.org/10.1016/j.pursup.2007.09.002>.
- [7] Organisation for Economic Co-operation and Development (OECD), Checklist for Supporting the Implementation of the OECD Recommendation of the Council on Public Procurement: E-Procurement. Paris, France: OECD, 2016. [Online]. Available from: <https://www.oecd.org/governance/procurement/toolbox/search/Checklist%2007%20E-procurement.pdf>
- [8] World Bank, Benchmarking Public Procurement 2017: Assessing Public Procurement Systems in 180 Economies. Washington, DC, USA: World Bank, 2017. <https://doi.org/10.1596/978-1-4648-0986-0>.
- [9] Central Procurement Technical Unit (CPTU), Bangladesh Electronic Government Procurement (e-GP) Guideline. Dhaka, Bangladesh: Implementation Monitoring and Evaluation Division (IMED), Ministry of Planning, Government of Bangladesh, Feb. 1, 2011. [Online]. Available: https://www.eprocure.gov.bd/resources/documents/e-GP_Guideline.pdf.
- [10] World Bank, Bangladesh Country Procurement Assessment Report, Report No. 24144-BD. Washington, DC, USA: World Bank, May 11, 2002. [Online]. Available: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/715321468743707711/bangladesh-country-procurement-assessment-report>
- [11] Central Procurement Technical Unit (CPTU), "About e-Government Procurement (e-GP) System," 2021. [Online]. Available: <https://www.eprocure.gov.bd/aboutUs.jsp>
- [12] World Bank, Public Procurement Reforms in South Asia. Washington, DC, USA: World Bank, 2021. [Online]. Available: <https://www.worldbank.org/en/results/2022/08/04/world-bank-funded-project-drives-public-procurement-reform-in-bangladesh>
- [13] World Bank. (2025). Bangladesh: Strengthening Institutions for Transparency and Accountability Project. [Online]. Available from: <https://projects.worldbank.org/en/projects-operations/project-detail/P181939>
- [14] S. Ahmed and M. Hossain, Challenges of E-Government Procurement Implementation in Bangladesh. Dhaka, Bangladesh: BRAC Institute of Governance and Development (BIGD), 2019. <https://www.scribd.com/document/407903482/15282008-MPSM-1-pdf?>
- [15] R. M. Kadhila, H. N. Johannes, J. P. Nautwima, and A. R. Asa, "E-Procurement Adoption in the Public Sector," *International Journal of Operations Management*, vol. 4, no. 1, pp. 7–27, 2025. <https://doi.org/10.18775/ijom.2757-0509.2020.41.4002>

- [16] A. Neupane, J. Soar, K. Vaidya, and J. Yong, "Role of public e-procurement technology to reduce corruption in government procurement," *International Journal of Information Management*, vol. 34, no. 3, pp. 401–416, 2014.
https://www.researchgate.net/publication/262270047_Role_of_public_e-procurement_technology_to_reduce_corruption_in_government_procurement#fullTextFileContent
- [17] United Nations Conference on Trade and Development (UNCTAD), *E-Government and Digital Transformation in Developing Countries*. Geneva, Switzerland: United Nations, 2020.
https://unctad.org/system/files/official-document/ecn162020d2_en.pdf?
- [18] G. K. Mweshi and D. Kabamba, "Electronic Government Procurement (e-GP) Systems in Developing Nations: A Silver Bullet or a Political Puzzle? A Tale of the Public Sector," *International Journal for Multidisciplinary Research (IJFMR)*, vol. 7, no. 5, Art. no. IJFMR250555097, Sep.–Oct. 2025. [Online]. Available:
<https://www.ijfmr.com/papers/2025/5/55097.pdf>.
- [19] S. E. Nasidai, "Factors influencing implementation of e-procurement: A case study of small and medium-size businesses in Voi Town," *European Journal of Logistics, Purchasing and Supply Chain Management*, vol. 4, no. 6, pp. 11–20, 2016.
<https://www.strategicjournals.com/index.php/journal/article/view/1863?>
- [20] Organisation for Economic Co-operation and Development (OECD), *Preventing Corruption in Public Procurement*. Paris, France: OECD Publishing, 2016.
<https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/integrity-in-public-procurement/corruption-public-procurement-brochure.pdf>
- [21] Transparency International Bangladesh (TIB), *e-Government Procurement in Bangladesh: A Trend Analysis of Competitiveness (2012–2023)*. Dhaka, Bangladesh: Transparency International Bangladesh, Sep. 2023. [Online]. Available: <https://ti-bangladesh.org/images/2023/report/e-gp/e-GP-main-report.pdf>.
- [22] General Economics Division (GED), Planning Commission, Government of the People's Republic of Bangladesh, *Seventh Five Year Plan FY2016–FY2020: Accelerating Growth, Empowering Citizens*. Dhaka, Bangladesh: Planning Commission, Dec. 2015. [Online]. https://plancomm.gov.bd/sites/default/files/files/plancomm.portal.gov.bd/files/86b0f262-7d38-4659-bb06-0d756a0e5e3f/7th_FYP.pdf.
- [23] Transparency International Bangladesh (TIB), *e-Government Procurement in Bangladesh: A Trend Analysis of Competitiveness (2012–2023)*. Dhaka, Bangladesh: Transparency International Bangladesh, Sep. 2023. [Online]. <https://ti-bangladesh.org/images/2023/report/e-gp/e-GP-main-report.pdf>.
- [24] J. W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed. Thousand Oaks, CA, USA: Sage Publications, 2014. [Online]. Available: <https://us.sagepub.com/en-us/nam/research-design/book246125>.
- [25] Transparency International Bangladesh (TIB), *e-Government Procurement in Bangladesh: A Trend Analysis of Competitiveness (2012–2023)*. Dhaka, Bangladesh: Transparency International Bangladesh, 2023. [Online]. <https://ti-bangladesh.org/images/2023/report/e-gp/e-GP-main-report.pdf>.
- [26] M. A. Rashid and M. S. Uddin, "Developing and Testing an Accountability-Centered e-Procurement Implementation Assessment Model: A Case Study of the Roads and Highways Division in Bangladesh," *International Journal of Engineering, Technology and Natural Sciences*, vol. 6, no. 2, pp. 121–128, 2024. <https://doi.org/10.46923/ijets.v6i2.402>
- [27] M. A. Rashid, "Ranking e-Procurement Assessment Variables: A TOPSIS-Based MADM Approach for Bangladesh's Roads and Highways Department," *International Journal of Engineering, Technology and Natural Sciences*, vol. 7, no. 1, 2025.
<https://doi.org/10.46923/ijets.v7i1.464>