Implementing e-GP in Bangladesh:
A Perspective of Works Procurement in LGED

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Dedicated

To

My Beloved Daughter

Declaration

I, the undersigned would like to declare that this paper is solely presented for the dissertation works titled as “Implementing e-GP in Bangladesh: A Perspective of Works Procurement in LGED”. My polite request is to the honorable supervisor to accept this dissertation work which is the partial fulfillment of the requirement for the degree of “Masters in Procurement and Supply Management (MPSM)”. I declare that the work done in this dissertation is unique and it is not used elsewhere. I am benefited by the work as I have obtained the knowledge and skill on e-GP implementation in LGED that certainly help me to play an important role in my organization. I limited my study in one governmental organization “LGED” which is the largest engineering department of the Government of the People’s Republic of Bangladesh in light of workforces involved, procurement expenditure incurred and existence of the Procuring Entity offices. I would like to do more investigations in future with this related topic.

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Certificate of Originality by the Supervisor

The research entitled " Implementing e-GP in Bangladesh: A Perspective of Works Procurement in LGED" has been prepared by Tarun Kumar Sarker, (ID No. 17382024), BRAC Institute of Governance and Development (BIGD), BRAC university and submitted as partial fulfillment of the requirements for Masters in Procurement and Supply Management (MPSM) under my guidance and supervision. To my knowledge the report has been prepared based on original work done by the author. So far as I am aware, he did not submit this report fully or partially as a required subject of study to this university or to any other institution. The report may be accepted for evaluation and completion of the degree.

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The Author

Abstract

E-procurement has drawn great attention and been adopted by increasing number of public organizations. However, simply having an e-procurement system in place does not guarantee that it will bring about benefits in term of improved procurement management. The system must be measured and evaluated. The purpose of this study is to show the current scenario of on-line (e-GP) works procurement and comparative scenario of on-line (e-GP) and off-line (manual) works procurement in LGED. The research method was qualitative as well as quantitative. Data used in this research was both primary and secondary. The on-line data was retrieved from Procurement Management Information System (PROMIS) of LGED. On the other hand, off-line data was collected from LGED's procuring entities of all districts of Bangladesh. Moreover, expert opinion questionnaire survey was conducted to collect the off-line data. The research reveals that average time requires of tender opening to issuing NOA from FY 2011-12 to FY 2017-18 is 28 days which is much lower than that of PPR allowable 60-120 days. This is significant achievement in e-GP. This research also reveals that 100% works procurement publish in CPTU website; average 6.5 numbers of tenderers purchase tender documents, whereas average 4.7 numbers of tenderers submit tenders and average 4.6 numbers of tenderers are responsive. LGED higher authority delegates the financial power to district/sub-district level officials and made things easier to complete the procurement process in time or before time. 99.99% of tenders completed within initial tender validity period. Percentage of tender procedure complaints reduced to 0.04% in FY 2017-18 from 0.32 at the beginning of e-GP in FY 2011-12. LGED implements about 46 % of total work procurement in e-GP system. Efficiency of contract award is more than 80% of invitation for tenders. Based on the findings, the study came up with the following recommendations: implementation of electronic Contract Management System (e-CMS) is required as soon as possible to make efficient tendering process success by proper contract management; imposing procurement act/rule strictly in tendering process as well as e-CMS is essential so as to bring the benefit of transparent procurement. Overall, this research facilitates policy makers, enforcement agencies and researchers in understanding how to implement 100 percent e-procurement of works efficiently and effectively.

Keywords: e-Procurement; Public Sector; e-CMS; Efficiency of On-line and Off-line Tendering Process; Procurement Management Information System; Works Procurement.

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Abbreviation

ADB	Asian Development Bank
ASEAN	Association of South-East Asian Nations
APP	Annual Procurement Plan
AA	Approving Authority
APEC	Asia Pacific Economic Co-operation
APCC	Australian Procurement and Construction Council
BWDB	Bangladesh Water Development Board
BREB	Bangladesh Rural Electrification Board
BOQ	Bill of Quantities
CCGP	Cabinet Committee for Government Purchase
CCS	Crown Commercial Service
CPAR	Country Procurement Assessment Report
CPTU	Central Procurement Technical Unit
DIMAPPP	Digitizing Implementation Monitoring and Public Procurement Project
DPS	Division of Purchases and Supply
DPM	Direct Procurement Method
E-CMS	Electronic Contract Management System
ERP	Enterprise Resource Planning
ERG	Efficiency and Reform Group
E-GP	Electronic Government Procurement
ERD	Economic Relation Division
ESW	Economic and Sector Work
EU	European Union
G2C	Government to Citizen
G2B	Government to Government
GCC	General Conditions of Contract
GDP	Gross Domestic Product
HOPE	Head of Procuring Entity
ICT	Information and Communication Technology
IMED	Implementation Monitoring and Evaluation Division
IFT	Invitation for Tender
LGD	Local Government Division
LGRD&C	Local Government, Rural Development and Cooperative
LCS	Least Cost Selection
LTM	Limited Tendering Method
LGED	Local Government Engineering Department
MoU	Memorandum of Understanding
MIS	Management Information System IMED
NSPSO	Newly Selected Public Sector Organization

NOA	Notification of Award
NCB	National Competitive Bidding
OTM	Open Tendering Method
OSTETM	One Stage Two Envelop Tendering Method
PPA	Public Procurement Act
PPR	Public Procurement Rules
PPRP	Public Procurement Reform Project
PROMIS	Procurement Management Information System
PE	Procuring Entity
PWD	Public Works Department
PCC	Particular Conditions of Contract
PD	Project Director
PM	Project Manager
QCBS	Quality and Cost Base Selection
RFP	Request for Proposal
RFQ	Request for Quotation
RHD	Roads and Highway Department
RDC	Regime Diferenciado de Contratação
R2I	Right to Information
SPD	Scottish Procurement and Commercial Directorate
STD	Standard Tender Documents
SFB	Selection under Fixed Budget
SSS	Single Source Selection
SPSO	Selected Public Sector Organization
SIC	Selection of Individual Consultant
SBCQ	Selection of Based on Consultant‘s Qualifications
TOC	Tender Opening Committee
TEC	Tender Evaluation Committee
TER	Tender Evaluation Report
TOR	Tender Opening Report
UK	United Kingdom
WB	World Bank
WTO	World Trade Organization

CHAPTER ONE:INTRODUCTION

1.1 Background of the Study

Public procurement has been a neglected area of academic education and research, even though public procurement is alleged as a major function of government and even though governmental entities, policy makers and public procurement professionals have paid a great deal of attention to procurement improvements or reforms (Khi Thai, 2001).

Public procurement has a long history. It was written ona red clay tablet, which found in Syria, the earliest procurement order dates from between 2400 and 2800 B.C. The order was for "50 jars of fragrant smooth oil for600 small weights in grain" (Coe, 1989, p. 87). Other evidence of historical procurement comprises the development of the silk trade between China and a Greek colony in 800 B.C. (Khi Thai, 2001).

The last decade has observed extensive use of information and communication technology (ICT) in the governments' administrative and decision processes in their widest sense. Within the scope of governments' activities, a major role is played by procurement processes so it comes as no surprise that ICT solutions to public procurement, the so called e-procurement, is constantly in media's headlines as well as stimulates an intense debate among scholars, policy makers and practitioners (Albano and Dae, 2010).

E-procurement systems experienced a diffusion in the late 1990s (Puschmann and Alt, 2005) due to the proliferation and advances of information technology and the internet, the tremendous potential savings achievable via this tool. A possible benefit of an internet-based system is that it assists a Business Process Re-engineering (BPR) of the procurement activities. It is a natural tool for assessing the expected savings due to BPR and in particular due to e-commerce (Tatsiopoulos, Panayiotou & Ponis, 2002). For instance, Brun et al. (2007) identify five phases in the procurement process: order request, order acceptance, order emission, order receipt and invoices fulfill. For each phase, they define a set of activities and estimate how the activities' performance indicators will change, including cost (Singer and Marcos, 2009).

Interest in inter-organizational information systems (IOIS) can be traced back to Kaufman (1966) prediction that computer networks would improve coordination between organizations and radically alter traditional billing and payment procedures.

In theory, e-procurement reduces administrative costs and bureaucracy by helping the state avoids repeating tasks such as registration and certification of contractors, allowing for additional effective control mechanisms and reducing paperwork (Singer, 2009). In an exploratory study, Carter et al. (2004) revealed that electronic reverse auctions (e-RAs) escalate productivity and decrease cycle times for buyers, predominantly in the case of repeated auctions.

A study on e-procurement systems in Korea, USA, Australia and New Zealand conducted by Albano and Dae (2010) revealed that while the USA, Australia and New Zealand make use of e-procurement solutions to pursue best value for money in awarding public contracts, where Korea seems to put more importance on e-procurement as a way to improve transparency and reduce transaction cost.

Many countries have created specialized agencies in order to develop and manage business-to-government (B2G) electronic procurement (e-procurement) systems. They have done so to achieve the following objectives: 1) Promote the use of internet across different industries; 2) Give signs of transparency, as the transactions between contractors and state agencies become public; 3) Reduce administrative cost by improving the procurement process; and 4) Reduce purchasing prices, due to a more efficient operation and to a larger number of potential contractors (Singer and Marcos, 2009).

However, the World Bank (WB) group is transforming its former, highly manual process of selecting consulting services into a robust e-procurement solution as part of its procurement simplification and modernization agenda (Leipold and Knut, 2004). The World Bank engages consultants and service providers for technical or managerial advisory services in all sectors from socio-economic and environmental projects to reforms of state and financial sectors, privatization, information technology and infrastructure. To that end, the World Bank needs to manage the selection of providers and the resulting contracts with thousands of businesses throughout the world. To ease this process and improve efficiency, the World Bank has implemented a new electronic procurement solution for the selection of consultants, with the goals of fostering consistency of practice worldwide, increasing transparency and competition and minimizing processing time and effort (Leipold and Knut, 2004). Therefore, e-procurement is significantly taking part for improving transparency and efficiency in public procurement of Bangladesh. Hence, this study attempts to find out the transparency and efficiency improvement of applying e-procurement in public sector especially in LGED.

1.2 Problem Statement

A transformational change has been occurred in the field of public procurement of Bangladesh after the passing of Public Procurement Act (PPA-2006) by the national parliament. Before enacting the PPA, the public procurement procedures and practices have evolved over the years from the days of British and subsequently Pakistani rule. A Compilation of General Financial Rules (CGFR) originally issued under British rule was slightly revised in 1951 under Pakistani rule and was reissued in1994 and again in June 1999 with very few changes. The CGFR, inter alia, outlines broad, general principles for government contracts to follow, leaving it to the departments to frame detailed rules and procedures for their respective procurements. It also refers to the manual of office procedure (purchase) compiled by the department of supply and inspection as the guide for the purchase of goods and the Public Works Department (PWD) code as the guide for works. Both date back to the 1930s and have not undergone any revision worthy of mention. The CGFR also refers to the Economic Relations Division (ERD) guidelines issued in 1992, modeled on World Bank procurement guidelines at the time, for procurement in externally funded projects, with the proviso that the loan conditions would prevail in case of conflict. Since independence in 1971, the public procurement practices have been influenced by the World Bank, the Asian Development Bank and other donors since the bulk of public procurement is externally funded. Some departments, autonomous boards and public undertakings have drafted their own set of procedures or a manual, and the rest follow the PWD code (World Bank, 2002).

In case of public procurement in Bangladesh project implementation delays are often not adequately highlighted because of the lack of an efficient project Management Information System (MIS). The existing system could not provide timely feedback of the key government officials and IMED. An improved monitoring and communications system is vital in dealing with the generic and other problems affecting project implementation in a timely manner.

However, ERD in 1992 issued guidelines for procurement for externally funded projects (ERD guideline, 1992). In the absence of general public procurement rules, the ERD guidelines were observed for locally funded procurement as well. Inadequate procurement expertise, complex bureaucratic decision making processes, lack of transparency, poor accountability and pervasive corruptions had contributed considerably to the slowdown in project implementation. Project implementation was also hampered due to inappropriate

selection criteria for key project personnel including project directors and their inadequate familiarity with project management concepts and procurement and disbursement procedures.

However, Government of Bangladesh (GoB) with assistance from the World Bank (WB) carried a review in 1999 of the public procurement legal framework, institutions, policies, practices and competence and skills of the officials and staff (CPAR, 2003). The objective of the study was to assess the efficiency and transparency of public procurement and identify weaknesses in the system and find solutions to address them to compare the system with international models and introduce internationally accepted norms and concepts and to modernize the system using available technology. The Implementation, Monitoring and Evaluation Division (IMED) of the Ministry of Planning coordinated the study. Later in 2000, the World Bank based on the findings presented the Country Procurement Assessment Report (CPAR) along with recommendations and action plans.

The World Bank assists its member countries in analyzing their present procurement policies, organizations and procedures. The main instrument for undertaking this diagnostic work is the Country Procurement Assessment Report (CPAR). The CPAR was intended to be an analytical tool to diagnose the soundness of the existing system in Bangladesh. After diagnosing the soundness of the existing system, the Bank assists the borrower member country in developing or modifying their systems. The CPAR's was used to develop and establish an action plan to improve the existing system for procuring goods, works and services.

CPAR recommended establishment of a Central Procurement Technical Unit (CPTU), introduction of national rules, procedures and standard tender documents uniformly applicable to all public entities, irrespective of source of funding, introduction specific reforms to address present shortcomings and launching a major initiative to enhance procurement management capacity through education and training of staff.

CPTU has been hosting a website since establishment of the organization. Establishment of CPTU was necessitated to bring in discipline, transparency and accountability in public procurement of works, goods and services. The website has posted in it all relevant information, rules, act etc. that govern the public procurement in the country. Standard tender documents, prepared under the public procurement reform, are one of the most important

features contained in the CPTU website. Another important feature of the website is “Tender Notice” of public procuring entities of the government.

The World Bank provided technical assistance to implement the CPAR recommendation and establish management information system to monitor and oversee the public procurement activities. Later, the World Bank provided two assistances namely- Public Procurement Reform Project (known as PPRP) and Public Procurement Reform Project II (known as PPRP II). PPRP was started in 2003 and completed in 2008 while PPRP II started in 2007 and was scheduled to close in 2012 but later the project was extended up to 2017 to complete objective oriented additional activities and providing training to larger number of target officials.

Later, the Digitizing Implementation Monitoring and Public Procurement Project (DIMAPPP) got off to a good start on October 25, 2018 CPTU are implementing e-GP to enhance transparency, accountability and competition in public procurement. The Central Procurement Technical Unit (CPTU) signed a Memorandum of Understanding (Mood) with the Local Government Engineering Department (LGED) during the launching programme of Digitizing Implementation Monitoring and Public Procurement Project (DIMAPPP).

The existing Public Procurement Act 2006 mentions that the government over time will introduce e-GP in the country as it deem appropriate. With the government vision for e-government by 2021 there is a strong desire for improved transparency and efficiency by introducing digital solutions in public sector services and in this context it specifically mentions about procurement using e-GP system. This is pronounced in "Perspective Plan of Bangladesh 2010-2021: Making Vision 2021 a Reality". As per the decision of the "Bangladesh Digital Task Force", chaired by the Prime Minister (October 21, 2015), all public procurement organizations shall conduct procurement using e-GP system by 2016. The Prime Minister's Office monitors the progress of e-GP implementation usually on a quarterly basis where CPTU provides all data and recent progress. As part of the e-governance framework, the government has given high priority to information and communication technology (ICT) based public service provisions. Thus, the country has been transforming its public procurement environment by shifting gradually from traditional procurement practices to international standards through digitization (e-GP).

After introduction of e-GP guideline (2011), LGED was one of the four targeted departments to implement electronic procurement. LGED achieved its short term target i.e. implementation of 100% electronic procurement of works. There is no measurement tool/key performance indicator to compare of off-line tenders with electronic procurement in terms of time or efficiency. Even there is no measuring tool to show how much time incurred for procurement in electronic procurement. This research is a small initiative to measure the time required for an electronic procurement compared with procurement rules. Moreover, efficiency of an electronic procurement against off-line procurement measurement is also an objective for this research.

1.3 Research Objectives

a) To explore the current status of implementing e-GP of works procurement in LGED.
b) To identify time reduction and efficiency improvement of implementing e-GP in works procurement of LGED.

1.4 Research Questions

a) What is the current scenario of works procurement in LGED?
b) How e-GP can contribute to reduce time of works procurement in LGED?
c) How e-GP can contribute to improve efficiency of works procurement in LGED?

1.5 Research Methods

This research uses mixed method, as it appears most appropriate for the purpose of the study. First the research conducts a quantitative survey which is followed by Procurement Management Information System (PROMIS) report of CPTU. Secondly the research conducts an expert opinion survey which is followed by providing a questionnaire to experts. This is a qualitative survey and clarifies and confirms the quantitative outcome. Although many scholars have different philosophical assumption, other scholars such as Greene (2008), Firestone (1992) argued in favour of mixed methods. They believed that mixed methods are capable to develop (exchange of knowledge between the two approaches), expand (provide greater through expansion of the scope of the study) and compliment (weakness of one approach is balanced by the strength of other).

Both primary and secondary data were collected. Primary data is collected from the PROMIS report of CPTU. The target organization is LGED. Therefore, off-line tender data is collected from 64 districts. On the other hand, secondary data is collected from expert opinion survey.

Sample and data collection procedures were given utmost importance from the beginning of the research as it was obvious that it would be difficult to find out the real data from the stakeholders. Expert opinion surveys were conducted among the respondents of 1 (One) Executive Engineer (XEN), 1 (One) Senior Assistant Engineer (Sr.AE) and 7 (Seven) Assistant Engineer (AE) of LGED.

Expert opinion survey was conducted for obtaining off-line tendering data (Appendix-1). However, for comparing between on-line and off-line tender data, off-line data was also obtained from different LGED field office (districts offices).

This research work is limited to works procurement functions of LGED only. No other functions and activities were considered in e-GP. Field off-line data consists of 64 districts data and there was a tremendous anomaly of the data. It was a challenging task to arrange all the data and there may be some human error.

Expert opinion survey is found as one of the main challenges of this study. Because the survey was conducted in very near to closing the financial year of the country and almost all the procure entity was so busy to give their valuable time. Therefore, numbers of participating in expert opinion was significantly lower. However, continuous persuasions over telephone/e-mail and regular communication make it possible to collect the data as well as expert opinion.

1.6 Significance and Value of the Research

As stated above, LGED was one of the four target agencies in financial year 2011-12 to implement electronic government procurement. And LGED achieved the target as per requirement of CPTU. For example, LGED achieved 100% works procurement through e-GP in 2016. But there are almost 45 indicators to demonstrate the performance in e-GP (PROMIS software, CPTU). There is no target set in these indicators and its monitoring is not performing. Therefore, findings of the research imply the real situation of works procurement of LGED.

Another notable contribution of the research is that the procurement experts gave their viewpoint over some issues and all of the viewpoints are notable. In addition, off-line data collection from district level was a driving factor of e-GP implementation. Because the field level officials have a few chance for researching on e-GP. If they find their position with respect to the other offices, it will drive them to achieve to implement e-GP in their offices.

Moreover, LGED is the largest engineering department with respect to implement e-GP as well as personnel. There is very little scope of doing research about LGED. This research reveals the performance of LGED's work procurement in respect to different indicators which are the core improving indicators.

Besides, this dissertation is also very significant from the personal standpoint of the author. As the author is working in the procurement unit of a government department and dealing with the procurement of whole of the departments with having almost 898 procuring entities. Hence, he believes that the knowledge he is going to achieve from this study would ultimately enhance his contribution to the future path of procurement of LGED.

1.7 Structure of the Thesis

For attaining the objectives of the thesis, the paper contains the following four chapters.

- **Chapter One** includes background of the study, statement of the problems, objectives of the research, research questions, research methods, significance and value of the research and outline of the whole thesis.
- **Chapter Two** includes the literature review including definition of procurement, e-GP, global e-GP implementation history, electronic government procurement (Brazil, Russia, UK, South Korea, Virginia), review of public procurement framework in Bangladesh, major modules in Bangladesh e-GP system, review of PPA, PPR, e-GP guideline, categories of e-GP stakeholders, e-GP system features, overview of e-Contract Management Module (e-CMS), implementation of e-GP in LGED.
- **Chapter Three** illustrates analysis which includes comparative statement of e-GP tenders between LGED and all other departments, time reduction in tendering process of LGED comparing with PPR-2008, efficiency improvement in tendering process of LGED comparing with PPR-2008, comparison between PROMIS report result and expert opinion survey.

- **Chapter Four** includes discussion, conclusion and recommendation. The recommendation for LGED, CPTU and for government or policy makers also discussed here.

CHAPTER TWO: LITERATURE REVIEW

Relevant literature review for this chapter is presented in this chapter into three parts. First part covers the theoretical framework including summation of definition of procurement and outline of e-GP. Second part highlights the global e-GP implementation history. The final part discussed the review of public procurement framework and e-GP features in Bangladesh and implementation of e-GP in LGED.

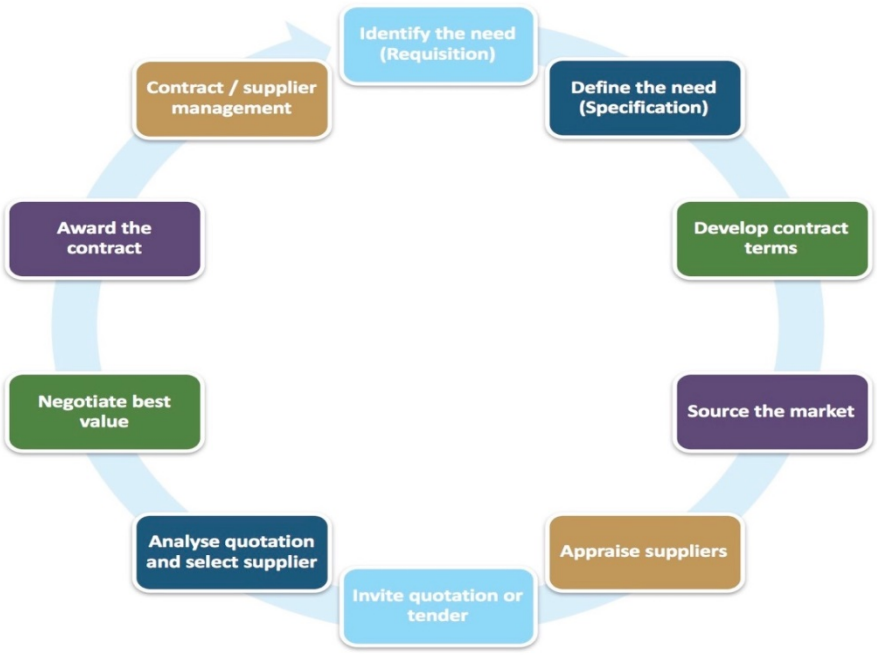
2.1 Theoretical Framework of Procurement

2.1.1 Definition of Procurement

Lysons & Farrington defined procurement as follows:

"procurement is the process undertaken by the organization, either as a function or as part of an integrated supply chain, is responsible for procuring or assisting users to procure, in the most efficient manner, required supplies at the right time, quality, quantity and price and the measurement of, thereby contributing to the competitive advantage of the enterprise and the achievement of its corporate strategy." (Lysons & Farrington, 2012, p.6)

Figure 2.1: Procurement Cycle



(**Source:**Procurement Cycle, Lysons& Farrington)

2.1.2 e-GP

The most general description of e-GP is almost a self-explanatory definition of the three words- electronic government procurement. E-GP is the use of information & communications technology (especially the internet) by governments in conducting their procurement relationships with tenderers for the acquisition of goods, works and consultancy services required by the public sector (The World Bank, 2003).

In e-GP guidelines (2011) there is a definition of e-GP:
"E-GP means procurement by a procuring entity using the electronic government procurement (e-GP) system developed, hosted and operated by the government of Bangladesh through CPTU/IMED, Ministry of Planning under the e-GP guidelines".

E-procurement systems can be used helping purchasing goods and services most reasonably (Mi Jung Lee, 2010). E-procurement is the online purchasing of goods and services through electronic channels (Parida and Parida, 2005). More, specifically, it is the use of electronic means for publishing, processing, exchanging and storing all of the information related to institutional purchases in public organization (Asser and Boughzala, 2008). Public e-procurement is an important stage in e-government development and its economic stakes are considerable. Thus public procurement systems must consults dualistic systems for two customers - government and companies (Mi Jung, 2010).

2.2 Global e-GP Implementation History

Procurement has remained a challenging issue for all organizational entities within the private as well as public sectors. The traditional, paper-based procurement process has constantly been criticized for a number of reasons. It is argued that the traditional procurement process is labor-intensive and expensive, which often allows collusive bidding activities resulting in inefficiency and wastes (Liao et al., 2002; Anthony and Evans, 2010). In relation to procurement strategy and practice, the public and private sectors tend to differ in two major areas. First, the public sector primarily concentrates upon the total amount of money available for appropriation. Savings achieved through any improvement of the procurement process may provide additional funding available for offering better service to citizens (Krysiak et al., 2004). The private sector, on the other hand, wants to maintain a competitive advantage and needs to be profitable. Second, unlike private procurement, public procurement is highly regulated (Henriksen and Mahnke, 2005). Any spending and

procurement in the public sector must be done in accordance with legislative requirements. As procurements involve significant budgetary implications, numerous efforts have been made to improve the procurement systems. Resorting to e-procurement systems complex process is one of them. Initially introduced in the private sector, it has recently gained momentum within the public sector as a means to achieve greater efficiency and to enhance the public value of government expenditure (De Faria et al., 2010).

There are some key motivations for which the public sector organizations may decide to introduce e-procurement solutions. These include:

a. **Increased efficiency**: Bakos (1991) and Malone et al. (1987) argue that organizations, regardless of their type, intend to introduce e-procurement solutions for increased procurement efficiency. It could be achieved through shorter order cycles (Carabello, 2001, Neef, 2001; Roche, 2001; Wendin, 2001), greater choice of (Kheng and Al-Hawamdeh, 2002; Presutti, 2003), reduced inventory (Min and Galle, 2003; Croom and Johnston, 2003) and to achieve a better understanding of procurement needs (Agnes and Nath, 2007).

b. **Cost savings**: Directly linked to efficiency, cost savings could act as a primary motivation for organizations to adopt e-procurement. Henriksen and Mahnke (2005) confirm this observation and suggest that similar to private procurement, public procurement is also subject to cost pressure. In her study of e-procurement adoption in the US public sector, McManus (2002) notes that the motivation for the implementation of online procurement systems is based on expectations of lower purchase prices, reduced transaction costs and increased speed. In their study, Henriksen et al. (2004) report that the Danish public sector has sponsored an e-procurement initiative to materialize greater cost savings. Based on an Italian study, it was suggested that there was a potential of overall procurement cost reduction by 7–10% through the use of e-procurement method (Cagno et al., 2004). In their study, Rahim et al. (2008) reported the desire to improve internal procurement practices through cost saving to be a major motivator for e-procurement adoption in Australia. Leading diffusion of e-commerce and e-government practices and government directives: According to Henriksen et al. (2004), government Institutions often want to take a lead for diffusing e-commerce and e-government practices at

national level. This drives their intention to develop e-procurement capabilities across all government agencies. In addition, government directives may also encourage and motivate the various government agencies to adopt e-procurement as a preferred option of procuring goods and services.

c. **Improved accountability**: Lack of accountability is often considered a significant impediment of maintaining an effective procurement system within the public sector. It is argued, e-procurement increases the level of accountability within government agencies resulting in reduced corruption, less red-tape and increased efficiency (Moon and Bretschneider, 2002; Moon, 2003).

d. **Improved transparency**: There is an argument in the literature that the public institutions may introduce e-procurement solutions to improve the transparency of the public procurement practices. For instance, the European Union, recognized e-procurement in the public sector to have a potential to improve transparency and opening-up of public procurement practices (European Union, 2005; Adesina et al., 2010). E-procurement process, therefore, is likely to create a more open and competitive bidding environment preventing the prevalence of collusive bidding practices (Liao et al., 2002). Challenges of e-procurement adoption in a longitudinal study involving 68 large Swiss companies, Tanner et al. (2008) have found that despite the existing hype and interests surrounding IT-enabled service provisions and apparent prospect of achieving better performance through e-procurement initiatives, organizations fail to completely achieve expected outcomes. It reflects the difficulties in grasping the actual prospect of e-procurement process and conducting the process in a competent manner. In another longitudinal survey of 139 Australian private and public enterprises, Williams and Hardy (2007) identified several factors inhibiting e-procurement adoption in Australia that include the lack of supplier readiness, inability e-procurement adoption process: an arduous journey to integrate appropriate systems to the process, difficulties in justifying costs in relation to potential benefits, high implementation costs and the lack of management support and supplier readiness. Ensuring e-security and system compatibility could also pose

considerable challenges. A selection of major challenges is further discussed below.

e. **Costs and resource commitments**: Resource constraints are a major challenge in establishing a viable e-procurement system. To establish a workable e-procurement mechanism, an organization may require investing significant amount of money in upgrading its IT infrastructure and recruiting new staff and providing training to existing ones. Many organizations show reluctance in pursuing it fully as the immediate start-up costs may be considered exorbitant (Lee and Ahn, 2008). A strong political commitment across all governmental levels could help alleviate this problem.

f. **Organizational competence/readiness**: Attaining organizational competence with respect to initiating and implementing e-procurement is a challenging task. A mere commitment of pursuing e-procurement will not benefit the organization, if it is not backed by organizational competence. Organizational competence, however, primarily relies on the available skills set within the organization. The compatibility of a new system with the existing organizational resources and the lack of necessary skills set may also be matters of concern. Therefore, adequately trained technical, managerial as well as general supporting staff is required to initiate and conduct successful e-procurement activities (Dhillon, 2008). As e-procurement significantly relies on information and communication technologies and given the constantly changing nature of such technologies, organizations require maintaining ongoing training regimes to upgrade the managerial and employee skills levels accordingly (Dhillon, 2008).

g. **Resistance to change**: E-procurement engenders IT-enabled organizational change that could generate certain level of resistance from both management and staff (Lee and Ahn, 2008). From the management perspective, initial cost could be an issue, whereas for staff, it could be viewed with uncertainty and possible job losses (Williams and Hardy, 2007). Bureaucratic culture and apparent loss of power by key decision-makers within the organization could also be a recipe of discontent and ambivalence. Any e-government initiatives

including e-procurement are likely to face this problem (As-Saber et al., 2007).

h. **Hacking, e-security and e-law**: According to As-Saber et al. (2006, p.88), "seamless communication and information flow and data management are the primary preconditions" of any effective e-government initiative and structure including e-procurement. It, therefore, requires sufficient legal safeguard against any illegal activities undertaken by computer hackers and cyber criminals that demands for a strong and an enforceable legal and administrative framework. Although Australia has some of the most restrictive internet policies among all Western nations, the internet security remains a question mark (Open Net Initiative, 2008; Luces, 2001). Many organizations tend to avoid e-procurements as a result and many others do not commit themselves fully. In addition, a legal contractual framework is essential for the preparation and smooth functioning of all agreements between the bidder and procurers. The Australian Procurement and Construction Council (APCC) have recently released a charter on the national ICT contractual framework to "promote a consistent and coordinated national approach to government procurement" which may help alleviate the problem (APCC, 2007, p.ii).

2.2.1 Electronic Government Procurement in Brazil

Early 2000, Brazilian government began a series of efforts to expand the transparency achieved in previous years and consequently increase the competitiveness and social control over public spending. In this new context was created the first electronic procurement mechanism and began a crusade to demonstrate the relevance, feasibility and benefits of the new modality bidding. It then ran the urgent need for training of public servants and in addition to seeking improvements in infrastructure for communication and data transmission over the Internet in the country as a whole, object of the action of other ministries and the market it.

The electronic procurement mechanism created was a reverse auction that brought important innovations such as: successive bids until obtaining the lowest price, inversion of the competitive phase and the phase of enabling, lower term to realize the public session and

without limit value. The reverse auction could be realized in presential form, with providers in the same room, or in virtual form via internet. The presential form was easily used and the results appeared quickly, which was important to validate the solution.

Six months later, the first electronic auction was realized and with it was broken an important rule: The presential paradigm. In the next years the presential reverse auction grew quickly, but the electronic form took more time; it became more used and mandatory only in 2005. At the same time, two other related processes were improved. The first was to make possible to register a price for a limited time (system of prices) and the second to make emergency procurement or small procurement in a simplified electronic mode (electronic quotation). After this, the reverse auction grew in use and in versatility. It could be used to deal with discount bids over reference prices and to apply automatically special treatment for small and medium firms. An important point to note is that the entire cost of the systems (development and production) was paid by the public administration considering the hypothesis that the economy in the prices obtained in the purchasing and contracting would cover the necessary investments, which was confirmed with time.

Public Procurement Legal Framework

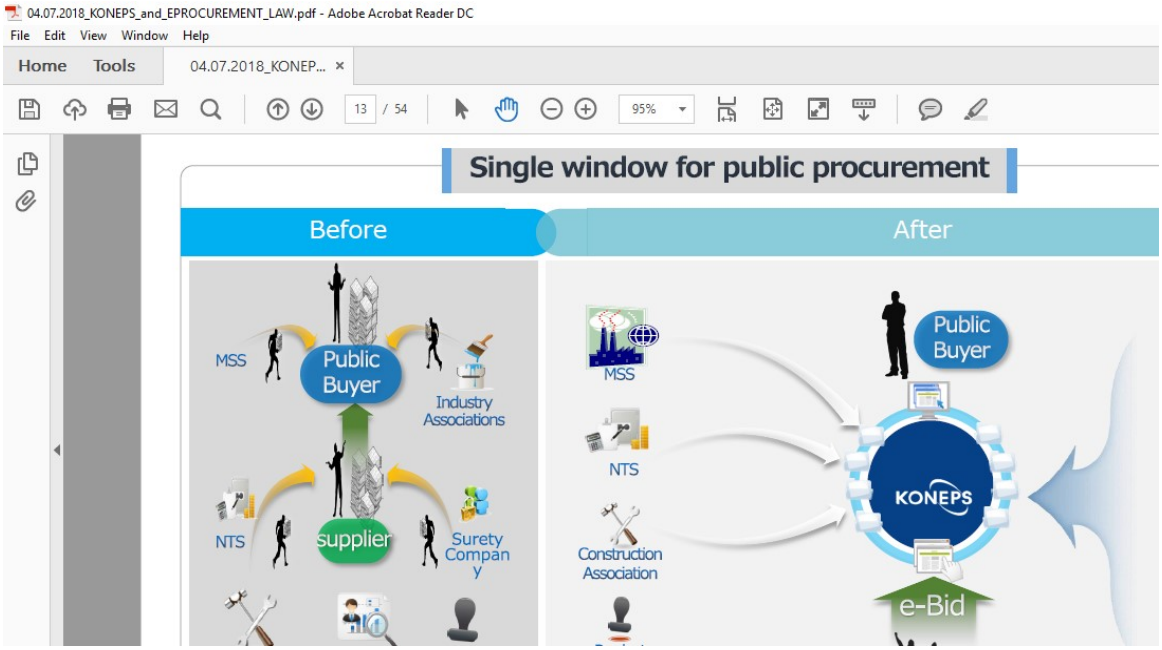
Public Procurement in Brazil is based on item XXI, Article 37 of the Brazilian Constitution of 1988 (Constitution). This provides that, unless otherwise specified by law, public works, services, purchases and disposals must be contracted by public bidding proceedings that ensure equal conditions to all bidders. Clauses on payment obligations, that maintain effective bidding conditions, must only require technical and economic qualifications indispensable to guarantee performance of the obligations.

Government entities, entities owned by the government according to federal government powers, the states, the federal district and the municipalities must comply with Article 37, and the principles of lawfulness, impartiality, morality, publicity and efficiency (preamble to Article 37, constitution).

The federal government has exclusive power to legislate on the rules relating to bidding and contracting carried out by government agencies, federal bodies, states, federal districts, public enterprises and corporations and the municipalities (Item XXVII of Article 22, constitution). Some states have their own bidding and contracting statutes, which mostly follow the general principles and rules under federal laws. Electronic systems website is comprasnet.gov.br

2.2.2 Electronic Government Procurement in South Korea

Public Procurement Service (PPS) is conducted under ministry of strategy and finance. PPS provides procurement services for all public entities. It operates government-wide single e-procurement portal (KONEPS) that covers the entire procurement process. Central government entities are required to use PPS services for procurement above the threshold value i.e. good and service above USD 1,00,000, and construction works above USD 30,00,000. Local government entities and public enterprises may procure either autonomously or by using PPS services



KONEPS (Korean ON-line E-Procurement System)

- Korea's single public procurement portal
- It allows electronic processing of the entire procurement cycle

Beyond KONEPS Advanced History

2002 Launch KONEPS

2006 Integrated shopping mall

2008 On-line proposal assessment system

2010 e-tendering by fingerprint

2015 Virtual bidding service

Statistical Procurement System

KONEPS for private purchasers

Open-APIs for Procurement Information

Subcontract Management System

2016 Public Procurement Contract Performance Monitoring System

Fingerprint bidding has made revolution of Koreans e-procurement system. For purchase fingerprint security token is required. In registration purpose, confirmation of personnel is necessary where 3 finger prints are necessary. For clarification, Link PKI and fingerprint information is required. Login in KONEPS is needed for further taking part in bidding. E-procure system in Korea made new dimension in procurement (www.pps.go.kr).

2.2.3 Electronic Government Procurement in UK

Procurement in the UK is unique in the EU in three ways: it is the largest in value EU-wide, makes the greatest use of restricted procedures and competitive dialogue and is regulated by two different legal systems. However, only a relatively small portion of this is ESI funds and therefore the procurement of EU projects cannot be considered representative of the overall procurement system in place in the UK. However, the two-stage tendering process takes longer than an open procedure, and can be more restrictive for potential to comply with, due to the quality of tender submissions required. The UK's administrative structure also impacts its procurement system, with unique legal regimes for England, Wales and Northern Ireland on the one hand and Scotland on the other one. Implementation of procurement is even more decentralized, with national institutions in Wales and Northern Ireland as well.

E-Procurement

The UK is an EU leader in e-procurement with one of the highest uptake rates of any MS, despite the fact that neither e-notification nor e-submission is mandatory. Estimates of the levels of e-submission uptake place the UK in the range between 50% and 75%, with approximately 75% of central government bodies carrying out procurement fully electronically. The government procurement portal includes a searchable database of contract notices called contracts finder, as well as a pipeline to allow potential bidders to prepare for up-coming procurements. It also hosts an analysis tool with regularly updated information on procurement organized by category and supplier.

Public Procurement Policy

The over-riding procurement policy requirement is that all public procurement must be based on value for money, defined as "the best mix of quality and effectiveness for the least outlay over the period of use of the goods or services bought". This should be achieved through competition, unless there are compelling reasons to the contrary. Public sector procurement is subject to a legal framework which encourages free and opens competition and value for money, in line with internationally and nationally agreed obligations and deregulations. As part of its strategy, the government aligns procurement policies with this legal framework, as well as with its wider policy objectives.

Centralized Procurement

In 2010 central government moved to a system which buys common goods and services once on behalf of the whole of government and not in individual departments. To support this, Crown Commercial Service (CCS) was established to provide end-to-end purchasing services and departments were to transition spends on common goods and services to these arrangements.

Procurement Processes

Central government buyers must follow the policy on selection of procurement processes that accompany the procurement route decision tree. There is a strong preference for the open procedure and this should be the normal default choice for government procurement. The restricted procedure should only be used where there is a genuine need to pre-qualify bidders or where there is evidence that (after effective pre-procurement market engagement) the market and therefore the number of potential bidders, is very large. The decision tree notes some distinction between the suitability of the two procedures for more complex procurements. In particular, the competitive procedure with negotiation offers an attractive new choice for those procurements where although some element of negotiation is needed, it is possible to specify a minimum requirement from the outset. However, the competitive dialogue now provides for clarification and optimization after the final call for tenders and has no minimum requirement at the outset, making it much better for highly complex outcome based procurements.

The CCS is an executive agency and trading fund of the cabinet office of the UK Government. The CCS is responsible for improving government commercial and procurement activity.

E-Auctions

An electronic auction (e-Auction) is a procurement tool that uses web-based software to allow potential to compete online, in real time, to provide prices for the goods/services under auction. E-auctions can be based on price alone or other criteria such as quality, delivery or service levels can also be taken into account.

Reverse e-Auctions

Potential compete with each other by reducing the price of the goods or services. This is referred to as a 'reverse' auction as prices are reduced rather than increased. Prices gradually reduce during the e-auction, as offer improved pricing in order to win the contract.

Forward e-Auctions

Potential compete with each other by increasing the price they are willing to pay for the goods or services in order to win the business being offered. This is referred to as 'forward' auctions prices are increased. Prices gradually increase as offer improved prices in order to win the contract. An example of this type of e-auction is bidding to purchase paper and magazines for recycling.

2.2.4 Electronic Government Procurement in Virginia, USA

The Division of Purchases and Supply (DPS) provides services that make it easier and more convenient to do business with the Commonwealth and make it more simple and cost efficient for the government to do its business.

The e-VA marketplace is used by more than 13,000 state agency and local government buyers to announce bidding opportunities, receive quotes and place orders for goods and services. Since its inception in 2001, e-VA has transformed the way the Commonwealth buys goods and services, dramatically improving transparency of government purchasing.

E-VA Applications

This tool allows buyers to shop online and issue electronic purchase requisitions and orders. Buyers may shop statewide contracts and vendor catalogs in an electronic storefront, as well as order no catalog items. Additionally, orders can be delivered electronically and/or paid for with a small purchase card to vendors, after going through your custom approval flow.

Contract Management

Maintain complete, electronic versions of contracts and also store all of contract documents. Other features include notification capabilities, document subcontractors, create contract summary templates, easily track contract spend, supplier performance and more.

2.3 Review of Public Procurement Framework in Bangladesh

The public procurement procedures and practices have evolved over the years from the days of British and subsequently Pakistani rule. A Compilation of General Financial Rules (CGFR) originally issued under British rule was slightly revised in 1951 under Pakistani rule and was reissued in 1994 and again in June 1999 with very few changes (World Bank, 2002). Since independence in 1971, the public procurement practices have been influenced by the World Bank, the Asian Development Bank and other donors since the bulk of public procurement is externally funded. Some departments, autonomous boards and public undertakings have drafted their own set of procedures or a manual based on CGFR principles, and the rest follow the PWD code (World Bank, 2002).

In 1999, the World Bank and the Asian Development Bank conducted joint review of the country portfolio performance and prepared an action plan for government on public procurement. In 2002, the World Bank prepared Country Procurement Assessment Report (CPAR) in agreement with Government of Bangladesh, identified several deficiencies in the procurement system of the GoB, which as follows

- Absence of sound legal framework governing public sector procurement
- Complex bureaucratic procedure causing delay.
- Lack of adequate professional competence of staff to manage public procurement.
- Generally poor quality bidding documents and bid evaluation.
- Ineffective administration of contract.
- Absence of adequate mechanism for ensuring transparency and accountability.

In the context of escalating concerns for streamlining the country‘s public procurement system, the government undertook an array of reforms in order to strengthen the public procurement regime. The reform process ultimately led to the making and issuance of public procurement regulations in 2003, providing a unified procurement processing system. The PPR, 2003 was supplemented by public procurement processing and approval procedures (PPPA), a revised Delegation of Financial Powers (DoFP) and several Standard Tender

Documents (STDs) and standard request for documents for the procurement of goods, works and services. Further later, in order to intensify the improvement measures in the public procurement system, the House of the Nation enacted the much desired law, the PPA, 2006. Under the Act of 2006, the PPR, 2008 was framed and issued, which replaced the Public Procurement Regulations, 2003 which until then continued to have effect (Hoque, Ridwanul, 2010).

In early 2011, the Government of Bangladesh took a milestone decision to introduce electronic government procurement‖ e-GP as provisioned under section 65 of Public Procurement Act, 2006 and Rule 128 of Public Procurement Rules, 2008, for further scaling up the reform leading to modern ICT based procurement system.

2.4 Reviews on PPR- 2008

S.R.O No 21-Law/2008 |— In-exercise of powers conferred under section 70 of the Public Procurement Act, 2006 (Act 24 of 2006), the government is pleased to make the rules.

In PPR-2008 there are 130 rules, 9 chapters and 14 schedules. The PPA- 2006 and PPR-2008 have been amended four and three times respectively with response to requirement.

There are various methods for procurement of goods & related services and works & physical services. These are Open Tendering Method (OTM), Limited Tendering Method (LTM), and Request for Quotation (RFQ), Direct Purchasing Method (DPM), Two-Stage Tendering Method and One Stage Two Envelope Tendering Method (OSTETM).

There are also various Methods for Procurement of Intellectual and Professional Services. These are Quality and Cost Base Selection (QCBS), Selection under Fixed Budget (SFB), Least Cost Selection (LCS), Single Source Selection (SSS), Selection of Based on Consultant‘s Qualifications (SBCQ), Selection amongst Community Service Organizations (CSOs), Selection of by a Design Contest (DC), Selection of Individual Consultant (SIC).

All the nine chapters describes preliminary; Preparation of Tender or Committee, etc.; principles of public procurement; methods of procurement for goods and related services, works, physical services and their use; processing of procurement; procurement of intellectual and professional services; professional misconduct; e-government procurement; miscellaneous respectively.

2.5 Review of E-GP Guidelines

The government of Bangladesh has approved e-GP guidelines in 15 February 2011. This document provides principle guidelines of e-GP system of Bangladesh. The objective of the e-GP is to enhance the efficiency and ensure transparency in public procurement through the implementation of a comprehensive e-GP solution to be used by any or all government organizations in the Country. The e-GP guideline has been prepared as provisioned under Section 65 of Public Procurement Act, 2006 and Rule 128 of Public Procurement Rules, 2008, for the use of the e-GP System. The guidelines provide general guidance on e-GP related technical issues and set out the initial view on e- GP related working assumptions. The guidelines are prepared also in consistent with the prevailing ICT Act 2009, Right to Information (R2I) 2009 and international practices on e-GP.

These guidelines provide e-GP general technical operational guidance only; no attempt is made to provide a guide to the Procurement, ICT Act, R2I Act itself, or to the associated Code of Practice, which are already available elsewhere. However, the aspects of those Acts relevant to the e-GP system that are most likely to affect general users have been discussed. These guidelines represent the Government‘s view of the application of the e-GP System for carrying out public procurement activities online. However, the public entities shall remain responsible for making their own judgments in individual cases. The e-GP System and its guiding principles are not intended to be static and shall be revised as necessary in the light of experience being gathered during the system run.

The e-GP system shall be used by the procuring entities and other public entities spending public fund for the purposes of applying the procurement process using these guidelines in case of procuring goods, works and services using e-GP System. The scope of this system is to maintain complete and up-to-date Public Procurement activities of all public agencies as well as provide tender opportunities to all potential tenderers from Bangladesh and abroad. Initially this will apply to four selected target agencies namely Bangladesh Water Development Board (BWDB), Rural Electrification Board (REB), Roads and Highways Department (RHD) and Local Government Engineering Department (LGED). Gradually through DIMAPP project, the e-GP system will be rolled out to all procuring entities using public funds.

2.6 Major Modules in Bangladesh e-GP System

E-GP system in Bangladesh shall consist of several modules that are interlinked sub-systems, such as:

- Centralized registration system (contractors, procuring entities and other actors of e-GP);
- Workflow management System;
- E-Tendering (e-publishing/e-advertisement, e-lodgment, e-evaluation, e-contract award) system;
- E-Contract Management System (e-CMS);
- E-payment system;
- Procurement Management Information System (PROMIS);
- System and security administration;
- Handling errors and exceptions;
- Application usability & help.

More modules, sub-systems and features (i.e. e-catalogue/ e-purchase, e-auctions, e-reverse auction, integration to supply chain and others) may be added, removed or updated as demanded by the prevailing Acts, rules, government instructions and demand from procurement community.

2.7 Categories of e-GP Stakeholders

A stakeholder is a party that has an interest in a company and can either affect or be affected by the business. The primary stakeholders in a typical corporation are its investors, employees and customers. However, the modern theory of the idea goes beyond this original notion to include additional stakeholders such as a community, government or trade association.

Primary stakeholders: are those ultimately affected, either positively or negatively by an organization's actions.

Secondary stakeholders: are the ‘intermediaries’, that is, persons or organizations who are indirectly affected by an organization's actions.

Key stakeholders: who can also belong to the first two groups have significant influence upon or importance within an organization.

Therefore, stakeholder analysis has the goal of developing cooperation between the stakeholder and the project team and ultimately, assuring successful outcomes for the project.

The e-GP System shall support the following user categories for stakeholders/actors initially and provides them the secured access to related functionalities of the e-GP system through dashboards:

- Tenderers;
- Procuring agencies/entities;
- Payment service providers (scheduled banks and other payment service providers);
- Development partners;
- E-GP system administrators (CPTU and PE administrators) and auditors;
- Operation & maintenance partners;
- Committees (opening/evaluation etc.);
- Approval authorities;
- General public for information related public procurement;
- Media community for updates, announcements, news releases etc.

2.7 E-GP System Features

e-GP Flow Chart (Works Procurement)

e-GP Admin

Organization Admin

PE-Admin

- Create Government User
- Create PE,TOC, TEC
- Designation
- Procurement Role

Annual Procurement Plan (APP) Preparation

- Budget Type: Development/ Revenue/ Own Fund
- Financial Year:
- Select Project :
- APP Code :
- Procurement Nature: Goods/ Works/Services
- Type of Emergency : Normal/ Urgent (Catastrophe)/ Natural Disaster

- Package No. :
- Package Description :
- Lot No. :
- Lot Description :
- Quantity :
- Unit (i.e. Nos., Kg, etc.):
- Estimated Cost (In BDT):
- Category :
- Approving Authority:
- Procurement Type :
- Procurement Method :
- Source of Fund : Government
- Tender Dates :

Expected Date Of Advertisement Of IFT on e-GP website : *			
+ No. Of Days : *		Expected Last Date of Submission of Tenders/s :	
+ No. Of Days : *		Expected Date of Opening of Tenders/s :	
+ No. Of Days : *		Expected Date of Submission of Evaluation Report :	
+ No. Of Days : *		Expected Date of Approval for Award of Contract :	
+ No. Of Days : *		Expected Date of Issuance of the NOA :	
+ No. Of Days : *		Expected Date of Signing of Contract :	

+ No. Of Days : *		Expected Date of Completion of Contract :	
Total to Contract Signing :			

- Workflow: Create (No. of Reviewers)
- File Process in Workflow
- APP Publish (After Approval)

Create Tender/ Notice Preparation

- Invitation Reference No. :

Scheduled Tender/ Publication Date and Time :		Tender/ Document last selling /downloading Date and Time :	
Pre - Tender/ meeting Start Date and Time : *		Pre - Tender/ meeting End Date and Time :	
Tender/ Closing Date and Time :		Tender/ Opening Date and Time :	
Last Date and Time for Tender/ Security Submission :			

- Eligibility of Tenderer:
- Brief Description of Works :
- Tender/ Document Price (In BDT) :
- Location:
- Tender/ Security (Amount in BDT) :
- Start Date :
- Completion Date :

- Configure Official Cost Estimate, Approving Authority, STD Selection
    - Approving Authority
    - Standard Tender Document :
    - Tender Validity in No. of Days :
    - Tender Security Validity In No. of Days : 28 days greater than Tender Validity

Tender Preparation

- Notice Preparations
- Configure Key Information
- Clarification on Tender
- Workflow
- Committee Member for Encryption/Decryption
- Official Cost Estimate
- Creation of format for Price Comparison Report: After Opening Process.

Document Preparations

- Section 1: Instruction to Tenderer : Cannot Customize
- Section 2: Tender Data Sheet
    - A. General
    - B. e-Tender Document (e-TD)
    - C. Qualification Criteria
    - D. Tender Preparation
    - E. Tender Submission
    - G. Contract Award
- Section 3: General Conditions of Contract: Cannot customize.
- Section 4: Particular Conditions of Contract
    - A. General
    - B. Time Control
    - C. Quality Control
    - D. Cost Control
    - E. Completion of the Contract
    - F. Termination and Settlement of Disputes
    - G. Claims, Disputes and Arbitration

- **Section 5: Tender and Contract Forms**
  - New Forms Preparation
  - Contract Forms
  - Tenderer Information Form (e-PW3-2) - Part – 1
  - Tenderer Information Form (e-PW3-2) - Part – 2
    Qualification Information of the Tenderer
  - Tenderer Information Form (e-PW3-2) - Part – 3
  - e-Tender Submission Letter (Form e-PW3-1)
  - Tenderer Information Form (e-PW3-2) - Part – 4
  - Subcontractor Information (Form e-PW3-3)
  - Personnel Information (Form e-PW3-4)
- **Section 6: Bill of Quantities**
  - New Forms Preparation
  - Create Fixed Rate BOQ Form |
  - Create BOQ for salvage works
  - Bill of Quantities
  - Schedule of Day works
- **Section 7: General Specifications**
- **Section 8: Particular Specifications**
- **Section 9: Drawings**

Evaluation Committee

- Create

Opening Committee

- Create
- Workflow
- Notice Publish

Tender Submission by Tenderer

- Document Fees
- Tender Preparations
  - Fill the Forms
  - Map the documents
  - Sign

- Encrypt and Save

- Tender Security
- Final Submission

Tender Opening

- Sign
- Verify Mega Mega Hash
- Decrypts all
- Close
- Send to PE

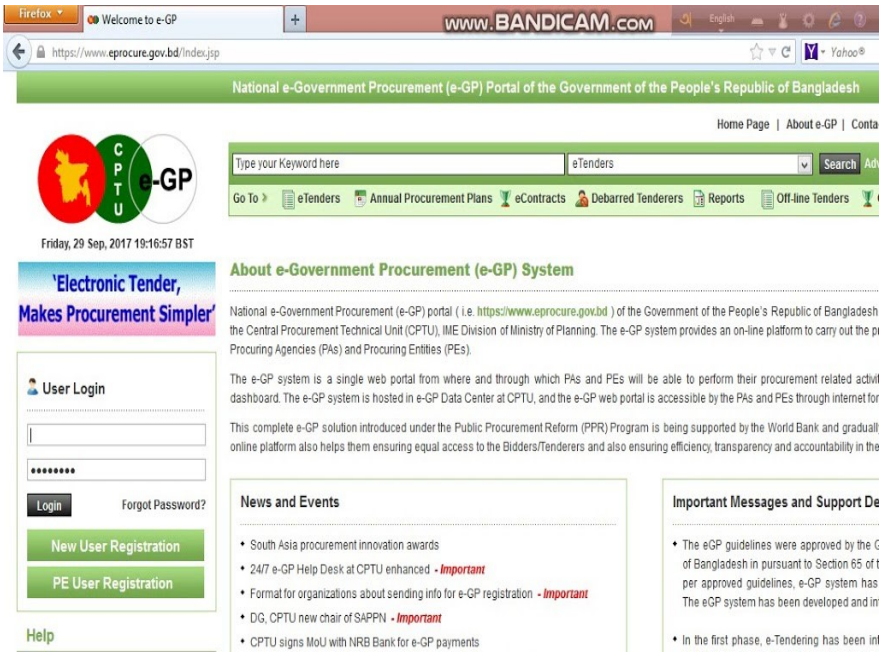
Tender Evaluation

- Send to TEC Chairperson
- Configure: Team Evaluation/ Individual
- Consent Evaluation Nomination
- Declaration for Evaluation
- Evaluate Form
- Notify Chairperson(If evaluation is finalize)
- Finalize Responsiveness
- Sign Tender Evaluation Report TER-1
- Sign Tender Evaluation Report TER-2
- Price Comparison Report
- Post Qualification
- Sign Evaluation Report TER-3
- Sign Evaluation ReportTER-4
- Notify PE (for Workflow Creation)
- Send Evaluation Report to AA

Approval from Contract Approving Authority

- Issue NOA
- Performance Security
- Contract Signing
- Contract Award

Figure: 2.2 Home page of e-GP



❖

Electronic Contract Management System (e-CMS)

Overview of e-Contract Management Module (e-CMS)

The processes involved between the issuance of a work order and completion of the work are handled electronically in the contract management module. With the contract management module, a government agency is able to maintain an overview of the works in progress. Once part of a work is completed, then payment to the supplier is more quickly arranged and transacted. The system will have automated bring-ups according to the contracted schedule. These bring-ups will trigger quality and delivery verifications and then bank transfers or rescheduling of the bring-ups. When in place for a period of time, the system also collects a repository of knowledge that can be used to measure the performance of a contractor.

Contract Management System (CMS) contains five modules for procuring entity:

- ❖ Commencement Date;
- ❖ Delivery Schedule/Work Plan;
- ❖ Progress Report;
- ❖ Payment;
- ❖ Contract Termination.

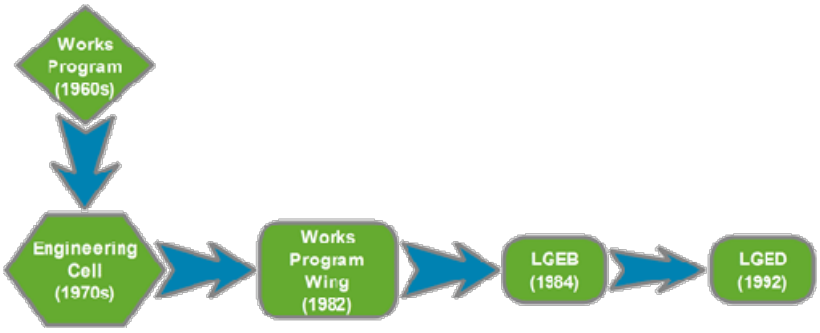
2.9 Procuring Entities and Approving Authority at LGED

There are various levels of procuring entities in LGED. Chief Engineer is the Head of Procuring Entity (HOPE) of LGED. Other significant procuring entities are Project Director, Executive Engineer and Upazila Engineer. LGED has six levels of approving authority. These are Cabinet Committee for Government Purchase (CCGP), ministry of LGRD & C specially Local Government Division(LGD), HOPE and three types of project directors likewise PD Grade-A, cost more than 20 crore ; PD Grade –B, up to 15 crore; PD grade –C, up to 10 crore. CCGP is responsible for the works and goods of contract value more than 100 crores. Ministry can approve more than 30 crore but less than 100 crore works; HOPE up to 30 crore of works; project director approve below 20 crore works. Chief Engineer of LGED delegated power to district Executive Engineer to approve contract.

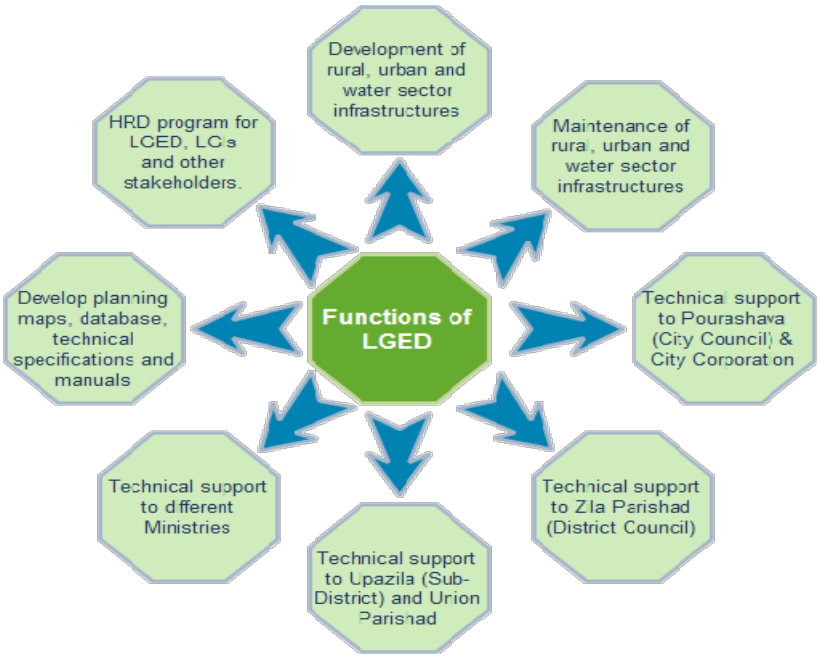
2.10 Implementation of e-GP in LGED

Local Government Engineering Department (LGED) is one of the largest public sector organizations in Bangladesh entrusted for planning and implementation of local level rural urban and small scale water resources infrastructure development programs. LGED works closely with the local stakeholders to ensure people's participation and bottom–up planning in all stages of project implementation cycle. The broad objectives of LGED's development activities are to improve the socio-economic condition of the country through supply of infrastructures at local level and capacity building of the stakeholders. LGED promotes labor-based technology to create employment opportunity at local level and uses local materials in construction and maintenance to optimize the project implementation cost with preserving the desired quality. LGED works in a wide range of diversified programs like construction of roads, bridges/ culverts and markets to social mobilization, empowerment and environmental protection. The organizational background of LGED can be traced back to early sixties when implementation of works program (WP) comprising Rural Works Program (RWP), Thana Irrigation program (TIP) and Thana Technical Development Committee (TTDC) was started. A ''Cell'' was established in the Local Government Division (LGD) under the Ministry of Local Government, Rural Development and Cooperative (MLGRD&C) in 1970s. To administer WP nationwide, the Works Program Wing (WPW) was created in 1982 under the development budget. It was reformed into the Local Government Engineering Bureau (LGEB) under revenue budget of the government in October, 1984. LGEB was upgraded as

the Local Government Engineering Department (LGED) in August, 1992. The organizational evolution of LGED can be illustrated as follows.



LGED is highly decentralized organization where 99% of total manpower works at District and Upazila (Sub-District) level. The Chief Engineer is the head of the organization supported by five Additional Chief Engineers with subsequent supporting manpower. The total manpower under permanent payroll is 10287 both at headquarters and field levels. The detail organogram is described under the section of 'Organogram of LGED' the thematic functional areas of LGED can be illustrated as follows.



LGED is one of the four target agencies which introduced e-GP in 2011. LGED has invited the highest number of tenders among all the government departments of the country. By 2016, LGED invited 100% works procurement in e-GP. Currently there are 898 procuring entities in LGED and all the procuring entities are inviting works procurement tender in e-GP. LGED is also aiming to complete electronic contract management system (e-CMS) by 2022 through DIMAPP project.

CHAPTER THREE: DATA ANALYSIS AND RESULT

This chapter divided into five parts. First part describes the time reduction in tendering process of LGED comparing with PPR-2008. The second part illustrates comparison of IFT to contract sign (days) between off-line and on-line data. The third part depicts efficiency improvement in tendering process of LGED comparing with PPR-2008. The fourth part indicates the comparison between PROMIS report result (FY 2011-7 March, 2018) and expert opinion survey. Last part shows the comparative statement of e-GP tenders between LGED and all other departments.

3.1 Time Reduction in Tendering Process of LGED Comparing with PPR-2008

A tender starts with annual procurement plan and ends with contract signing. In between these two processes, there are some processes i.e. advertisement, pre-tender meeting, amendments (if any), tender opening, tender evaluation, tender approval, re-tender (if any), and issuing notification of award. The following part will discuss with timeframe as per PPR as well as required time in LGED.

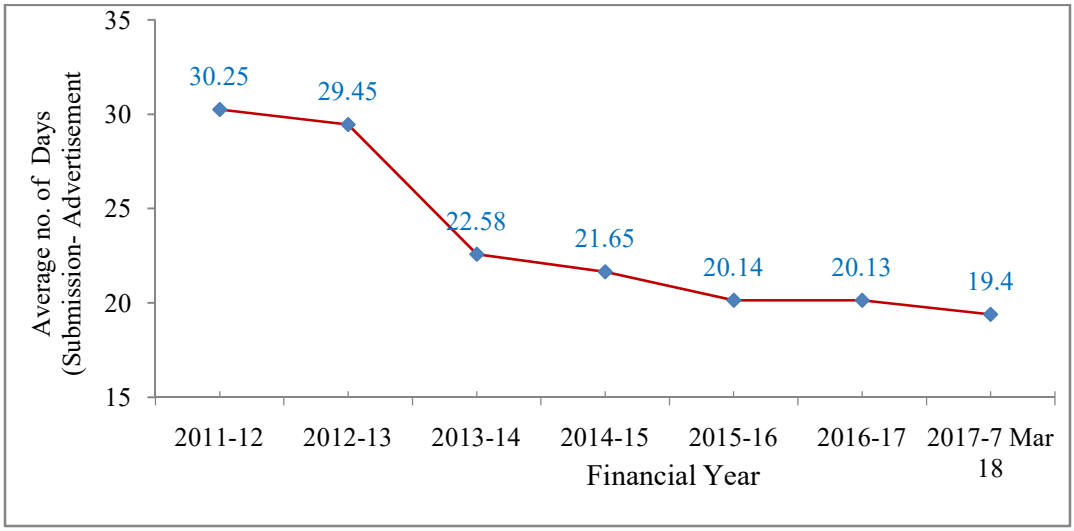
As per rule 61(4) of PPR'2008: for preparation and submission of tenders for national procurement of goods, works and physical services under the open tendering method from the date of advertisement:

- Not less than fourteen (14) days for procurement up to tk. 2 crore;
- Not less than twenty-one (21) days for contacts above tk. 2 crore and up to tk. 5 crore;
- Not less than twenty-eight (28) days for contacts above Tk. 5 crore;
- Not less than fourteen (14) days for emergency procurement following a catastrophe;
- Not less than fourteen (14) days for re-tendering.

Figure 3.1.1 shows that there is a decrease trend of average number of days between publishing of advertisement and tender submission deadline. In FY 2011-12, it was more than 30 days between publishing of advertisement and tender submission deadline. But from time being it has decreased to about 19 days in FY 2017-18.

From expert opinion survey (Appendix-1), it is found that for off-line tender, average number of days between publishing of advertisement and tender submission deadline is 23.25 days, which is more than that of on-line tender.

Figure 3.1.1 Average number of days between publishing of advertisement and tender submission deadline



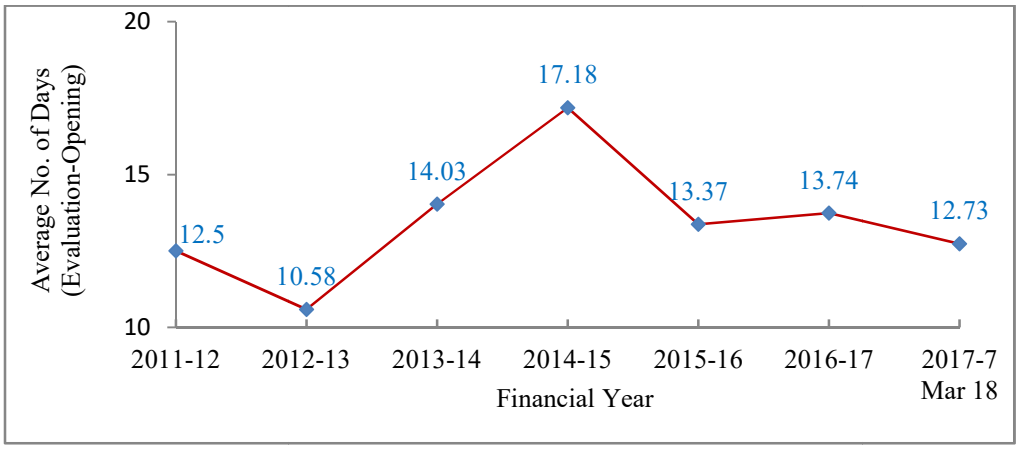
(**Source:** PROMIS software data plotted by author)

Tender should be open at the same day of last submission of tender. As per PPR'2008, time frame for Tender Evaluation Committee (TEC) is 14 days for evaluation after completing the opening of tender if the approving authority is project director. If the approving authority is Head of Procuring Entity (HOPE), TEC get 21 days to complete the evaluation process (Table 3.1).

Figure 3.1.2 indicates that in FY 2011-12, there needs about 12 days for TEC to complete the evaluation after opening the tender, which is less than that of allowed as per PPR'2008 (21 days). From FY 2012-13 to 2014-15, there is an increase trend of tender evaluation time required. Because number of tenders was increasing and TEC required more time, but still below of allowed as per PPR'2008 (21 days). From FY 2014-15 to 2017-18, there is a decrease trend of tender evaluation time required. This is because of increasing evaluation capacity of TEC. In FY 2017-18, time required for tender evaluation is about 13 days which is almost half of time allowed by procurement rule.

From expert opinion survey, it is found that for off-line tender, average number of days between tender opening and completion of evaluation is 24.50 days, which is more than on-line tender's time requirement.

Figure 3.1.2 Average number of days between tender opening and completion of evaluation



(**Source:** PROMIS software data plotted by author)

Table 3.1: Schedule- III (PPR'2008) [Rule 8(14)]

Approval / Approving Authority	Technical Sub-committee (TSC) [If required]	Tender Evaluation Committee (TEC)/ Proposal Evaluation Committee (PEC)*	Project Director/Project Manager/Authorized Officer/ Head of Procuring Entity (HOPE)
Project Director (PD), or Project Manager (PM), Authorized Officer (AO)	2 weeks →	2 weeks →	1 week Approval ↓ & 1 week issue of NOA
Head of Procuring Entity (HOPE)	2 weeks →	3 weeks →	2 week Approval ↓ & 1 week issue of NOA

(**Source:** PPR' 2008)

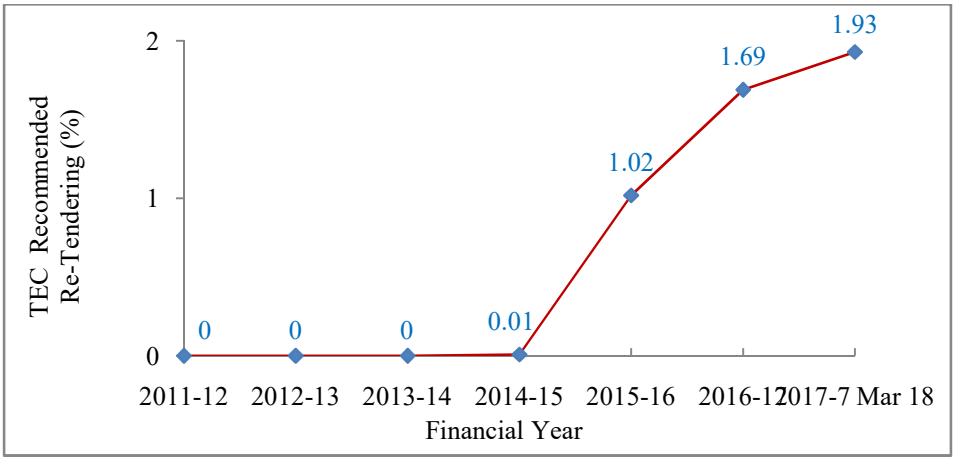
However, if the tender is not acceptable, re-tender is obvious. Re-tender is to submit a second or subsequent tender. Re-tender occurs for the following causes:

- ❖ All tenderers are non-responsive: tenderer participates in tendering process. After evaluation process, successful evaluated tenderer comes to contract. In evaluation process, if all the tenderers become non-responsive as per the criteria set in tender document, re-tender is invited;
- ❖ Lack of competition: there is evidence of lack of effective competition; such as non-participation by a number of potential tenderers;
- ❖ The tenderers are unable to propose completion of the works within the stipulated time in its offer, though the stipulated time is reasonable and realistic;

- ❖ Evidence of professional misconduct (corrupt practice, fraudulent practice, collusive practice, coercive practice, obstruction practice) affecting seriously the procurement process;
- ❖ Tenderer quoted significantly higher than the official cost estimation/ market price;
- ❖ Successful tenderers do not sign contract;
- ❖ New method of tendering process introduced amid the tendering process.

Figure 3.1.3 shows that there is no re-tender from FY 2011-12 to 2013-14. From FY 2014-15 to FY 2017-18, there is an increase trend of re-tendering. And still percentage of re-tendering in e-GP of FY 2017-18 is less than that of off-line (8.58%) from expert opinion survey.

Figure 3.1.3 Percentage of cases TEC recommended re-tendering



(**Source:** PROMIS software data plotted by author)

Evaluation is the process to evaluate the tenders just after opening is completed. As per PPR'2008 (Schedule- III) time for approving evaluation as well as approving contract is:

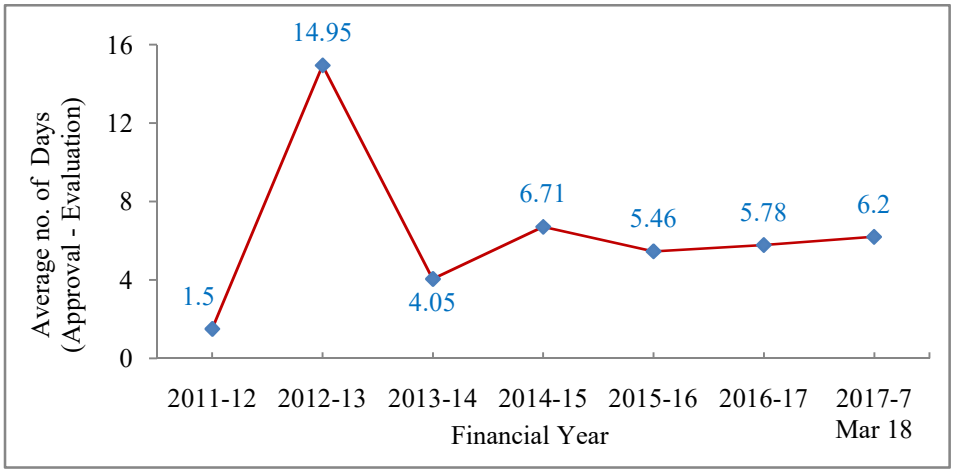
- ❖ If approving authority is project director, number of days taken between submission of tender evaluation and approval contract is 7 days;
- ❖ If approving authority is HOPE, number of days taken between submission of tender evaluation and approval contract is 14 days.

Figure 3.1.4 indicates that there required only 1.5 days for approving contract. But in FY 2012-13, there is required about 15 days for approving contract. This is because there is only 4 numbers of tenders in 2011. But there increased significant numbers of tenders from 2012. As e-tendering was a new feature in 2012, there is a teething problem for the procuring entities to understand fully the system. In FY 2013-14, there is significant lower numbers of

days required to approve the contract. From time being it required around 6 days to approve the evaluation report as well as contract award which is below as per maximum requirement of PPR'2008.

From expert opinion survey, it is found that for off-line tender, average number of days taken between submission of tender evaluation and approval contract is 12.71, which is more than requirement that of on-line tender.

Figure 3.1.4 Average number of days taken between submission of tender evaluation and approval contract

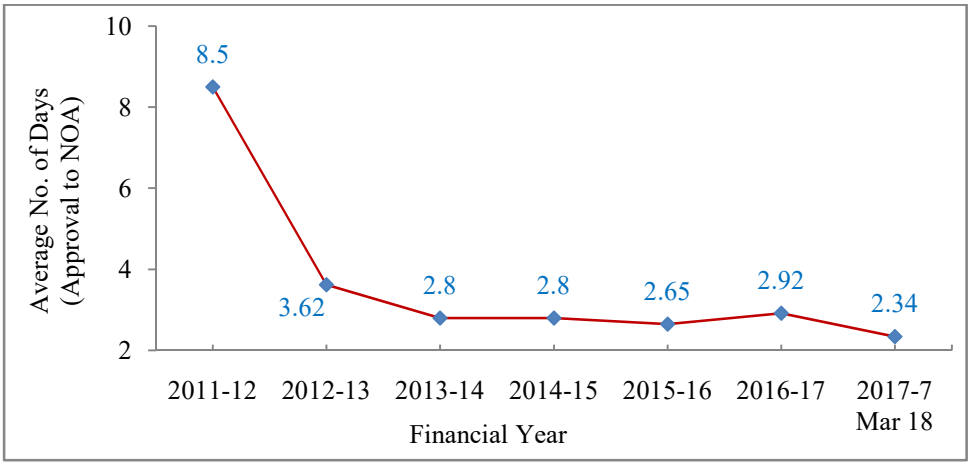


(**Source:** PROMIS software data plotted by author)

At the end of evaluation, evaluation report to be sent for approval. After that NOA is issued to successful tenderer. According to PPR'2008 (Schedule- III), number of days between final approval and NOA must be within 7 days whoever the approving authority is (Table 3.1). The Figure 3.1.5 indicates decreasing number of days for issuing NOA after final approval. In FY 2017-18, numbers of days for issuing NOA after final approval is about 2 days which indicates absolute efficiency in issuing NOA.

From expert opinion survey, it is found that for off-line tender, average number of days between final approval and NOA is 7.75 days, which is more than requirement that of on-line tender.

Figure 3.1.5 Average number of days between final approval and NOA

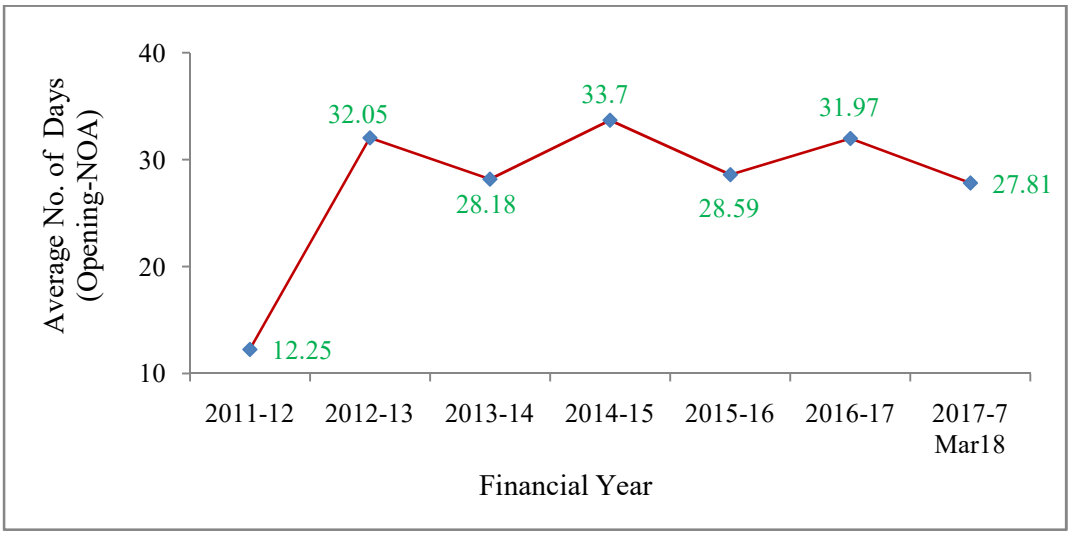


(**Source:** PROMIS software data plotted by author)

Finally, issuing NOA is a part of contract. There is timeframe of issuing NOA after the last deadline of the tender submission and according to rule 102 (1) of PPR'2008; a procuring entity shall issue NOA to the successful tenderer prior to the expiry of the tender validity period. According to rule 19(1) & 117(10) of PPR'2008 tender validity period is normally between sixty (60) and one hundred twenty (120) days.

Figure 3.1.6 indicates that average number of days between opening and NOA for FY 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17 and 2017- 7 Mar 2018 are12.25 days, 32.02 days, 28.18 days, 33.7 days, 28.59 days, 31.97 days and 27.81 days respectively. It indicates that tenders have been completed within initial tender validity period or even below the lower threshold period. As the number of days is average number, it does not indicate that all tenders have been completed within initial tender validity period.

Figure 3.1.6 Average number of days between opening and NOA



(**Source:** PROMIS software data plotted by author)

Timeframe in tendering is the utmost important as every tender has a start and end date and the procuring entity needs to comply with all the requirement of timeframe to complete the project successfully.

3.2 Comparison of IFT to Contract Sign (Days) between Off-line and On-line Data

From the introduction of e-GP in FY 2011-12, there creates an option of comparing the off-line data with e-GP data. There is a provision of timeframe in PPR for tendering both for online and offline tender.

Practical calculation of total timeframe (IFT to contract sign) for an ideal works tender (National-OTM)

For value less than 2 crore:

- Time for preparation and submission of tenders from the date of advertisement
  : Minimum 14 days
- Tender evaluation:
  : 14 days (If approving authority is project director)
  : 21 days (If approving authority is HOPE)
- Approval of the award by the approving authority
  : 7 days (If approving authority is project director)
  : 14 days (If approving authority is HOPE)
- Notify NOA
  : 7 days
- Signing of contract
  : 28 days

Total timeframe for contract sign of a tender:

70 days (If approving authority is project director)
84 days (If approving authority is HOPE)

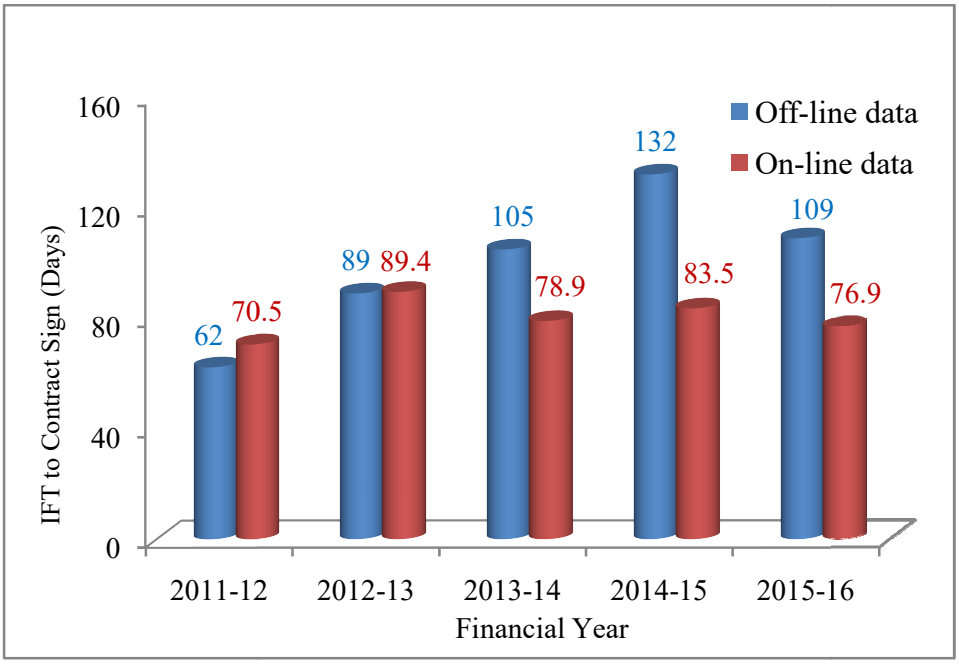
From the above calculation it theoretically depicts that an ideal works procurement tender requires around 70 days from IFT to contract award. Analyzing 64 district's off-line data of FY 2011-12 to FY 2015-16 (Appendix 1), it is found that in FY 2011-12, 62 days required from IFT to contract award. Similarly 89 days, 105 days, 132 days, 109 days required from IFT to contract award in FY 2012-13, 2013-14, 2014-15, 2015-16 respectively.

Figure 3.2.1 depicts that for on-line tender 70.5 days, 89.4 days, 78.9 days, 83.5 days, 76.9 days are required from IFT to contract award in FY 2011-12, 2012-13, 2013-14, 2014-15, 2015-16 respectively. For off-line tender 62 days, 89 days, 105 days, 132 days are required from IFT to contract award in FY 2011-12, 2012-13, 2013-14, 2014-15, 2015-16 respectively.

However, expert opinion survey show that for off-line tender, average number of days between IFT and contract sign is 80.13 days which is more than that of on-line tender (77 days in FY 2017-18).

It is clearly found that time (days) required for on-line tender is less than time required for off-line tender from IFT to contract award (Figure 3.2.1). Moreover, for on-line tender, required time from IFT to contract award is very near to time required for an ideal tender time.

Figure 3.2.1 Average numbers of days between IFT and contract sign



(**Source:** plotted by author)

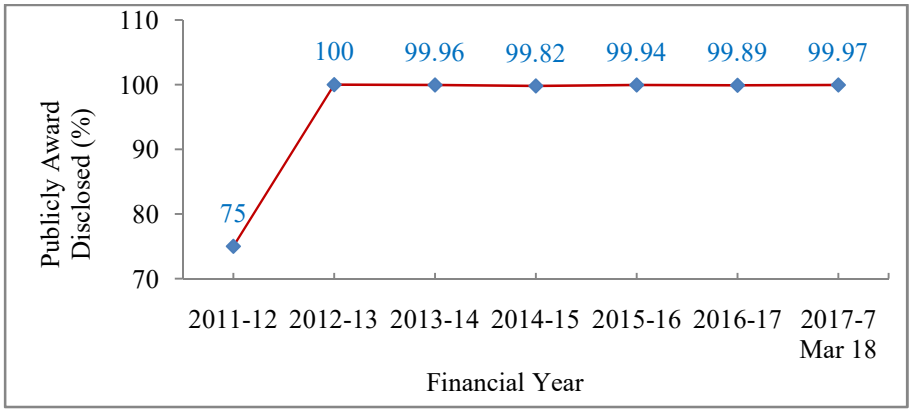
3.3 Efficiency Improvement in Tendering Process of LGED Comparing with PPR-2008

An efficient public procurement system is an important necessary condition for ensuring efficient public investment. E-procurement is effective in facilitating better firms to participate and obtain the public contracts where there are also efficiency gains from higher quality outputs being delivered. This part of the research investigates the efficiency of public procurement using some procurement data of LGED, one of the largest public agencies.

According to PPR'2008 Rule 90(2) (i) the procuring entities shall send invitations for procurements where potential contract values are estimated to exceed the amounts specified in schedule (iii) or as decide by the government from time to time, for publication in the CPTU's website.

For on-line tender, 100% tenders are published in e-GP web portal automatically; no need extra arrangement for publishing it. But off-line tender does not publish in CPTU automatically; need extra arrangement to publish. There may some unpublished off-line tenders. Therefore, Figure 3.3.1 indicates 99.97% tenders are publishing in CPTU website. When all the tenders of goods, works and services will implement in e-GP, PROMIS report will show 100% contract award published in CPTU's website. So, efficiency of the measurement of the percentage of publishing tender has increased than that of off-line tender. Because there was no measurement / monitoring system of off-line tender publication in CPTU before introducing e-GP.

Figure 3.3.1 Percentage of contract award published in CPTU's website



(**Source:** PROMIS software data plotted by author)

A tender is called competitive, transparent when significant numbers of tenderer participate in the tender. Figure 3.3.2 depicts that there is a significant increase number of tenderers from financial year 2012-2013 to 2014-2015. Cause behind this increase numbers is the registration of new tenderers in e-GP system as well as participation in e-tendering process. As e-GP introduced in June 2, 2011; awareness was building among the general people as well as among the tenderers about the significance of e-GP. There is a trend of decreasing number of tenderers from financial year 2014-2015 to till date as off-line tenders are eliminating and e-tenders are increasing significantly. A procuring entity needs competition in a tender as Rule 33(2) (c) of PPR'2008 indicates that "all tenders can be rejected, if - there is evidence of lack of effective competition; such as non-participation by a number of potential tenderers."

Tender capacity is vital to participate in a tender. The following formulae shall be used to calculate the tender capacity:

Assessed tender capacity = (A*N*1.5-B)

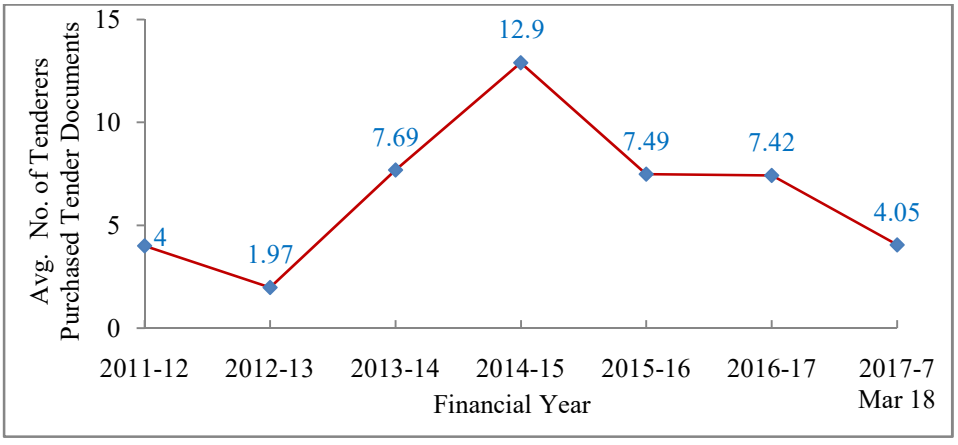
Where

A = Maximum value of works performed in any one year during last five years;

N = Completion time of the proposed work in years;

B = Value of existing commitments and works to be completed during the next N years.

Figure 3.3.2 Average number of tenderers purchased tender documents



(**Source:** PROMIS software data plotted by author)

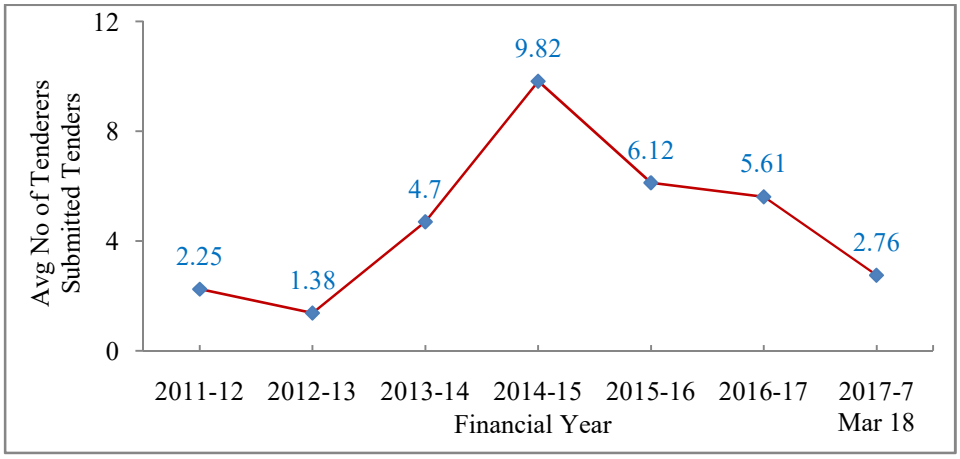
Figure 3.3.3 indicates that there are a significant increase number of tenders from financial year 2012-2013 to 2014-2015. Cause behind this is there are significant numbers of new registered tenderers participation in e-tendering process. There is a trend of decreasing number of tenderers from financial year 2014-2015 to till date as off-line tenders are eliminating and e-tenders are increasing significantly. There are some other causes for reducing number of tenderers participates in tender.

From expert opinion survey, it is found that for off-line tender, average number of tenderers submitted tenders is 6.50 numbers, which is more than that of on-line tender. It indicates that average number of on-line tender dropping has been decreased. This may because of the number of tenders has increased significantly.

However, if the user of e-GP enters wrong password in a stitch for 3 times, then e-mail ID locks. However, the user cannot enter that ID. Though there is systems to unlock the ID, maximum users are not recognized with the process, therefore cannot participate in tendering process.

Intentions of eleventh hour tender submission of tenderer sometimes make them unable to participate in the tendering process. There may some systematic problem in eleventh hour tender submission. The cause behind this may be tender submission jam occurs as many tenderers are trying to submit the tender.

Figure 3.3.3 Average number of tenderers submitted tenders

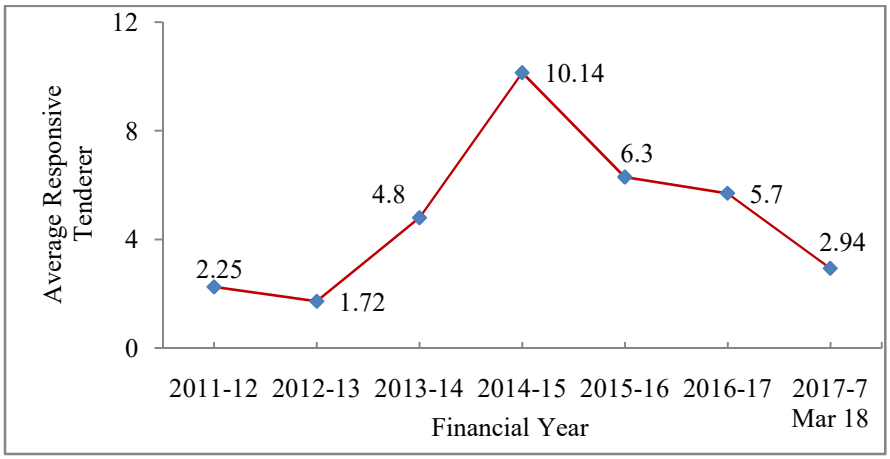


(**Source:** PROMIS software data plotted by author)

Responsive tenders are those that meet the minimum requirements of tender document. Rule 98(14) of PPR indicates that there shall be no requirement for a minimum number of responsive tenders i.e. an evaluation shall proceed and an award shall be made even if only a single tender is received and found responsive, provided the tender has been widely advertised as per requirement of rule 90, the tender price is reasonable compared with the market price or is within the official estimate and the tender meets the technical specifications and commercial terms and conditions set-out in the tender document.

Figure 3.3.4 shows that in FY 2011-12, average 2 numbers of responsive members are participated in the tenders. With time being it became average 10 numbers in FY 2014-14. But there is a decrease trend of responsive tenderers from FY 2014-15 to 2017-18. In FY 2017-18, average number of responsive tenderer is 3 which is enough for a competitive tender. Because number of tenders in a year increasing significant day by day with a less increasing number of tenderer.

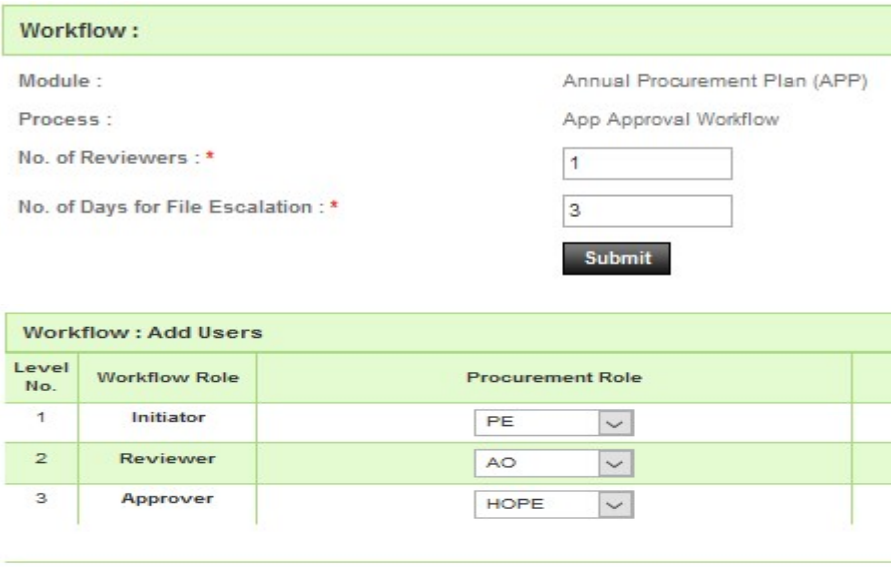
Figure 3.3.4 Average number of responsive tenders



(**Source:** PROMIS software data plotted by author)

Tender Evaluation Report (TER) is reviewed for checking and scrutiny the correctness of tender evaluation. In LGED, normally there is always a reviewer for reviewing tender document except for PD of procuring his/her own goods/works (Figure 3.3.5). But evaluation report may not review by reviewer if the approving authority is PD. There may be more than one reviewer as per requirement of the procurement. LGED decentralized the procuring process by giving authority to procuring entity up to sub-district level (Table 3.2).

Figure 3.3.5 Workflow in e-GP system



(**Source:**www.eprocure.gov.bd)

Contract approval authority is the person who approves the contract according to the delegation of financial power (DoFP) of 6 December 2016.In LGED, for development budget of works procurement, the approving authority is as follows:

Table 3.2: Summarization of delegation of financial power (DoFP)

Name of Approving Authority	Approving ceiling (BDT)
PD	up to 20 Crore
HOPE	up to 30 Crore
Minister	up to 100 Crore
CCGP	more than 100 Crore

(**Source:**DoFP summarized by author)

Figure 3.3.6 shows that in FY 2013-14, about 44 % TER are reviewed by person other than approving authority. It indicates that 44% contract approval authority is HOPE and 56% contract approval authority is PD. The Figure 3.3.6 shows the decreasing curve of TER review. It indicates that percentage of contract award of PD is increasing; higher tier approval is decreasing; decreasing the time of tender evaluation; increasing the efficiency of the tender.

Figure 3.3.6 Percentage of cases TER reviewed by person/committee other than the contract approving authority

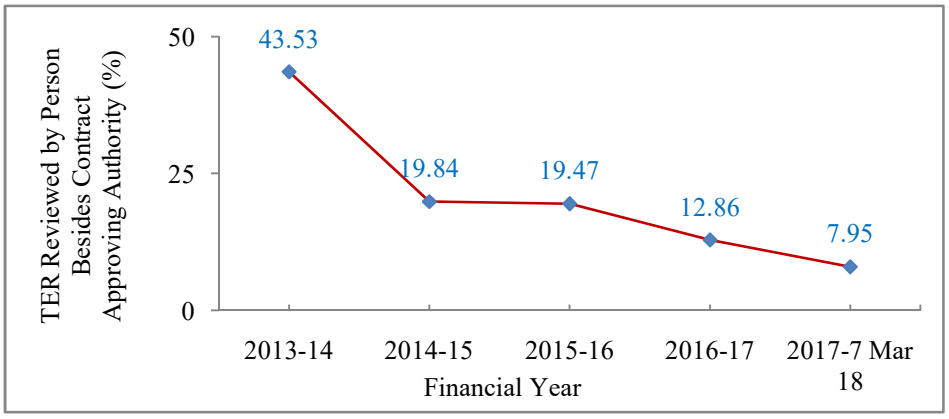
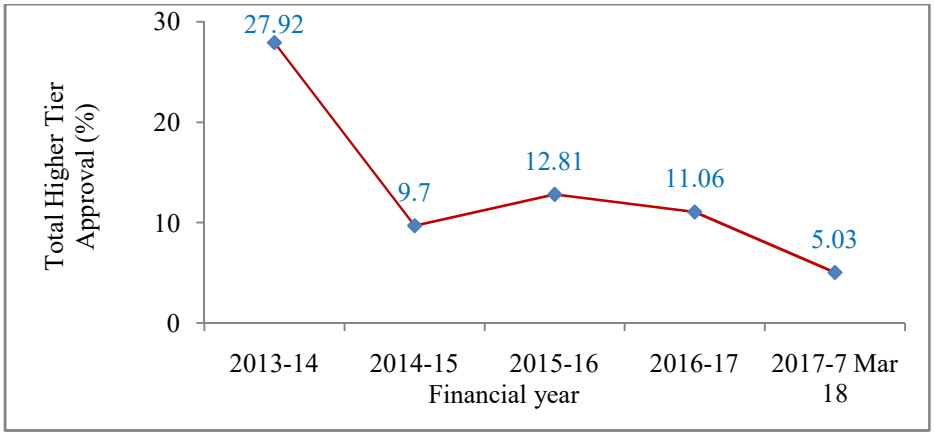


Figure 3.3.7 shows that percentage of tenders approved by higher tier than the contract approving authority is decreasing from FY 2013-14 to 2017-18. That indicates that contract approving authority is simplifying day by day; decreasing tier of bureaucratic difficulties; increasing the efficiency of tendering process.

Figure 3.3.7 Percentage of tenders approved by higher tier than the contract approving authority



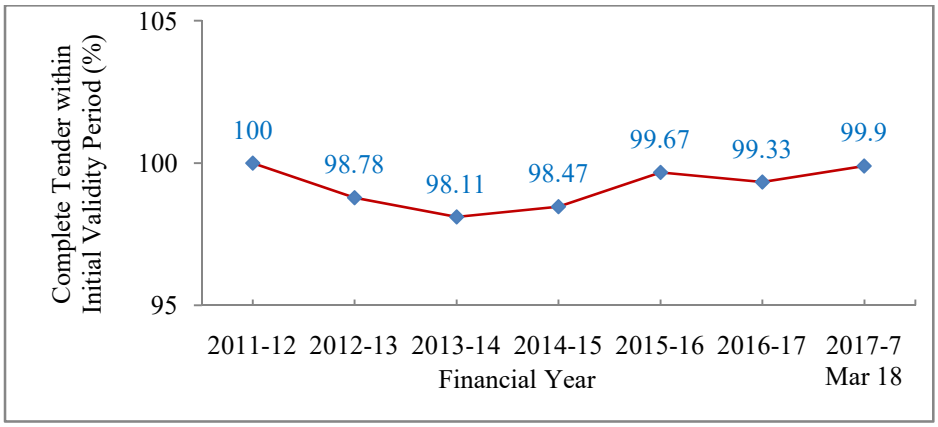
(**Source:** PROMIS software data plotted by author)

According to Rule 19(1) & 117(10) ofvPPR'2008 tender validity period is normally between sixty (60) and one hundred twenty (120) days.

Figure 3.3.8 shows that in FY 2016-17, 99.33% of contract have been awarded within initial validity period. And the percentage is increasing with the time being.

From expert opinion survey, it is found that for off-line tender, percentage of contract awarded within initial tender validity period is 82.88%, which is less than that of on-line tender.

Figure 3.3.8 Percentage of contract awarded within initial tender validity period



(**Source:** PROMIS software data plotted by author)

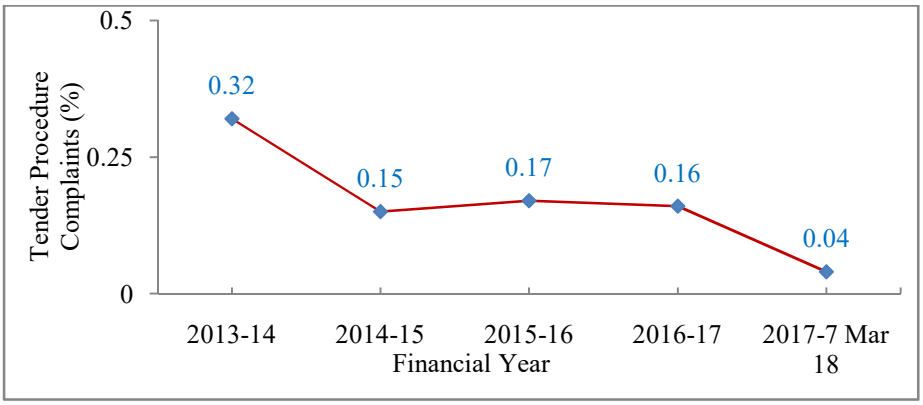
PPR'2008 Rule 57(1) (2) In the first instance, the person shall submit his or her complaint in writing to the concerned officer of the procuring entity (such as, the Project Director (PD), Line Director (LD), Project Manager (PM), procurement officer, officer assigned for procurement who issued the tender or document.

The officer concerned- to reject the complaint or to take any corrective action. If the person is not satisfied - complaint to the head of the procuring entity. If the person is not satisfied complaint to the secretary of the concerned ministry or division if the person is not satisfied appeal through the review panel. The decision of the review panel shall be final and all concerned parties will act upon such decision.

Figure 3.3.9 indicates that percentage of tender procedure complaints is decreasing trend. It is only 0.04% in 2017-18. That indicates absolute efficiency in tendering process.

From expert opinion survey, it is found that for off-line tender, percentage of tender procedure complaints is 34.40%, which is more than that of on-line tender.

Figure 3.3.9 Percentage of tender procedure complaints



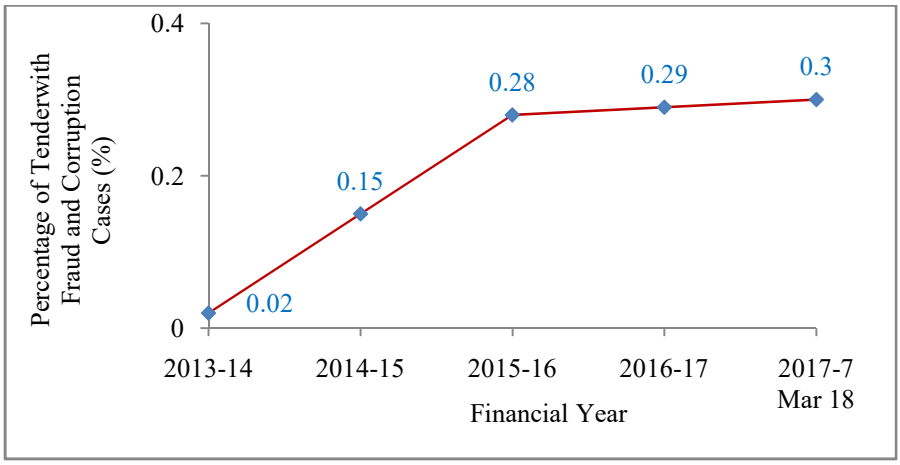
(**Source:** PROMIS software data plotted by author)

According to PPR'2008 Rule 127- If a tenderer conduct professional misconduct, offences, etc. i.e. corrupt practice, fraudulent practice, collusive practice, coercive practice. As per Rule 127 (4) (c) declare, at its discretion, the concerned person to be ineligible to participate in further procurement proceedings, either indefinitely or for a specific period of time either for single tender, package, project, procuring entity, procuring agency/organization or e-GP portal.

Figure 3.3.10 shows that percentage of tenders of fraud and corruption is being increased with time being. In FY 2011-12, percentage of tenders of fraud and corruption was 0.02% whereas in FY 2017-18 it is 0.3%. LGED is performing strict tender evaluation. If found fake document, take action immediately to make the tenderer debarred from participating in tendering process. Day by day new tenderers are entering in tendering process. Lack of proper knowledge in tendering, submitting fake document violating PPR'2008 rule 127 and percentage of tenders of fraud and corruption is increasing. As result, percentage of debarred tenderers is also increasing. That indicates higher efficiency in tender evaluation process.

From expert opinion survey, it is found that for off-line tender, percentage of tenders of fraud and corruption is 21.88%, which is more than that of on-line tender.

Figure 3.3.10 Percentage of tenders of fraud and corruption



(**Source:** PROMIS software data plotted by author)

3.4 PROMIS Report Result (FY 2017-7 March, 2018) and Expert Opinion Questionnaire Survey (Appendix-1) Result

PROMIS data represents the real scenario of the tender at its different stages of e-GP, whereas expert opinion questionnaire survey depicts the data of tender at its different stages of off-line system. Therefore, it would be a way to compare between e-GP and off-line tender at its different aspects.

There are 45 KPIs in PROMIS system from which 11 KPIs have been compared. Expert opinion questionnaire survey shows that 6/7 nos. of tenders are submitted in off-line tender, whereas approx. avg. 3 nos. of tenders are submitted in e-GP (Table 3.3). About 100% tenders in e-GP are awarded within initial tender validity period, whereas about 83% of off-line tenders were awarded within initial tender validity period.

Table 3.3 Comparison between PROMIS report result (FY 2011-7 March, 2018) and expert opinion questionnaire survey (Appendix-1) result

SL	Description of KPI	PROMIS Result	Expert Opinion Questionnaire Survey
1	Average number of tenderers submitted tenders	2.76	6.50
2	Percentage of contract awarded within initial tender validity period	99.9	82.88
3	Percentage of tender procedure complaints	0.04	34.40
4	Percentage of tenders of fraud and corruption	0.3	21.88
5	Average number of days between publishing of advertisement and tender submission deadline	19.4	23.25
6	Average number of days between tender opening and completion of evaluation	12.73	24.50
7	Percentage of cases TEC recommended re-tendering	1.93	8.58
8	Average number of days taken between submission of tender evaluation and approval contract	6.2	12.71
9	Average number of days between final approval and NOA	2.34	7.75

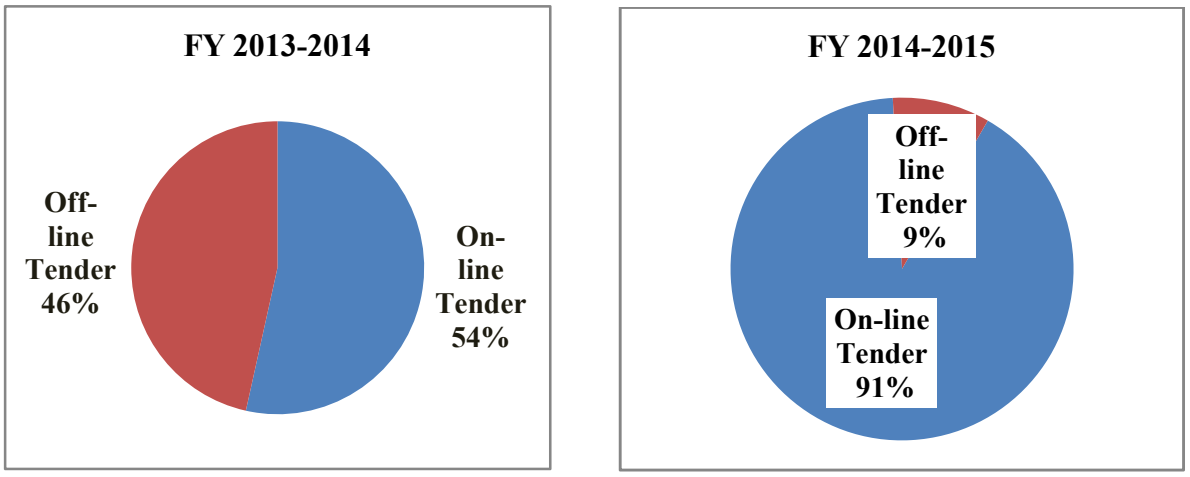
10	Average number of days between Invitation for tender IFT and NOA	50.43	58.88
11	Average number of days between IFT and contract sign	76.9	80.13

Table 3.3 also shows that less complaint, corruption and fraudulent in e-GP system. E-GP system needs less time in tender publishing, evaluating, approving than that of off-line tender. E-GP is more efficient than that of off-line tender.

Number of tender invitation and contract awarded is increasing from financial year 2011-12 to 2017-18, because the procuring entities are being equipped with e-GP training to be able to invite tender in e-GP system.

Figure 3.4.1 indicates that in FY 2013-14, LGED invited 46% off-line tenders and only 54 % tender was invited in e-GP system. In a year later, percentage of on-line tender jumped to 91%. There are a number of factors involved in this revolutionary change. Dedication of Bangladesh government is the prime factor here. Government set target of inviting tender in online 100% by 2016. All the procuring entities dedicatedly implement e-GP. As a result 100% works procurement has been possible in LGED in 2016.

Figure 3.4.1 Percentage of off-line and on-line tender in LGED



3.5 Comparative Statement of e-GP Tenders between LGED and All Other Departments

From the introduction of e-GP system in 2011, Figure 3.5.1 indicates that only 15 numbers of tenders invited in e-GP system whereas 4 number tenders were invited by LGED. After time being tenders invitation has been increased significantly both in e-GP system and by LGED. PROMIS suggest that total 42,520 numbers of tenders invited in e-GP system in FY 2016-17 whereas LGED invited 18,255 which is 43%.

Figure 3.5.1 Number of tenders invited in e-GP system and by LGED

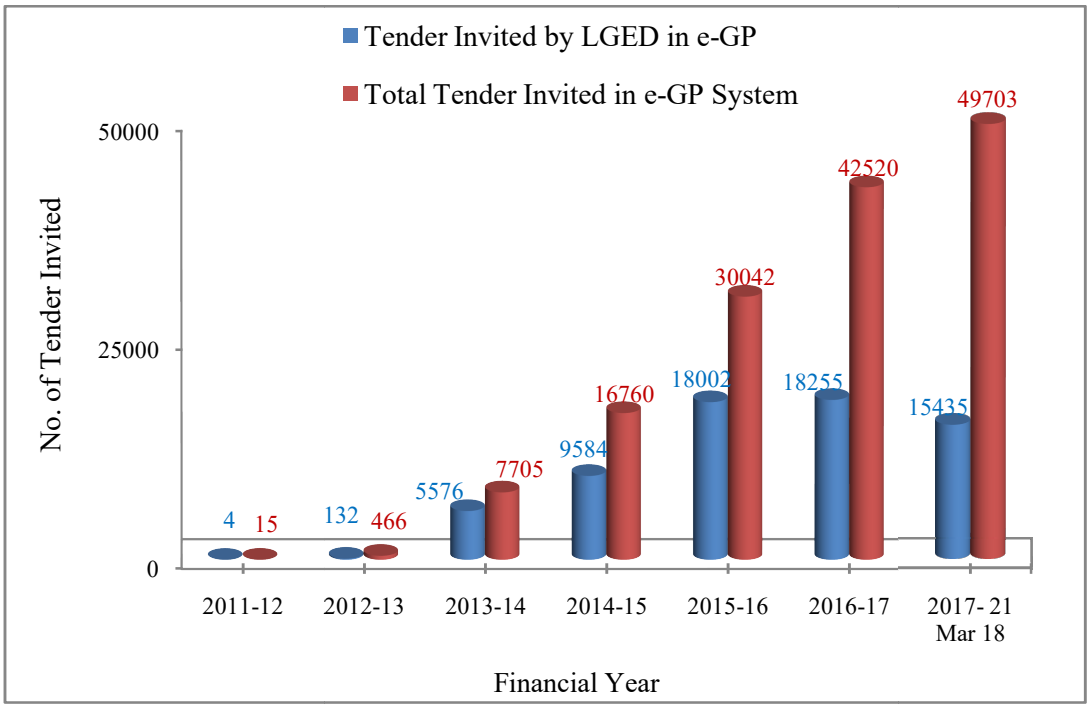
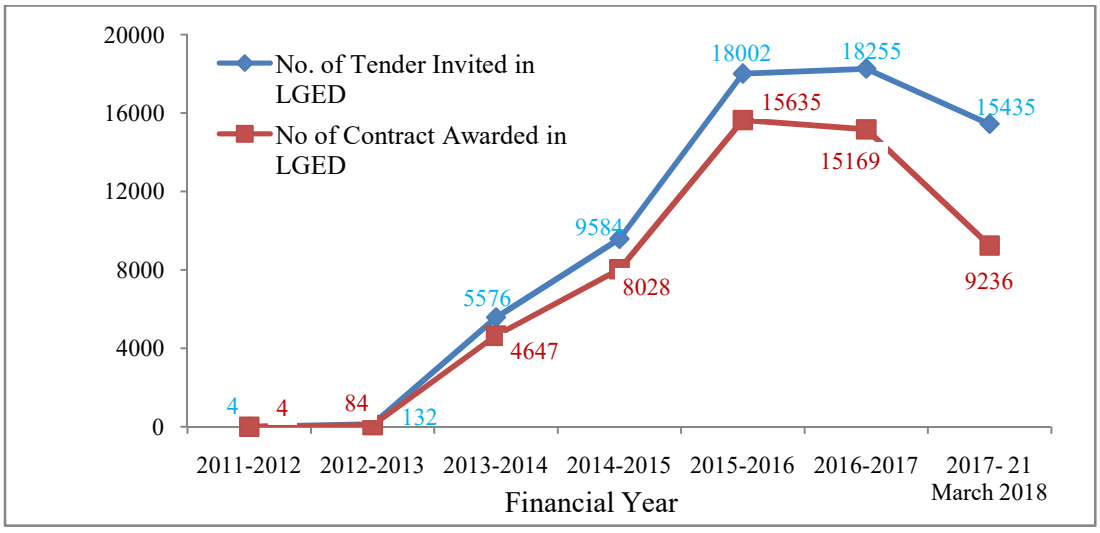


Figure 3.5.2 indicates that contract award efficiency in LGED is about 90%. In FY 2017-18 shows about 55% contract award efficiency because when the data has been retrieved, some of the tenders were under processing/live/under evaluation process.

Moreover, number of contract awarded is less than number of tender invited in each financial year from 2011-2017. The cause behind this is some tenders are cancelled before contract awarded. The causes for the cancellation of tender may be improper tendering process; no tenderer has been participated in tendering process; re-tender/ fresh tender is called as per recommendation of concern authority; violation of act/rules of public procuring in tendering process; all tenderers participating in tendering process become non-responsive etc.

Figure 3.5.2 Number of tenders invited and no. of contract awarded by LGED in e-GP



CHAPTER FOUR: DISCUSSION, CONCLUSION AND RECOMMENDATION

This chapter combines of two parts. First part illustrates the overall findings regarding time reduction and efficiency improvement of e-GP in LGED. Second part points out some policy recommendation for government/policy makers.

4.1 Key Findings Regarding Time Reduction and Efficiency Improvement of e-GP

At the introduction of e-GP in FY 2011-12, average number of days between publishing of advertisement and tender submission deadline was 30.25 days, whereas in FY 2017-18, it requires 19.4 days which is also less than that of off-line tender (23.25 days). It depicts that average number of days between publishing of advertisement and tender submission deadline is less in e-GP complying with rules and regulations.

Timeframe for tender evaluation is 14/21 days as per PPR'2008. This research reveals that average 13 days required from FY 2011-12 to 2017-18 in e-GP which is also less than that of off-line tender (24.50 days).

Timeframe for approving evaluation is 7/14 days as per PPR'2008. This research reveals that average 6.34 days required from FY 2011-12 to 2017-18 in e-GP which is also less than that of off-line tender (12.71 days).

As per PPR'2008, timeframe between final approval and NOA is 7 days. This research reveals that average 3.66 days required from FY 2011-12 to 2017-18 in e-GP which is also less than that of off-line tender (7.75 days).

Most important thing in tender is a tender should complete within tender validity period. Tender validity period starts at tender opening and ends at issuing NOA. Average time requires of tender opening to issuing NOA from FY 2011-12 to FY 2017-18 is 28 days which is much lower than that of PPR allowable 60-120 days. This is significant achievement in e-GP.

A tender starts at publishing IFT and ends at contract signing. Average time requires in off-line tender from publishing IFT to contract signing is 99 days, which is greater than that of e-GP (80 days). This signifies a lot to a procuring entity. Because saving a day may become saving a milestone.

This research also reveals that 100% works procurement publish in CPTU website; average 6.5 numbers of tenderers purchase tender documents, whereas average 4.7 numbers of tenderers submit tenders and average 4.6 numbers of tenderers are responsive. LGED higher authority delegates the financial power to district/sub-district level officials and made thing easier to complete the procurement process in time or before time. 99.99% of tenders completed within initial tender validity period. Percentage of tender procedure complaints reduced to 0.04% in FY 2017-18 from 0.32 at the beginning of e-GP in FY 2011-12. But there is cause of danger that percentage of tenders of fraud and corruption is increasing from 0.02% in FY 2011-12 to 0.30% in 2017-18. On the other hand, it is a cause of hope that LGED is debarring the tenderers who take shelter under the umbrella of fraudulent, corruption, coercive, collusive and obstruction practices.

The scenery of tendering has been changed. In FY 2013-14, 54% tenders was in e-GP and in 2015-16, 100% e-GP (works value below BDT 100 crore) implemented in LGED.

Total 1,47,211 numbers of tenders were invited in e-GP system of all the departments of Bangladesh from FY 2011-12 to 2017-7 Mar 18; whereas LGED invited 66,988 numbers of tenders which is 45.50%.

Total 66,988 numbers of tenders were invited from FY 2011-12 to 2017-7 Mar 18 in LGED and 52,803 numbers of contract awarded which is 79%. When the data was taken, in that time some tenders were in pipeline of contract award process. Therefore, efficiency of contract award must be more than 80%.

As efficiency is the state or quality of being efficient, or able to accomplish something with the least waste of time and effort; competency in performance; e-tendering made big time saver for LGED. In case of off-line tender, variation, time extension, contract approval needed more time as the letter for the mentioned purpose was traveling from table to table; whereas for off-line paperless tender, letters reach the following table by one click. Review has become timely for this easy process.

4.2 Policy Recommendation

4.2.1 Recommendations for LGED

- For LGED, formation of procurement cell in all district offices.
- Make continuous dialogue to CPTU to integrate the Rate Schedule and Estimate Preparation Software (RSEPS) of LGED to e-GP system;

4.2.2 Recommendations for CPTU

- CPTU should make a database for storing contractors' previous work experience as well as payment certificate so that today's e-GP semi-manual tender evaluation can be done online.
- CPTU should have core officials to maintain e-GP system rather than depends on consulting firms. Because e-GP system operation and maintenance is a core work and core work should not carry on by outsourcing firm.
- CPTU Should update the software to be compatible to latest browsing engine software, like Mozilla Firefox, Internet Explorer and so on;
- Should focus on the constraints of e-GP operation. Because of the constraints i.e. password lock, various field office struggle to complete tender on time.

4.2.3 Recommendation for the Government/Policy Makers

- Make software for impact analysis where changing a factor (i.e. investing fund for certain type of road of a certain Upazila) will show the overall economic scenario change of the country.
- Formation of a procurement institution. It may offer post-graduation diploma or masters in procurement and supply management.
- Formation a procurement regulatory authority (may upgrade CPTU as authority) that has an authority to enact/amend laws of procurement as well as monitoring the performance of procurement of all government departments.
- Formation of procurement investigating body separately for all the government departments so that the head of the department may know the status, risks, appetite and take necessary measure.

4.3 Future Work

This research discussed about the tendering part of procurement. Separately a research work could be done for e-CMS (Electronic Construction Management System) operation.

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Appendix 1

BRAC Institute of Governance and Development (BIGD)

BRAC University

Expert Opinion Survey Questionnaire

Research Topic: Implementing Electronic Government Procurement (e-GP) in Bangladesh: A perspective of Works Procurement of Local Government Engineering Department (LGED)

[This is an expert opinion survey questionnaire intended to perform an academic research on assessment of last 6 years performance efficiency and effectiveness issues by implementing Electronic Government Procurement (e-GP) of works procurement in LGED. Response will certainly identify the organization's present & previous performance and ask whether it has achieved any positive effect by introducing new systems of technology. This questionnaire only assesses the cost and effectiveness in the works procurement process in LGED. It is a requirement for the partial fulfillment of the degree of "Masters in Procurement and Supply Management (MPSM)"at the BRAC Institute of Governance and Development (BIGD), BRAC University. Your honest response is valuable for the researcher. The researcher does assure that the information given by you will be kept confidential and will be used only for the academic purpose.]

[Questionnaire on Off-line Tender for Works Procurement of LGED]

i. Name of the Respondent:

ii. Designation of the Respondent:

iii. Years of Experience in Procurement Activities:

<5 years	5-10 years	11-15 years	16-20 years	>20 years

1. How many Tenders have been dropped against an Invitation of Tender?

   Answer:

2. Percentage of Contract Awarded within Initial Tender Validity Period?

   Answer:

3. Percentage of Tender Procedure Complaints?

   Answer:

4. Percentage of Tenders of Fraud and Corruption?

Answer:

5. Average Number of Days between Publishing of Advertisement and Tender Submission Deadline?

Answer:

6. Average Number of Days between Tender Opening and Completion of Evaluation?

Answer:

7. Percentage of Cases TEC Recommended Re-Tendering?

Answer:

8. Average Number of Days Taken between Submission of Tender Evaluation and Approval Contract?

Answer:

9. Percentage of Cases Contract Award Decision Made within Timeline by Contract Approving Authority?

Answer:

10. Average Number of Days between Final Approval and Notification of Award (NOA)?

Answer:

11. Average Number of Days between Tender Opening and Notification of Award (NOA)?

Answer:

12. Average Number of Days between Invitation for Tender (IFT) and Notification of Award (NOA)?

Answer:

13. Average Number of Days between Invitation for Tender (IFT) and Contract Signing?

Answer:

Thanks for Your Valuable Concern.