Evaluating the e-GP System in Public Works Department (PWD)

Dissertation submitted in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM)

Submitted by

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Declaration

I hereby declare that the dissertation entitled **"Evaluating the e-GP System in Public Works Department (PWD)"** submitted to the BRAC Institute of Governance and Development (BIGD), BRAC University for the degree of **Masters in Procurement and Supply Management (MPSM)** is exclusively my own and original work. No part of it in any form, has been submitted to any other University or Institute for any degree, diploma or for other similar purposes

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Certificate

This is my pleasure to certify that the dissertation entitled **"Evaluating the e-GP System in Public Works Department (PWD)**" is the original work of Md. Shamsul Arefin that is completed under my direct guidance and supervision. So far I know, the dissertation is an individual achievement of the candidate"s own efforts, and it is not a conjoint work.

I also certify that I have gone through the draft and final version of the dissertation and found it satisfactory for submission to the BRAC Institute of Governance and Development, BRAC University in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM).

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Abstract

Electronic Government Procurement (e-GP) is the application of an efficient high quality management framework to public sector procurement, facilitated through online information and processes. e-GP solutions make purchasing activities more efficient in terms of time and cost and as well as improve effectiveness of the procurement methods by ensuring transparency. Not so much research work has been done in this type of procurement. So it is high time to evaluate the efficiency and effectiveness of procurement process using e-GP. This research work mainly focuses on e-GP system of the Public Works Department (PWD) of the Government of Bangladesh. A conceptual framework has been developed for the evaluation of e-GP and subsequently tested with data collected from PWD. This study examines the current status of e-GP acceptance in PWD. It also examines efficiency and effectiveness gain in PWD due to implementation of e-GP. Finally, some recommendations are proposed based on the analysis of this research and international best practices for successful implementation of e-GP system in PWD to enhance the efficiency and effectiveness. The results indicate that e-GP has positive impact on operational cost of tendering and lead time of procurement as it has reduced the administrative cost and procurement cycle time. However there is option and opportunity to improve further. Besides, users have very strong perception regarding e-GP system that, it can be a major tool against CFCC (Corruption, Collusion, Fraudulent and Coercion) practice in public procurement process. Thus overall analysis shows e-GP can be very helpful for ensuring transparency and accountability in public procurement process in Bangladesh.

Keywords: e-GP; Efficiency; Effectiveness; e-procurement; PPR; PPA; Public Procurement

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Abbreviations

BWDB	Bangladesh Water Development Board
BDT	Bangladesh Taka (Currency)
CPTU	Central Procurement Technical Unit
CMS	Contract Management System
e-GP	Electronic Government Procurement
e-Procurement	Electronic Procurement
E/M	Electrical/Mechanical
F.Y.	Financial Year
IMED	Implementing Monitoring and Evaluation Division
LGED	Local Government Engineering Department
NOA	Notification of Award
PPA	Public Procurement Act
PPR	Public Procurement Rules
PE	Procuring Entity
PA	Procuring Agency
PROMIS	Procurement Management Information System
PPR	Public Procurement Reform
PWD	Public Works Department
RHD	Roads and Highways Department
REB	Rural Electrification Board
RFI	Request for Interest
RFP	Request for Proposal
TEC	Tender Evaluation Committee
TOC	Tender Opening Committee
TER	Tender Evaluation Report
XEN	Executive Engineer

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Chapter 1: Introduction

1.1 Background

Electronic Government Procurement (e-GP) is the application of an efficient high quality management framework to public sector procurement, facilitated through online information and processes. e-GP has the potential to strengthen the accountability, transparency, efficiency and effectiveness of this sensitive high value government function. For most jurisdictions, it represents both an opportunity for procurement reform and changing the way procurement is conducted (World Bank, Asian Development Bank, and Inter-American Development Bank, 2004).

Electronic Procurement (e-Procurement) initiatives have received significant support from the donor community including the World Bank, the Asian Development Bank, the Inter-American Development Bank and the African Development Bank. Various initiatives have already taken place, spearheaded by different organizations to define best practices and strategies for the implementation and development of e-procurement systems, and many countries have already introduced e-procurement into their business practices through various business models and approaches (UN, 2011, p.vii).

The Government of Bangladesh, as part of the broad public sector reforms, has embarked upon to manage implementation challenges aiming at improving performance of public procurement progressively as part of strengthening overall sectorial governance. In order to achieve its aim and objective Government introduced e-GP in June 2011 (CPTU, 2017a). Initiations have been started to ensure compatibility of the procurement monitoring system in Central Procurement Technical Unit (CPTU), in accordance with the e-GP roadmap and to fulfill the requirements of the Public Procurement Act/Rules. With the introduction of e-GP system compliant to the PPA-2006 and PPR-2008 in Bangladesh, starting with four target agencies, it was expected that it will help to establish effective monitoring and evaluation online platform, standardization on the way of carrying out the procurement through the standard online bidding document templates and processes (CPTU, 2017b).

National e-Government Procurement (e-GP) portal of the Government of the People‟s Republic of Bangladesh is developed, owned and being operated by the CPTU, IMED of Ministry of Planning. The e-GP system provides an on-line platform to carry out the procurement activities by the Public Agencies, Procuring Agencies (PAs) and Procuring Entities (PEs). The e-GP system is a single web portal from where and through which PAs and PEs are able to perform their procurement related activities using a dedicated secured web based dashboard. The e-GP system is hosted in e-GP Data Center at CPTU, and the e-GP web portal is accessible by the PAs and PEs through internet for their use. This complete e-GP solution introduced under the PPR Program is being supported by the World Bank and gradually used by all government organizations. This online platform also helps them ensuring equal access to the Bidders/Tenderers and also ensuring efficiency, transparency and accountability in the public procurement process in Bangladesh.

1.2 Statement of the Problem

e-GP was first introduced on pilot basis in the CPTU and 16 other PEs under 4 (four) implementing agencies, namely: Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), Roads and Highways Department (RHD) and Rural Electrification Board (REB) (CPTU, 2017c). These agencies are also called as target agencies. From that piloting various lesson learnt has been captured as Enterprise Environmental Factors (EEF) and now Public Works Department (PWD) is starting from where the other organization has reached. This advancement in the learning curve is a major enabling factor for the e-GP implantation for the PEs of PWD.

A transformational change has been occurred in the field of public procurement of Bangladesh after the introduction of e-GP. There is an ongoing argument among the stakeholders regarding the usefulness of e-GP. One group argue that the stakeholders are not yet fully ready for the new system and the perceived benefits and outcomes of the e-GP system need to be reassessed. On the other hand, the other group believe, the e-GP system of procurement is far better than the manual system. Somebody criticize the e-GP system in our country that the World Bank has been influencing the governments, mostly of third world countries, for introducing e-procurement system for establishing the interest of their own (Ruhunnabi, 2015).

In the field of procurement, a group of executives argue that introduction of e-GP has developed and positively influenced the public procurement system; other hand, the other group comment that e-GP system has some shortcomings and it needs more testing and debugging before full time implementation. So it is necessary to find out the facts behind these arguments. This is the incentive of the present study.

1.3 Objective and Research Questions of the Study

1.3.1 Research Objective

The purpose of the study is to assess the effectiveness of e-GP system in procurement of Public Works Department (PWD). Considering the time and other logistic support resources available to this research work, specific objectives of the study are:

- *To evaluate the efficiency and effectiveness in the procurement process of PWD by using the e-GP system.*
- *Providing recommendations that will ease the successful implementation of e-GP system in PWD to increase the efficiency and effectiveness.*

1.3.2 Research Hypothesis

In order to assess the efficiency and effectiveness the following 3 hypotheses are set for the research work:

- *Hypothesis 1: Cost can be saved in e-tendering process.*
- *Hypothesis 2: Time can be reduced in e-tendering process.*
- *Hypothesis 3: Transparency can be achieved in e-tendering process.*

1.3.3 Research Question

The overarching question of the research will be whether the e-GP system has improved the efficiency and effectiveness of the procurement process in PWD. The question will be addressed by the 3 sub-questions, which also address the 3 hypotheses:

- *Did the cost reduced in the procurement process?*
- *How much time has been reduced in the procurement cycle?*
- *Did the procurement process increase the transparency?*

1.4 Methodology of the study

The main Methodology for this research is Primary Survey. Mixed approaches are followed such as qualitative and quantitative. Qualitative Open Ended Questions was asked to respondents, who are actively involved in the Electronic Government Procurement. A questionnaire was developed to collect experience and insight of the PE‟s of PWD. PWD expend most of the development budget through Executive Engineers at field level. They are the main PEs of PWD. Along with them Several Assistant Engineers was surveyed as they work as the staff officer of the PE. Due the time constrain around 7 respondents were selected for interview. All of the respondents work on different division of PWD in Dhaka. As all of them were Government employee, the respondents were ensured with anonymity while interviewing. Thus their identity will not be disclosed throughout the paper. Also 2 bidders were asked the open ended questions about the overall impact of the e-GP system on their participations in the tendering process. Quantitative approach is followed to analyze the time and cost efficiency. Data has been collected from 6 PWD offices. Based on the data efficiency and effectiveness on the 3 areas such as time, cost and transparency is analyzed. Details of cost and time analysis is focused in chapter 3 and transparency in chapter 4. Finally conclusions and policy recommendations is formed.

1.5 Rationale of the study

e-procurement reduces administrative costs and bureaucracy by helping the country, avoids repeating tasks such as registration and certification of contractors, allowing for additional effective control mechanisms and reducing paperwork, improving transparency and reduce transaction cost and time for tendering. Public procurement systems can help governments optimize resources to obtain better value for money. To ensure the good governance in public procurement, different parameters are introduced in different organizations such as e-GP, CMS etc. e-GP system in Bangladesh was launched successfully on pilot basis and eventually being rolled out to all PEs of four sectorial Agencies. It is now expanding to all government procuring

entity dealing with public procurement. All the stakeholders, including Bidders/Tenderers/ Applicants /Consultants (National and International), PEs, Procurement related committees, Payment service providers, Development Partners (DPs), Media, Operation Maintenance and Management Entity (OMME), e-GP system administrators, Auditors and General public are getting access to e-GP system and information as per the terms and conditions of use and disclaimer and privacy policy. e-procurement has already been introduced in PWD for last 3 years. Now time has come to evaluate the performance of e-GP in PWD for the last 3 years. This will help us to specify the difficulties regarding e-GP and solution of these difficulties.

1.6 Scope and Limitations of the study

Bangladesh government had an Annual Development Program of Tk. 1,10,700 Crore for the year 2016-2017. Participation of PWD in ADP is only 2.5 %. So this study doesn‟t reflect the overall picture. This study has assessed the present practices and performance of e-GP in PWD to ensure transparency and accountability in procurement activity. From the study, it has identified the efficiency and effectiveness of e-GP and the ways of improvement of e-GP for making the system more effective and efficient with respect to PWD in future. This is a vast subject to be explored as there is minimum 134 PE‟s that are involved in e-GP. But as part of MPSM research time and budget is important constraint for such vast subject. This researcher has a make tradeoff between time and scope of the research. This study has not covered the entire field divisions of PWD; it has gone for survey randomly from the Head office, Divisional offices and officials involved with e-GP activities. Due to the time constraint only 2 bidders were interviewed.

1.7 Organization of the study

The report is comprised of 5 chapters. They are summarized below:

- Chapter 1 discusses about the background, rationale, objectives of this study. It highlights the problem statement why the topic has been taken for study. It also defines the limitations and scope of the study.

- Chapter 2 describes the literature review of this study. The chapter will give a good picture of PWD, procurement, electronic government procurement, process of e-GP and how the e-GP is conducted and administered.
- Chapter 3 describes the approach and methodology, and analysis of data regarding cost and time. It also focuses on the evaluation of efficiency.
- Chapter 4 describes the approach and methodology, and analysis of data regarding transparency. It also focuses on the evaluation of effectiveness.
- Chapter 5 provides conclusion and recommendations of this study based on the information leading to conclusion.

Chapter 2: Literature Review

2.1 Public Works Department (PWD)

Public Works Department (PWD), under the Ministry of Housing and Public Works, is the pioneer in construction arena of Bangladesh. Over about two centuries, PWD could successfully set the trend and standard in the country's infrastructure development. It plays a pivotal role in the implementation of government construction projects. It also undertakes projects for autonomous bodies as deposit works. PWD has highly qualified and experienced professionals forming a multi-disciplinary team of civil, electrical and mechanical engineers who work alongside architects from the Department of Architecture. With its strong base of standards and professionalism developed over the years, PWD is the repository of expertise and hence the first choices among discerning clients for any type of construction project in Bangladesh. Besides being the construction agency of the Government, it performs regulatory function in setting the pace and managing projects for the country's construction industry under the close supervision of the Ministry of Housing and Public Works. The contribution of PWD encompasses the entire spectrum of physical and social infrastructure for national development, national security and international relations. Its activities span the length and breadth of the country including remote areas and difficult terrain. The main responsibilities of PWD are shown in following list. It may be mentioned here that the architectural plans and designs of almost all Government infrastructural projects are done by the Department of Architecture in close consultation with PWD (PWD, Available at http://pwd.gov.bd).

2.1.1 Working Arena of PWD

- Construction of Buildings for Other Agencies on a Deposit Work Basis.
- Maintenance of Public Parks.
- Preparation of Book of Schedule of Rates and Analysis of Rates for Construction and Maintenance of Public Buildings.
- Design and Construction of Public Buildings except those of RHD, TandT, Postal Department.
- Construction of National Monuments.

- Repair and Maintenance of Public Buildings.
- Preparation of Book of Specifications and Code of Practice.
- Acquisition and Requisition of Land for construction Work.
- Procurement of Materials and Equipment Required for Construction Work.
- Valuation of Land and Property and Fixing of Standard Rent (PWD, Available at http://pwd.gov.bd/about/what_does).

2.2 Procurement

Different institutions and authority defines the procurement differently. There are lots of definitions of procurement. Some of those definitions are given below:

- Complete process of obtaining goods and services from preparation and processing of a requisition through to receipt and approval of the invoice for payment (Business Dictionary, Available at http://www.businessdictionary.com).
- The action or process of acquiring or obtaining materiel, property, or services at the operational level, for example, purchasing, contracting, and negotiating directly with the source of supply (Word Reference, Available at https://forum.wordreference.com/threads/procurement-or-purchase.615735).
- To acquire or obtain an item or service, sometimes rare, usually by extra effort. (Wiktionary, Available at en.wiktionary.org/wiki/procure)

Therefore, Procurement can be defined as „the process of obtaining goods or services in any way, including purchasing, hiring, leasing and borrowing“. In other way procurement is the acquisition of goods, works and services for the need of the organizations. According to CIPS, “Procurement describes all those processes concerned with developing and implementing strategies to manage an organization“s spend portfolio in such a way as to contribute to the organization“s overall goals and to maximize the value released and/or minimize the total cost of ownership”(CIPS Procurement Glossary, No Date).

Procurement reflects the more proactive, relational, strategic and integrated role of the function in modern organizations. Procurement may act as a department, a role or a process in an organization, procurement process starts with the review of the expenditure portfolio and the analysis. This concerns potential stakeholder identification and engagement with specifying business needs and preparing a business case. Procurement strategies may involve in-sourcing, outsourcing, competitive bidding, direct negotiation, and a variety of other sourcing strategies. Once the strategy is developed, the execution will involve market engagement and the issue of the Request for Interest (RFI) and the Request for Proposal (RFP) and/or negotiation. Once offers are evaluated, the optimum solution will be selected and the appropriate contractual agreement established (BlaBlaWriting, No Date).

Procurement is a challenging job that requires a range of expertise and capabilities. This needs analytical ability which is helpful for expenditure analysis and evaluation of offers, as well as the ability to understanding, collaborating and connecting with supply markets too. In terms of interpersonal skills, influencing skills and facilitation skills are just as important as negotiation skills (BlaBlaWriting, No Date).

2.3 Public Procurement

Public procurement refers to the function of purchasing goods, works and services from an outside body with a contractual means by public bodies with public fund. Public procurement is about spending tax payers‟ money to acquire the goods, works and services that public bodies need in order to carry out their activities. The performance of public procurement has paramount influence on the society that refers to a group of people involved with each other through persistent relations. The public procurement can affect the society in many ways. It obstructs or enables economic development of the country, promotes or dismisses social and environmental objectives. Sometimes, public procurement can be misused for political gain by supporting an ineffective procurement or an inefficient firm. The success or failure of public procurement of the goods, services, works, can lead to citizens having the quality of life they expected or hindering the government to fulfill its responsibilities with consequences for the citizens (Joarder, 2015).

Usually public procurement is subject to defined rules and policies and procedures which cover how the relevant decisions should be made. In public procurement the concern government officials have to follow a set system for procurement According to the laws and regulations. Rules and regulations may cover the way of advertisement should be published for suppliers, the criteria on which a supplier should be selected, and the way to specify and enforce the requirements to be put upon the supplier. In general the aim of such a public procurement system is to take advantages of open competition among suppliers and to reduce the risk of corruption, coercions and collusion (Ruhunnabi, 2015).

2.4 Electronic Government Procurement (e-GP)

e-GP is the use of a standard and efficient management framework for public sector procurement, facilitated through information and communication technology. e-GP is very much prospective in establishing accountability, transparency, and making Government procurement system efficient and effective. e-GP is also referred as Electronic Public Procurement.

An expert group from UN stated several principles for e-procurement implementation for public sector in their report (UN, 2011, p.viii-ix):

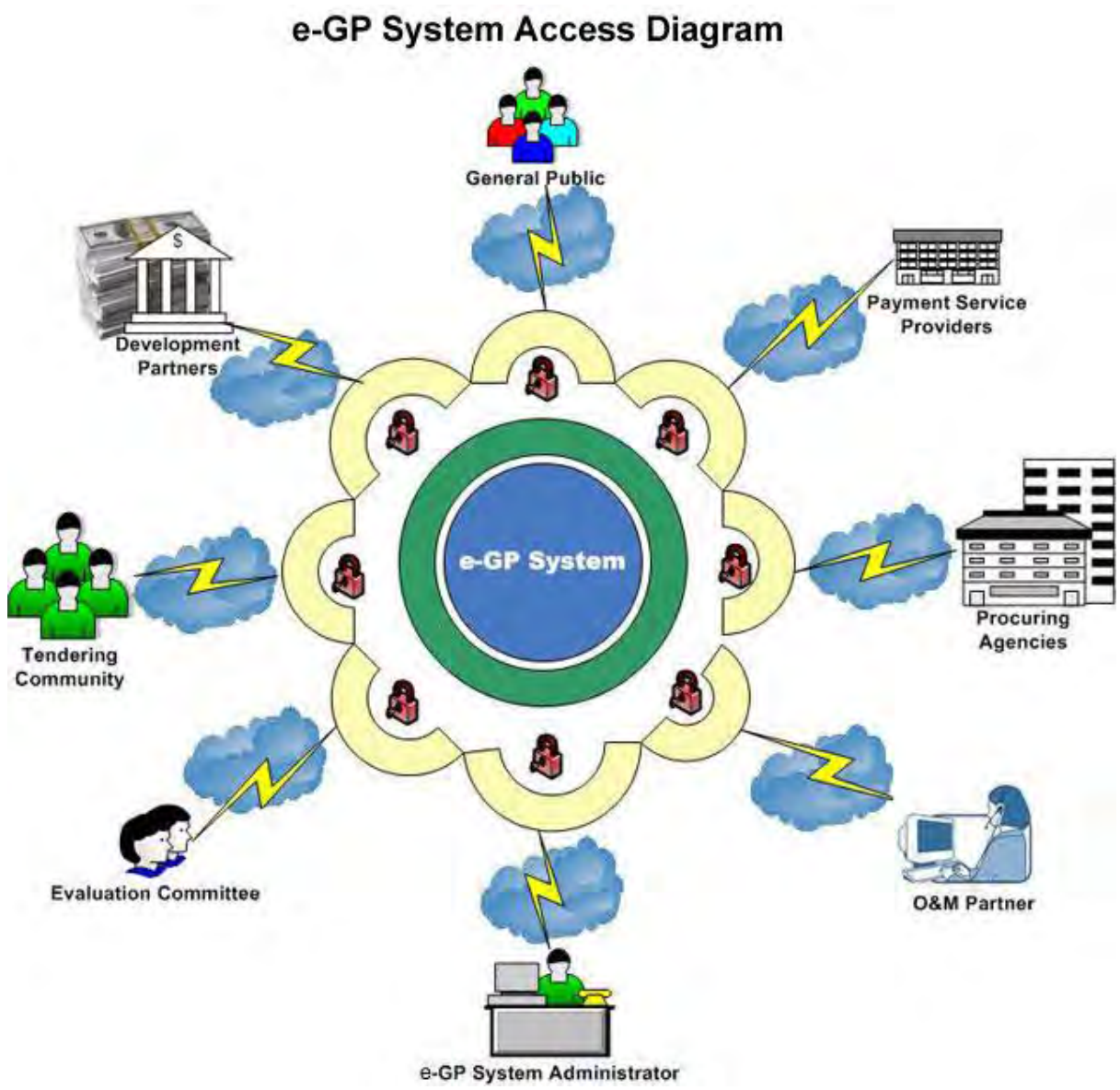
- e-Procurement is a governance practice that should go beyond ICT aspects. It should not be not just about placing an "E" in front of outdated procurement practices.
- Though e-Procurement does not guarantee the complete elimination of corruption practices, but it can reduce the rate and work as an obstacle against corruption. Also this can be an instrument for effective and efficient public administration.
- e-Procurement holistic approach to modernize public procurement systems not just using ICT.
- The integration between public financial systems and e-Procurement aspects is necessary for managing the end to end procurement process including payment, but not necessarily required for getting started on the basic implementation of a system.
- For each one of the basic phases of an e-Procurement process several recognizable standards, approaches, strategies, are available.

- Less developed countries may consider hybrid approaches (on-line and off-line) while implementing e-Procurement in public sector. Also the can combine centralized and decentralized approaches based on country and particular region specific features. The governance and capacity development is, more important than the availability of technology.
- Government should invest on capacity building before investing highly on infrastructure for e-Procurement. This also depends highly on to the attitude of political society towards transparent approaches and engaging the supplier community and civil society.
- The e-procurement system is not a "quick-fix" system implementation plan. it is a business process re-engineering project that needs a time over 10 to 20 years period;
- The long-term benefit of the e-procurement system will come from analyzing the information collected in the system over the years of operation to better understand spending patterns, the marketplace and processes applied. Governments need to give consideration to the information required for analytical and reporting requirements and interaction with other system to obtain to most value from the procurement information management system provided by e-procurement practices.

e-GP as the collaborative use of information and communications technology (especially the internet) by government agencies and other actors of procurement community in conducting all activities of Government Procurement Process Cycle (GPPC) for the acquisition of goods, works, and consultancy services with enhanced efficiency in procurement management. e-GP system is a web based system which encompasses the total procurement lifecycle and records the all procurement activities. The purpose of this system is to maintain complete and up-to-date Public Procurement System activities of all public agencies as well as provide tender opportunities to all potential tenderers from Bangladesh and abroad. The vision of the e-GP is to enhance the efficiency and transparency in public procurement through the implementation of a comprehensive e-GP solution to be used by all government organizations in the country. Initially, on pilot basis, this will apply to a few PEs of four target agencies namely BWDB, REB, RHD and LGED in Bangladesh. The System, later on, will be rolled-out across all the procuring entities in a phased manner. The entire public procurement activity undertaken by the government shall be channeled through the e-GP infrastructure and implemented in a phased manner. Efficiency in handling public procurement by the government organizations shall be enhanced through automation and process reengineering. The system shall enable the

government to maintain a clear picture of its procurement activities on a real time basis. By engaging in e-GP, the government catalyzes the supplier community to participate in e-business shown in Figure 2.1

Figure 2.1: e-GP system access diagram



Source: http://www.cptu.gov.bd/EProcurement.aspx

CPTU, IMED, Ministry of Planning is developing the e-GP System using the cutting edge technology and global expertise complying with the PPA 2006 and PPR 2008. Bangladesh e-GP system consists of a comprehensive set of interlinked modules (CPTU, 2017c). These modules

are described in details in the website of the CPTU (Available at https://www.eprocure.gov.bd/aboutUs.jsp. Accessed on 25 May 2017)

i. Centralized Registration System

- (Contractors/Applicants/Consultants, Procuring Entities and other actors of e-GP)
- Centralized Tenderer /Consultant registration
- Procuring Entity (PE) registration
- Media Registration
- Payment service provider‟s registration
- Development partner‟s registration

ii. e-Tendering (e-Publishing/e-Advertisement, e-Lodgment, e-Evaluation, e-Contract award) System

- Annual Procurement Planning (APP) preparation and publishing
- Standard Tender Document (STD) Library
- Preparation and publishing Invitation to Tender
- Preparation and publishing Tender Document
- Online Pre-Tender Meeting
- Publishing Tender Corrigendum / Addendum / Amendment
- Online Tender / Application / Proposal preparation by Tenderers / Applicants / Consultants
- Online Tender Submission / Tender Substitution / Tender Withdrawal
- Online Tender Opening
- Online Tender Evaluation by Technical Committees
- Post Qualification
- Online Negotiations
- Issuance of Notice of Award (NOA)/ LOI
- Online Contracts

iii. Procurement Management Information System (PROMIS)

- Compliance monitoring through key procurement performance indicators
- MIS reports

iv. Workflow management System

v. e-Contract Management System (e-CMS)

- Work Plan Submission
- Progress Report generation, submission / acceptance
- Defining Payment Milestones
- Running Bill Payment Processing
- Variation Order / Repeat Order
- Quality certification
- Work Completion Certificate
- Final Payment
- Supplier Rating
- Complaint and resolution database

vi. e-Payment System

- Registration Fee, Tender document purchase fee, and other services fee Collection
- Receive Tender Security and performance security submission
- Transactions for security release and forfeiture handling

vii. System and Security Administration

- E-Signature (Generation of Hash/Signature)
- PKI based digital signature
- Bid Encryption/ Bid Decryption
- 128 Bit SSL

viii. Handling Errors and Exceptions

ix. Application Usability and Help

- Integrated Inbox / Message Box

- Integrated e-Mail / SMS Gateway
- Dashboards for Procurement Performance Monitoring
- Manuals for all users
- Help desk support

2.5 Benefits of e-Procurement

e-Procurement uses web-based technologies to connect the public institutions (as buyers) and vendors (as sellers). Therefore, the public procurement process in some way affects both the public institutions that need goods and services and the vendors that meet this need. Basically, public institutions can access various goods and services from a variety of vendors whereas vendors can reach all the public sector opportunities easier than ever before. As a result, both public institutions and vendors will benefit from a common platform where the former can get all the information to make a purchase decision and the latter can reach potential customers more than usual. Considering the inefficiencies found in the existing procurement process, the large purchasing power of the government as well as the developments in the ICT, the electronic transformation of the public procurement processes will offer the potential for significant savings from its early stages. It also brings lots of opportunities including reducing costs of goods and services through aggregating purchasing volume, streamlining procedures and etc. for both the government and the private sector. (Joarder, 2015).

2.6 Benefits to the Government

Public procurement is a key process. Both lots of gains can be obtained and it is easy to implement e-Procurement technically. Because of the relationship between strategic purchasing and public procurement, it is obvious that when strategic sourcing is performed well, public procurement becomes more effective and efficient. In addition, by taking advantage of the ICT, purchasing organizations will be able to operate more effective and efficient in the way they buy from, and work together with their vendors (Alam, 2012) The increased efficiency and effectiveness of public procurement process will provide potential to reduce the cost of public procurement. These savings are due to:

- Decrease in costs associated with publishing and getting information

- ✓ Publishing the information related to the public sector opportunities and contract awards electronically in the Internet is both faster and cheaper than the traditional methods.
- ✓ Purchasing activities can be monitored better and statistical data for reporting on public procurement data and vendor activity will be provided.
- ✓ Market search will become easier through the e-Catalogs of vendors.
- ✓ Public institutions will access various goods and services of multiple vendors in a competitive environment.

- Decrease in procurement transaction costs
  - ✓ Public procurement services will become more efficient and effective like market search, ordering, tendering, etc.
  - ✓ Available public resources will be used more efficiently and effectively.
    - Administrative costs and time will be reduced such as time and cost associated with business meetings.
    - Time spent in the requisition-to-payment cycle will be reduced through the use of electronic ordering, electronic invoicing and etc.
  - ✓ Maverick buying will be reduced.
  - ✓ Bureaucratic inertia will be reduced.
- Increase competition
  - ✓ The public sector business opportunities will be accessible by all vendors, which in turn will enhance the competitive environment.
  - ✓ The purchasing power of the government can be better coordinated and costs of goods and services will be reduced through this aggregating purchasing volume (Akando, 2016).

e-Procurement will assist the improvement of not only public procurement processes but also other processes to which it must interface such as accounting, public expenditure management and public investments changing the dynamics of public procurement management. e-Procurement not only does enhance the overall quality of public procurement management throughout savings in terms of cost and time but also improves transparency in public administration.

Chapter 3: Analysis for Efficiency

This chapter analyzes the data collected from 6 PE offices for the cost and time efficiency.

3.1 Data Collection

In order to conduct the research successfully, adequate information/data will be required. Within given institutional and administrative framework of PWD, most of the data for assess the time is obtained from website reports, also used some cases the survey questionnaires. Theoretically it is interpreted as secondary sources of data as website is the origin for data taken but some data are taken from survey questionnaire so it is considered as good as primary data.

In case of assessing the cost associated with each tender in a PE office, the primary data is collected through the questionnaire survey to the officials who are in charge of a PE office. Respondents are PEs from different locations of the country who are selected randomly and they were requested for their response. Within the short spell of time, it is not possible to conduct simple random sampling, because sample is distributed throughout the country. Therefore, stratified random sampling is exercised.

3.2 Information about Number of Tenders

A total of 1038 manual tenders and 138 e-tenders were considered for cost savings calculation for the F.Y.: 2015-2016 in 5 different PE offices. But for Urban Building Safety Project the calculation is for only F.Y.: 2016-2017 up to April 2017 and the number of tenders are manual 9 nos and e-tender 10 nos. The number of tenders for different PE offices is shown in Table 3.1

Table 3.1: List of tenders for selected 6 PE offices

Sr. No.	PWD Office	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
		Manual	e-Tender	Manual	e-Tender
1.	Office of the Executive Engineer, Comilla PWD Division, Comilla	190	30	160	25

2.	Office of the Executive Engineer, PWD E/M Division-6, Dhaka	180	18	150	20
3.	Office of the Executive Engineer, PWD E/M Division-4, Dhaka	220	25	140	15
4.	Office of the Executive Engineer, PWD E/M Division-5, Dhaka	250	45	210	30
5.	Urban Building Safety Project, Dhaka	No data	No data	09	10
6.	Office of the Executive Engineer, PWD E/M Division-7, Dhaka	198	20	170	30

Source: Different PE Offices

3.3 Methodology for Hypothesis 1: Cost Savings in e-GP Process

This is a very rational thinking that is, implementing tendering process in e-GP system significant cost should be reduced within a PE office. Here cost savings means only to the operational costs of tendering process as paper savings, staff savings, saving through electronic communication, administrative cost savings etc. Thus the savings pattern is almost same for different PE offices. Considering this hypothesis a questionnaire survey was conducted within PWD officials, who are in charge of different PE offices. At first the performance indicators for the operating cost of tendering process is identified, which is shown in Table 3.2. Based on this a survey questionnaire is set up.

Table 3.2: Performance indicators for operational cost

Sr. No.	Indicator Category	Process Indicator
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper
		Average Advertisement Cost of Tender Opportunities in CPTU's Website
		Tender Preparation Cost (for PE)
		Any other Cost (Please Specify) ……
2.	Tender Submission	Cost for Pre-tender Meeting
		Cost for Collection of Tenders from Multiple Locations
		Any other Cost (Please Specify) ……
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)
		Any other Cost (Please Specify) ……

4.	Tender Evaluation	TOC and TEC Members Honorarium
		Tender Evaluation Report Preparation Cost
		Any other Cost (Please Specify) ……
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA
		Any other Cost (Please Specify) ……
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer
		Cost for Contract Agreement
		Cost for Contract Award Publication to CPTU's Website
7.	Others	Any other Cost (Please Specify) ……

3.3.1 Comparison of cost for different PE Offices in PWD

As I consider the result may be almost same, but a wide variety of result was found. In this section the data collected for different PE offices will be compared for cost comparison between manual tendering and e-GP.

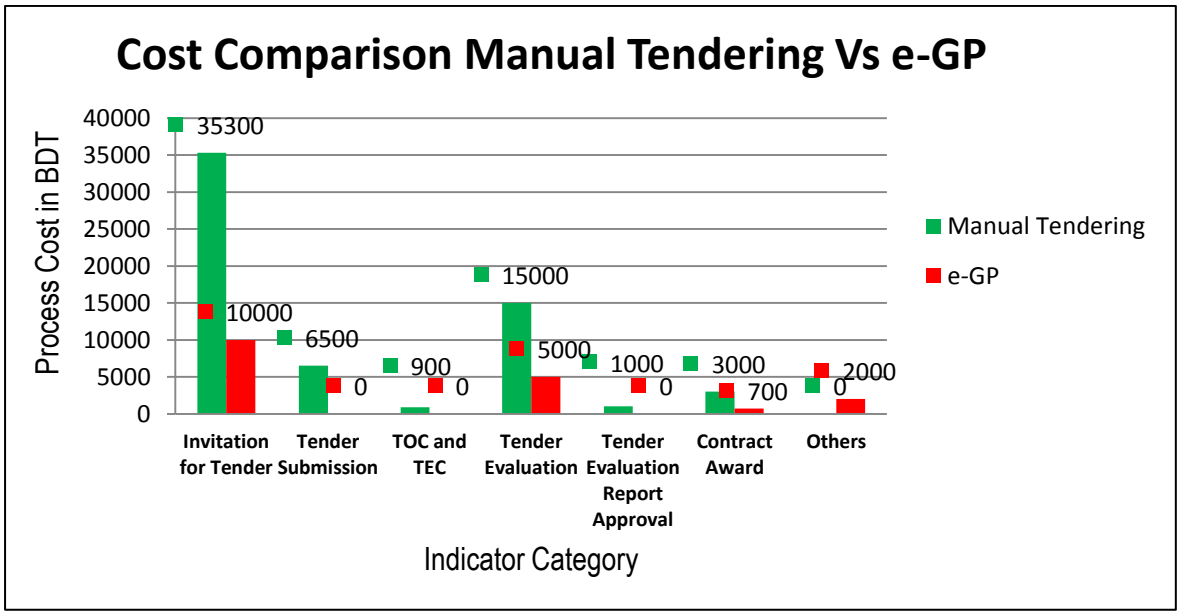
Table 3.3: Cost analysis data for Comilla PWD division.

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	25000	10000
		Average Advertisement Cost of Tender Opportunities in CPTU's Website	300	0
		Tender Preparation Cost (for PE)	10000	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**35300**	**10000**
2.	Tender Submission	Cost for Pre-tender Meeting	3000	0
		Cost for Collection of Tenders from Multiple Locations	3500	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**6500**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process,	900	0

		Communication, etc.)		
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**900**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	9000	5000
		Tender Evaluation Report Preparation Cost	6000	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**15000**	**5000**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	1000	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**1000**	**0**
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer	2000	0
		Cost for Contract Agreement	800	500
		Cost for Contract Award Publication to CPTU's Website	200	200
		Subtotal	**3000**	**700**
7.	Others	Any other Cost (Please Specify) **Utility Bill**	0	2000
		Subtotal	**0**	**2000**
Total Amounts in BDT			**61700**	**17700**

Source: Office of the Executive Engineer, Comilla PWD Division, Comilla.

Figure 3.1: Major cost Head of Manual Tendering Vs e-GP in Comilla PWD Division



Based on the above result shown in Table 3.3, it can be concluded that by introducing e-GP process, cost savings in Comilla PWD division at different condition can be represented as follows:

- Cost savings for a single tender is Tk. 44,000.00
- Cost savings for 30 e-tenders in a financial year (2015-2016) is Tk. 13.20 Lakh

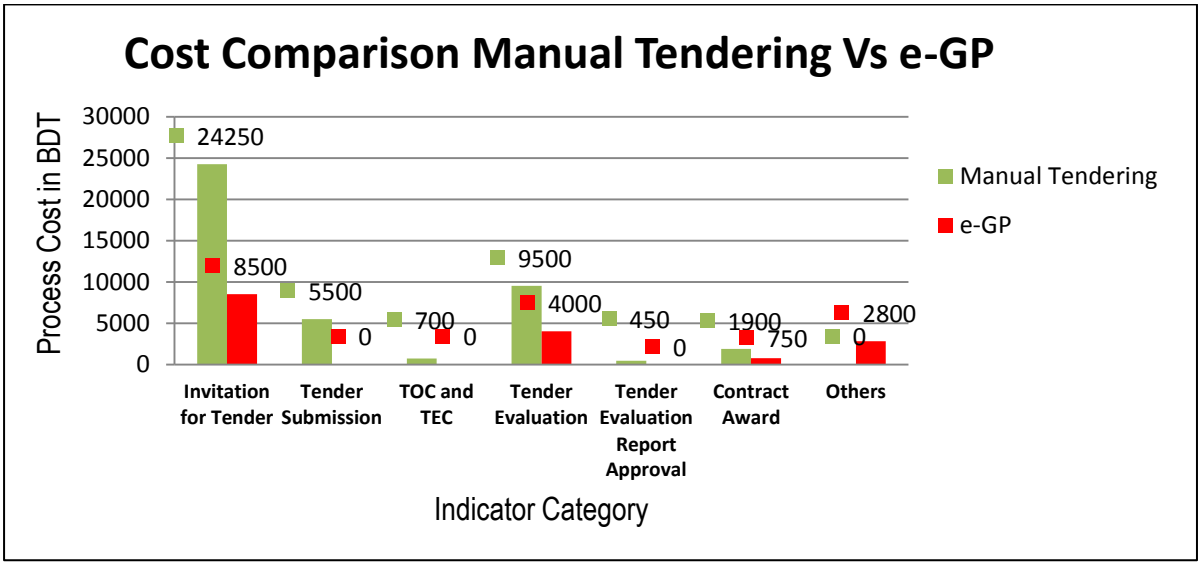
Table 3.4: Cost analysis data for PWD E/M Division-6, Dhaka

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	19000	8500
		Average Advertisement Cost of Tender Opportunities in CPTU's Website	250	0
		Tender Preparation Cost (for PE)	5000	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**24250**	**8500**
2.	Tender Submission	Cost for Pre-tender Meeting	2000	0
		Cost for Collection of Tenders from Multiple Locations	1500	0
		Any other Cost (Please Specify) **Supporting Service**	2000	0
		Subtotal	**5500**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)	700	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**700**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	7000	4000
		Tender Evaluation Report Preparation Cost	2500	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**9500**	**4000**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	450	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**450**	**0**
6.	Contract	Cost for Issuance of NOA and Communicate with	1000	0

	Award	Tenderer		
		Cost for Contract Agreement	600	450
		Cost for Contract Award Publication to CPTU's Website	300	300
		Subtotal	**1900**	**750**
7.	Others	Any other Cost (Please Specify) **Internet**	0	2800
		Subtotal	**0**	**2800**
Total Amounts in BDT			**42300**	**16050**

Source: Office of the Executive Engineer, PWD E/M Division-6, Dhaka

Figure 3.2: Major cost Head of Manual Tendering Vs e-GP in PWD E/M Division-6, Dhaka



Based on the above result shown in Table 3.4 it can be concluded that by introducing e-GP process, cost savings in PWD E/M Division-6, Dhaka at different condition can be represented as follows:

- Cost savings for a single tender is Tk. 26,250.00
- Cost savings for 18 e-tenders in a financial year (2015-2016) is Tk. 4.73 Lakh

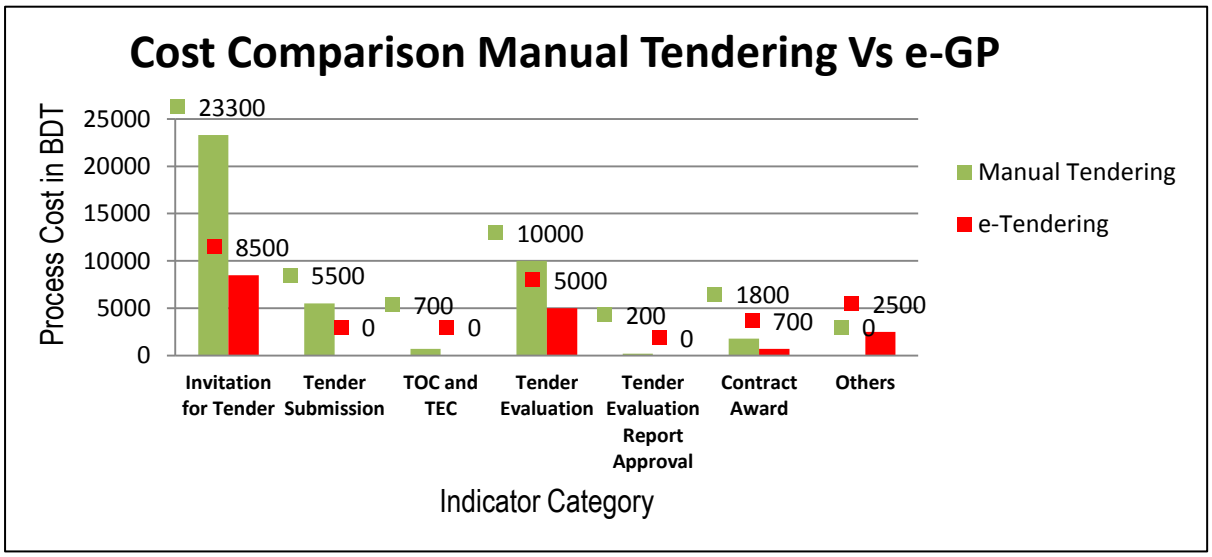
Table 3.5: Cost analysis data for PWD E/M Division-7, Dhaka

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	15000	8000

		Average Advertisement Cost of Tender Opportunities in CPTU's Website	300	0
		Tender Preparation Cost (for PE)	8000	500
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**23300**	**8500**
2.	Tender Submission	Cost for Pre-tender Meeting	2000	0
		Cost for Collection of Tenders from Multiple Locations	1000	0
		Any other Cost (Please Specify) **Supporting Service**	2500	0
		Subtotal	**5500**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)	700	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**700**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	9000	5000
		Tender Evaluation Report Preparation Cost	1000	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**10000**	**5000**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	200	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**200**	**0**
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer	1000	0
		Cost for Contract Agreement	500	400
		Cost for Contract Award Publication to CPTU's Website	300	300
		Subtotal	**1800**	**700**
7.	Others	Any other Cost (Please Specify) **Internet/Utility**	0	2500
		Subtotal	**0**	**2500**
Total Amounts in BDT			**41500**	**16700**

Source: Office of the Executive Engineer, PWD E/M Division-7, Dhaka

Figure 3.3: Major cost Head of Manual Tendering Vs e-GP in PWD E/M Division-7, Dhaka.



Based on the above result shown in Table 3.5, it can be concluded that by introducing e-GP process, cost savings in PWD E/M Division-7, Dhaka at different condition can be represented as follows:

- Cost savings for a single tender is Tk. 24,800.00
- Cost savings for 20 e-tenders in a financial year (2015-2016) is Tk. 4.96 Lakh

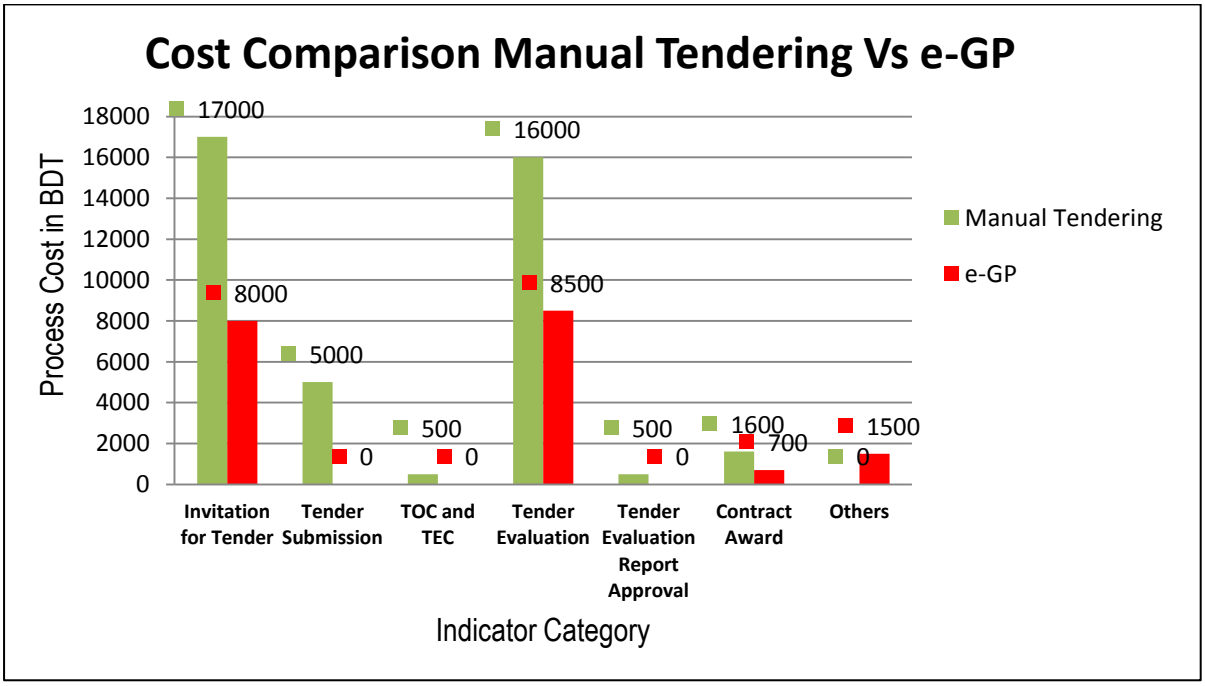
Table 3.6: Cost analysis data for PWD E/M Division-4, Dhaka

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	12000	8000
		Average Advertisement Cost of Tender Opportunities in CPTU's Website	0	0
		Tender Preparation Cost (for PE)	5000	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**17000**	**8000**
2.	Tender Submission	Cost for Pre-tender Meeting	1000	0
		Cost for Collection of Tenders from Multiple Locations	1500	0
		Any other Cost (Please Specify) **Supporting Service**	2500	0
		Subtotal	**5000**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)	500	0

		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**500**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	15000	8000
		Tender Evaluation Report Preparation Cost	1000	500
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**16000**	**8500**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	500	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**500**	**0**
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer	500	100
		Cost for Contract Agreement	1000	500
		Cost for Contract Award Publication to CPTU's Website	100	100
		Subtotal	**1600**	**700**
7.	Others	Any other Cost (Please Specify) **Utility Bill**	0	1500
		Subtotal	**0**	**1500**
Total Amounts in BDT			**40600**	**18700**

Source: Office of the Executive Engineer, PWD E/M Division-4, Dhaka

Figure 3.4: Major cost Head of Manual Tendering Vs e-GP in PWD E/M Division-4, Dhaka



Based on the above result shown in Table 3.6 it can be concluded that by introducing e-GP process, cost savings in PWD E/M Division-4, Dhaka at different condition can be represented as follows:

- Cost savings for a single tender is Tk. 21,900.00
- Cost savings for 25 e-tenders in a financial year (2015-2016) is Tk. 05.47 Lakh

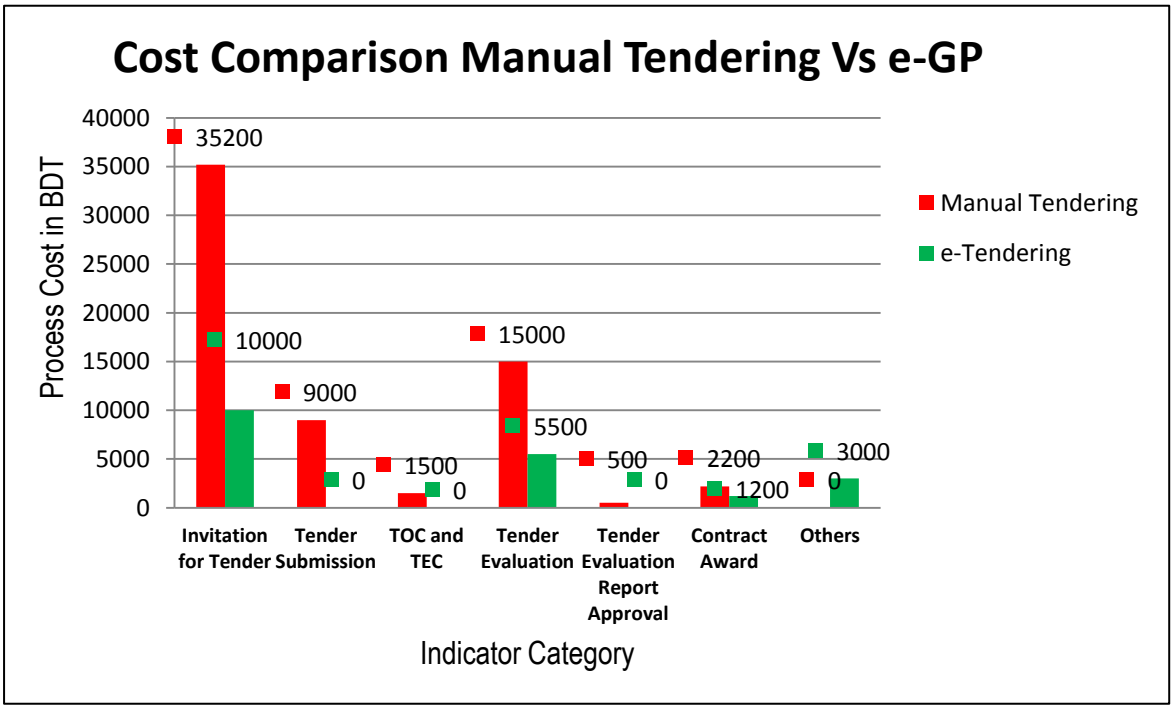
Table 3.7: Cost analysis data for PWD E/M Division-5, Dhaka

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	20000	10000
		Average Advertisement Cost of Tender Opportunities in CPTU's Website	200/-	0
		Tender Preparation Cost (for PE)	15000	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**35200**	**10000**
2.	Tender Submission	Cost for Pre-tender Meeting	2000	0
		Cost for Collection of Tenders from Multiple Locations	2000	0
		Any other Cost (Please Specify) **Supporting Service**	5000	0
		Subtotal	**9000**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)	1500	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**1500**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	10000	5000
		Tender Evaluation Report Preparation Cost	5000	500
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**15000**	**5500**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	500	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**500**	**0**
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer	500	0

		Cost for Contract Agreement	1500	1000
		Cost for Contract Award Publication to CPTU's Website	200	200
		Subtotal	**2200**	**1200**
7.	Others	Any other Cost (Please Specify) **Utility Bill**	0	3000
		Subtotal	**0**	**3000**
Total Amounts in BDT			**63400**	**19700**

Source: Office of the Executive Engineer, PWD E/M Division-5, Dhaka

Figure 3.5: Major cost Head of Manual Tendering Vs e-GP in PWD E/M Division-5, Dhaka



Based on the above result shown in Table 3.7, it can be concluded that by introducing e-GP process, cost savings in PWD E/M Division-5, Dhaka at different condition can be represented as follows:

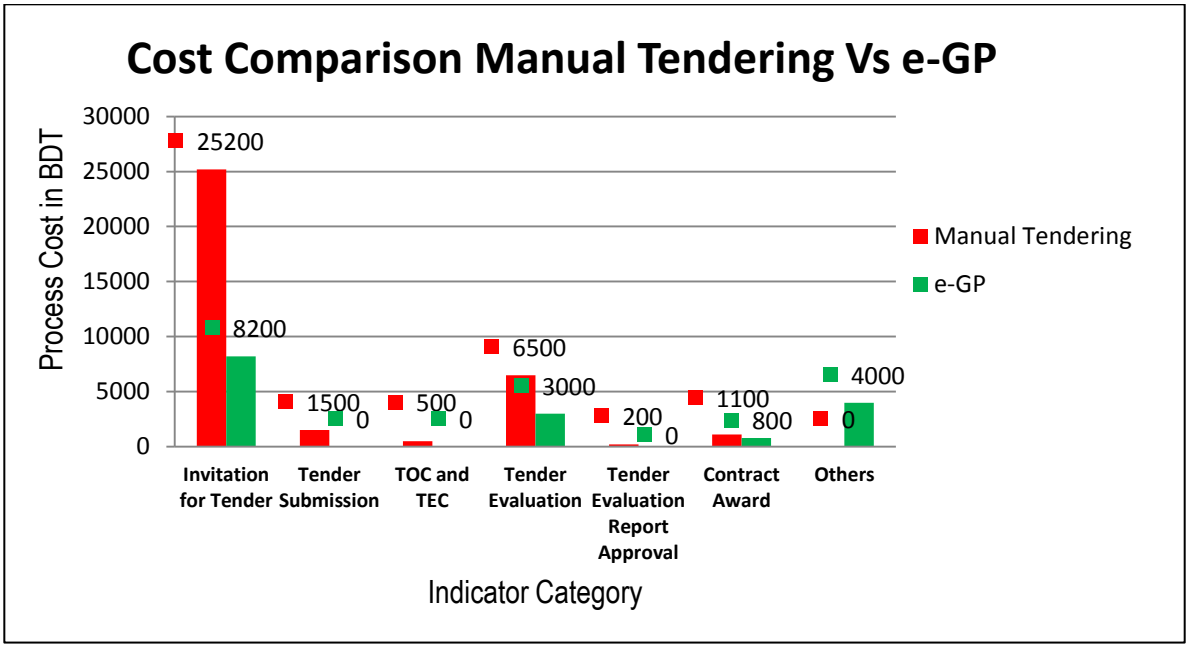
- Cost savings for a single tender is Tk. 43,700.00
- Cost savings for 45 e-tenders in a financial year (2015-2016) is Tk. 19.66 Lakh

Table 3.8: Cost analysis data for PWD Office, Urban Building Safety Project, Dhaka.

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-GP
1.	Invitation for Tender	Average Advertisement Cost of Tender Opportunities in Newspaper	15000	8000
		Average Advertisement Cost of Tender Opportunities in CPTU's Website	200	0
		Tender Preparation Cost (for PE)	10000	200
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**25200**	**8200**
2.	Tender Submission	Cost for Pre-tender Meeting	1000	0
		Cost for Collection of Tenders from Multiple Locations	500	0
		Any other Cost (Please Specify) ----------	N/A	N/A
		Subtotal	**1500**	**0**
3.	TOC and TEC	TOC and TEC Members Creation and Management Cost (Process, Communication, etc.)	500	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**500**	**0**
4.	Tender Evaluation	TOC and TEC Members Honorarium	5000	3000
		Tender Evaluation Report Preparation Cost	500	0
		Any other Cost (Please Specify) **TEC/TOC Refreshment**	1000	0
		Subtotal	**6500**	**3000**
5.	Tender Evaluation Report Approval	Cost for Tender Evaluation Report sent to AA	200	0
		Any other Cost (Please Specify) ……	N/A	N/A
		Subtotal	**200**	**0**
6.	Contract Award	Cost for Issuance of NOA and Communicate with Tenderer	200	0
		Cost for Contract Agreement	500/-	400
		Cost for Contract Award Publication to CPTU's Website	400	400
		Subtotal	**1100**	**800**
7.	Others	Any other Cost (Please Specify) **Internet**	0	4000
		Subtotal	**0**	**4000**
Total Amounts in BDT			**35000**	**16000**

Source: PWD Office, Urban Building Safety Project, Dhaka

Figure 3.6: Major cost Head of Manual Tendering Vs e-GP in PWD Office, Urban Building Safety Project, Dhaka



Based on the above result shown in Table 3.8, it can be concluded that by introducing e-GP process, cost savings in Urban Building Safety Project, Dhaka at different condition can be represented as follows:

- Cost savings for a single tender is Tk. 19,000.00
- Cost savings for completed 10 tenders in a financial year (2016-2017 up to April 2017) is Tk. 01.90 Lakh

3.4 Methodology for Hypothesis 2: Time Management in e-GP Process

In tendering process, there are many different stages where, time is either required to perform the works or there is a requirement to ensure keep sufficient time (minimum time) for compliance of the process. Time between publishing of advertisement and tender submission deadline can be identified as time requirement to ensure compliance on tendering process. Thus there is no scope to save time for this stage.

On the other hand, for ensure efficiency of the process there are some obligation to procurement staffs and tenderers for taking maximum time to perform a work in a stage. Different duration time with a maximum limit according to evaluation and approval criteria is set for tender evaluation, tender evaluation approval and issuance of NOA is an obligation for procurement staff to perform these processes within specified maximum duration. Beside this, received NOA and signing contract agreement is an obligation for tenderer. Thus time savings for these specified stages can be achieved by skill efficiency of both the procurement staff and tenderer. In e-GP process, system or process efficiency is also a factor for time saving.

So in respect of the system or process efficiency, it is assumed that total tender processing time for each tender under different PE office of PWD is improved after implementation of e-GP process.

3.4.1 Performance Indicators for Time: (Data Collected from PROMIS and e-GP Software)

As mentioned earlier among different performance criteria in website, following 4 nos Indicator Category and 6 nos Process Indicator in Table 3.9 can be best fitted for time management issues on tendering process only.

Table 3.9: Performance indicators for time

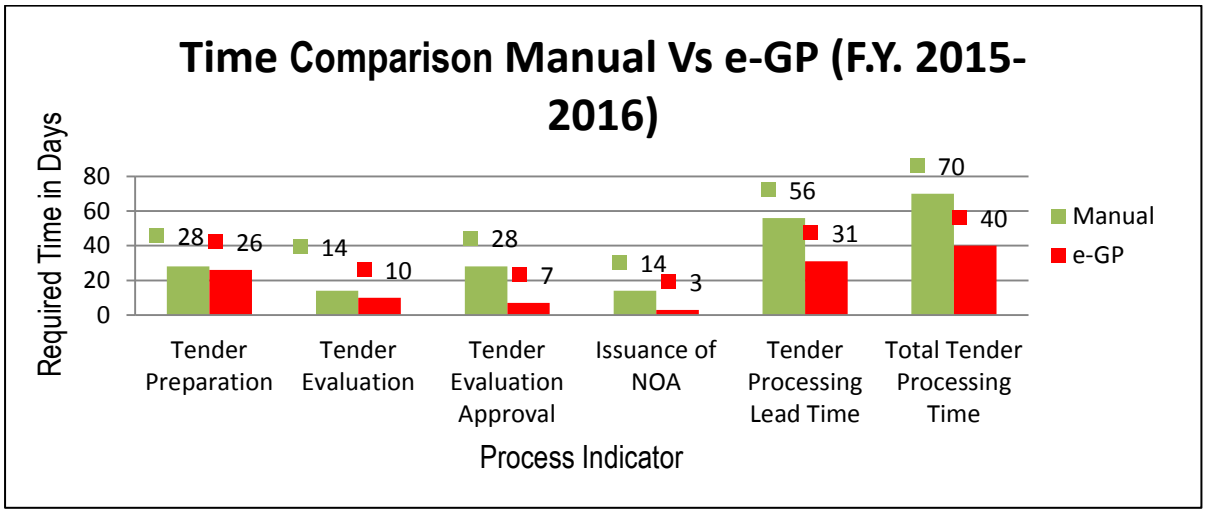
Sr. No.	Indicator Category	Process Indicator	Description
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	Average Number of Days Between Publishing of Advertisement and Tender Submission Deadline
2.	Tender Evaluation	Tender Evaluation Time	Average Number of Days Between Tender Opening and Completion of Evaluation
3.	Tender Evaluation Report Approval	Tender Evaluation Approval Time	Average Number of Days Taken Between Submission of Tender Evaluation and Approval Contract
4.	Contract Award	Time for Issuance of NOA to Tenderer	Average Number of Days Between Final Approval and Notification of Award (NOA)
		Tender Processing Lead Time	Average Number of Days Between Tender Opening and Notification of Award (NOA)

		Total Tender Processing Time	Average Number of Days Between Invitation for Tender (IFT) and Notification of Award (NOA)

3.4.2 Comparison Result for Time Management

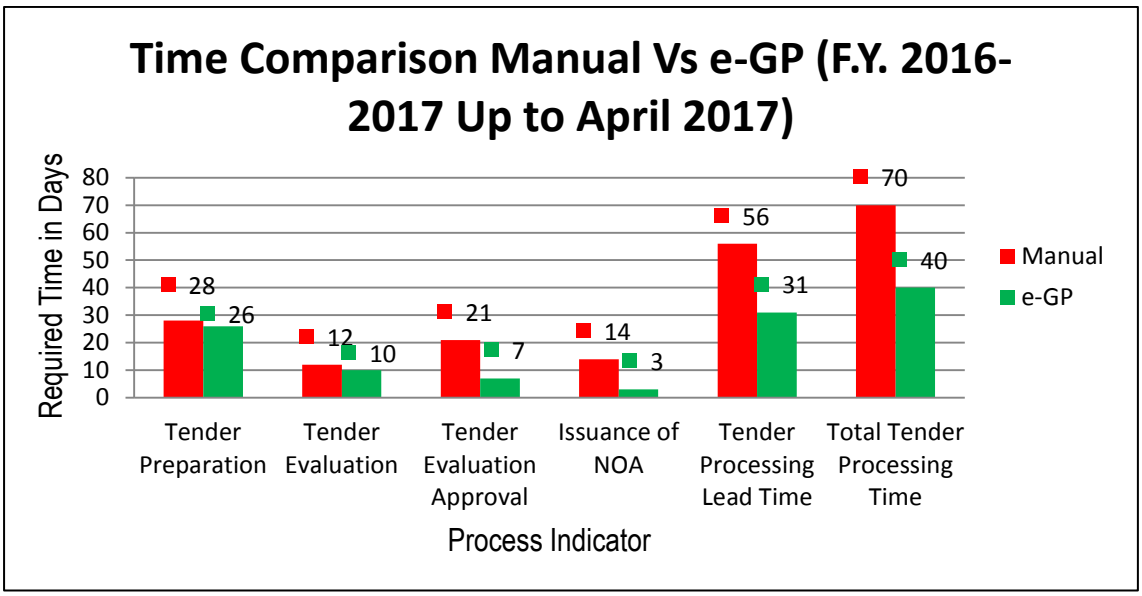
The following are the comparison of data based on time for 6 PE offices. The data in table format is attached in appendix-B.

Figure 3.7: Required time for different stages of tender processing for Comilla PWD Division, Comilla (in F.Y. 2015-2016)



Source: Office of the Executive Engineer, Comilla PWD Division, Comilla

Figure 3.8: Required time for different stages of tender processing for Comilla PWD Division, Comilla (in F.Y. 2016-2017 up to April 2017)

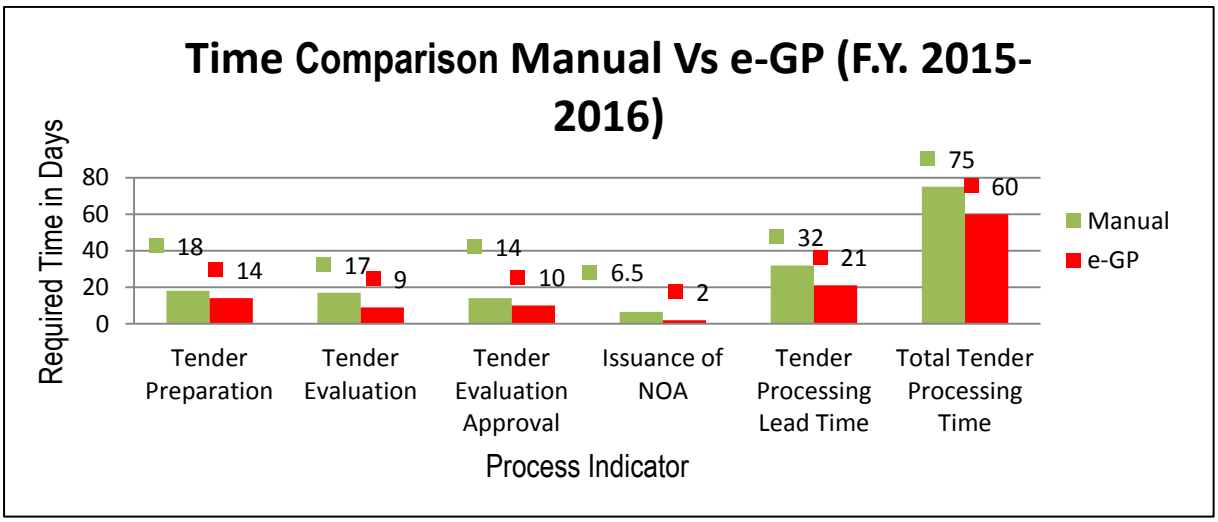


Source: Office of the Executive Engineer, Comilla PWD Division, Comilla

Based on the Figure 3.7 and 3.8, it can be seen that time has been reduced effectively in the e-GP process for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in Comilla PWD Division, Comilla at different stages can be represented as follows:

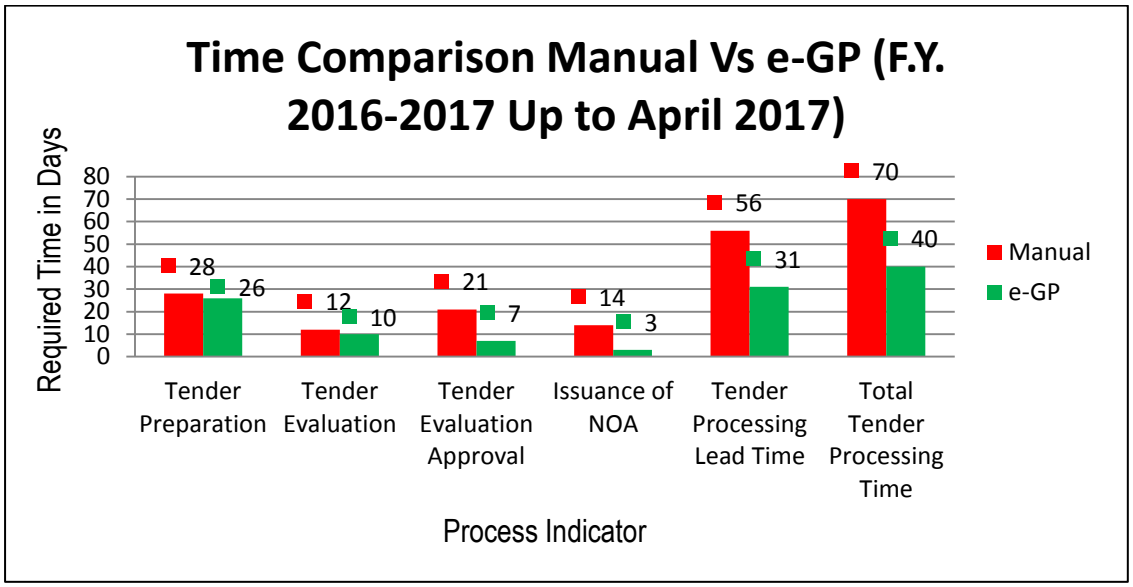
- Time savings for a single tender is 30 Days for F.Y.: 2015-2016
- Time savings for a single tender is 30 Days for F.Y.: 2016-2017 Up to April 2017

Figure 3.9: Required time for different stages of tender processing for PWD E/M Division-6, Dhaka (in F.Y. 2015-2016)



Source: Office of the Executive Engineer, PWD E/M Division-6, Dhaka

Figure 3.10: Required time for different stages of tender processing for PWD E/M Division-6, Dhaka (in F.Y. 2016-2017 up to April 2017)

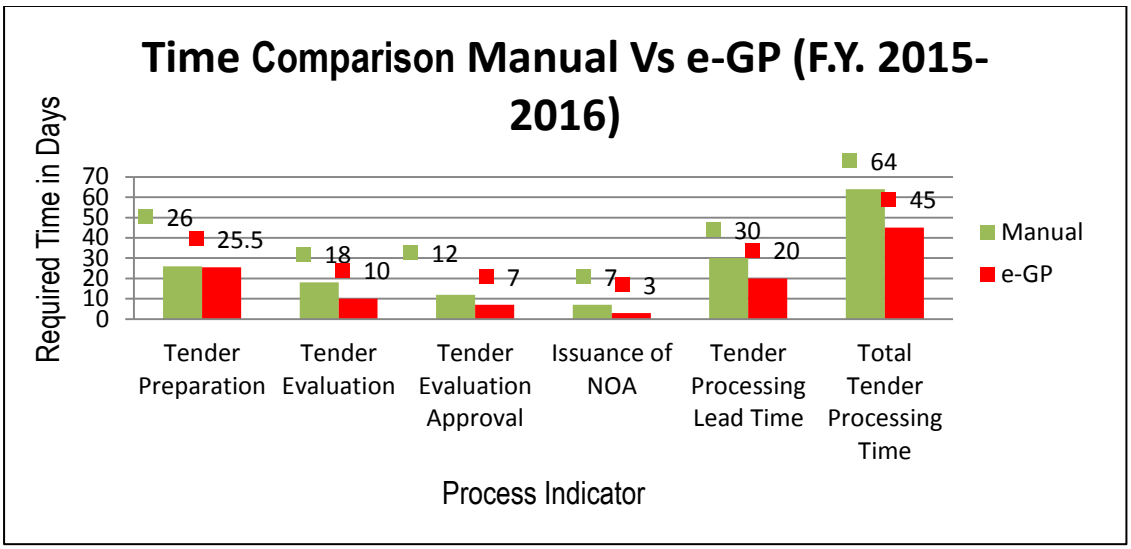


Source: Office of the Executive Engineer, PWD E/M Division-6, Dhaka

Based on the Figure 3.9 and 3.10, it can be seen that time has been reduced effectively in the e-GP processes for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in E/M Division-6, Dhaka at different stages can be represented as follows:

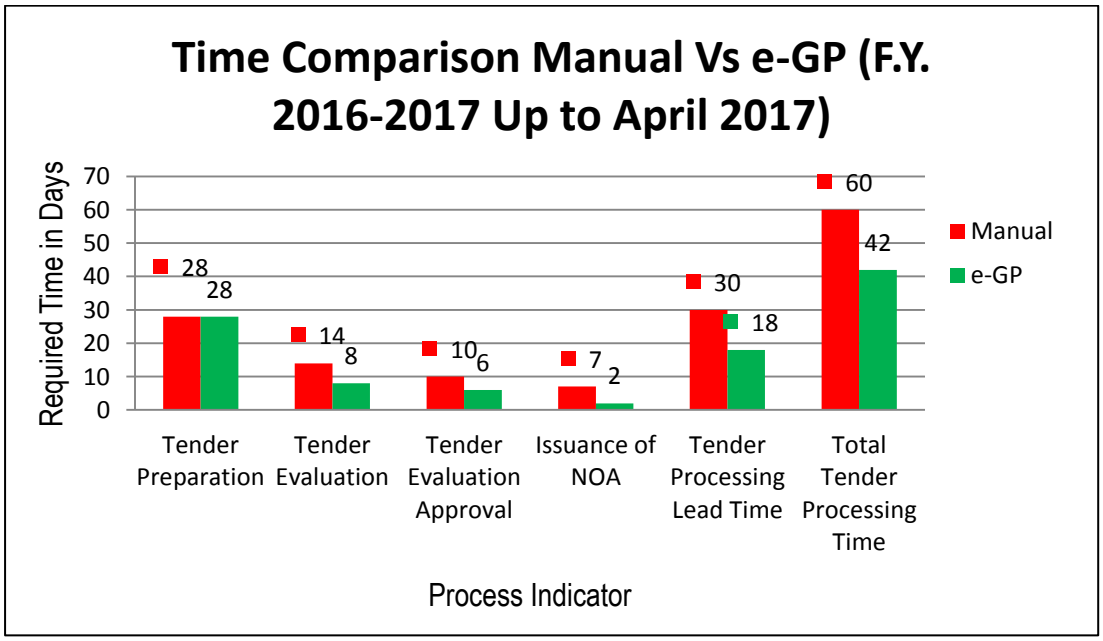
- Time savings for a single tender is 15 Days for F.Y.: 2015-2016
- Time savings for a single tender is 30 Days for F.Y.: 2016-2017 Up to April 2017

Figure 3.11: Required time for different stages of tender processing for PWD E/M Division-7, Dhaka (in F.Y. 2015-2016)



Source: Office of the Executive Engineer, PWD E/M Division-7, Dhaka

Figure 3.12: Required time for different stages of tender processing for PWD E/M Division-7, Dhaka (in F.Y. 2016-2017 up to April 2017)

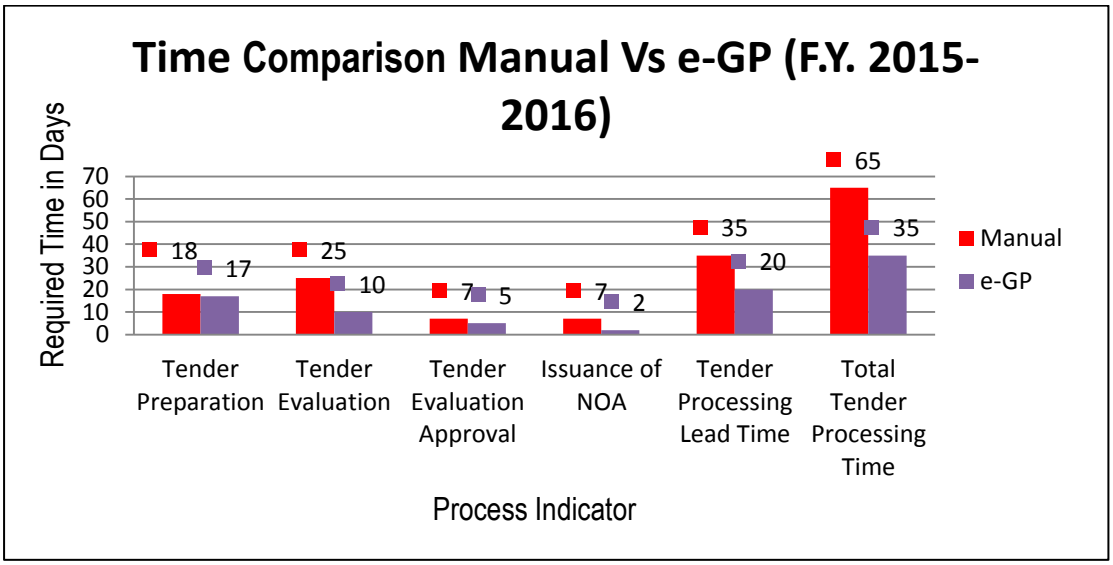


Source: Office of the Executive Engineer, PWD E/M Division-7, Dhaka

Based on the Figure 3.11 and 3.12, it can be seen that time has been reduced effectively in the e-GP processes for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in E/M Division-7, Dhaka at different stages can be represented as follows:

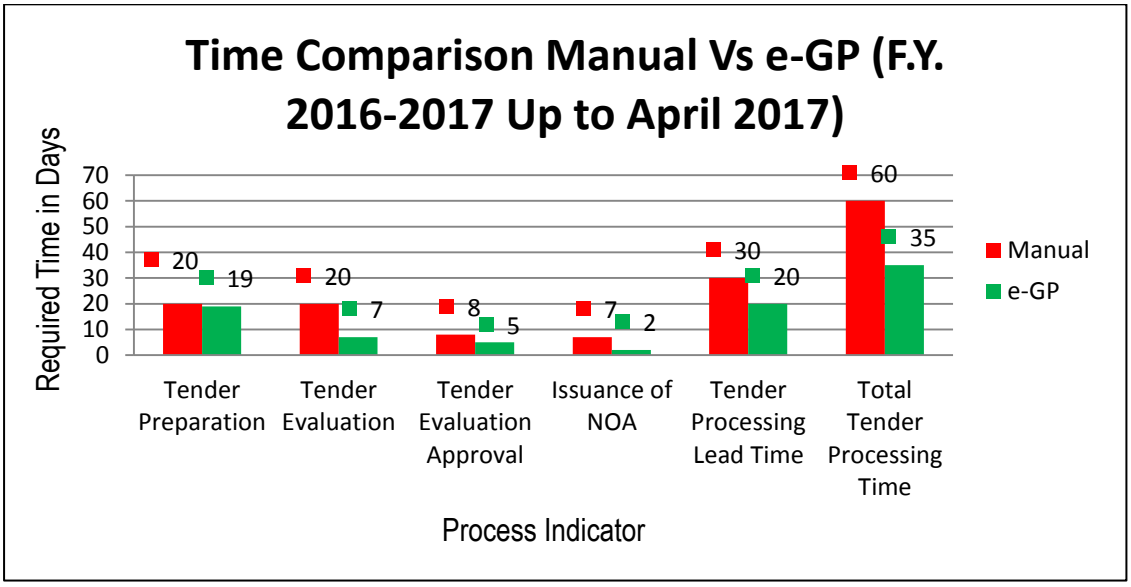
- Time savings for a single tender is 19 Days for F.Y.: 2015-2016
- Time savings for a single tender is 18 Days for F.Y.: 2016-2017 Up to April 2017

Figure 3.13: Required time for different stages of tender processing for PWD E/M Division-4, Dhaka (in F.Y. 2015-2016)



Source: Office of the Executive Engineer, PWD E/M Division-4, Dhaka

Figure 3.14: Required time for different stages of tender processing for PWD E/M Division-4, Dhaka (in F.Y. 2016-2017 up to April 2017)

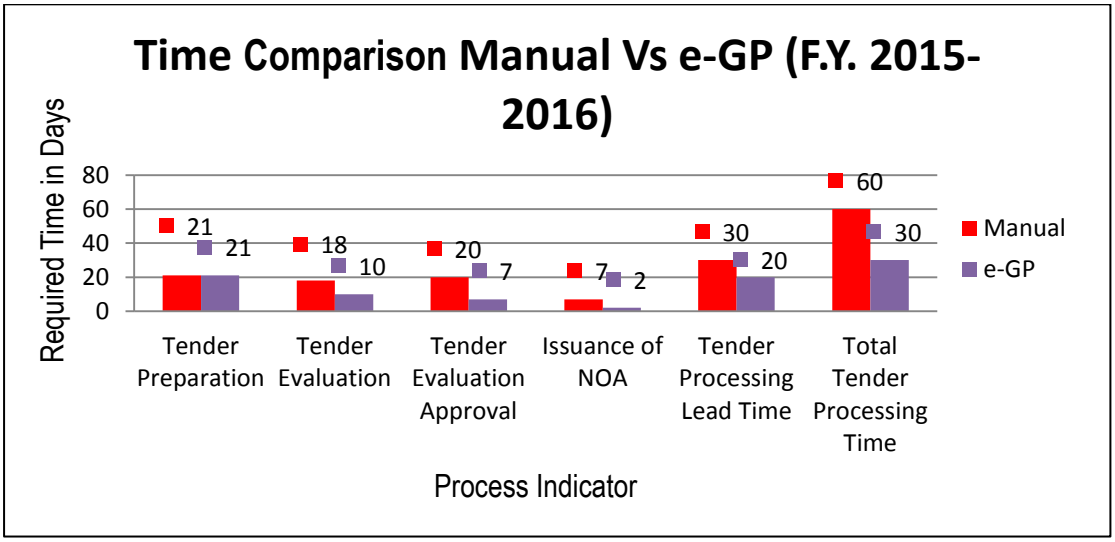


Source: Office of the Executive Engineer, PWD E/M Division-4, Dhaka

Based on the Figure 3.13 and 3.14, it can be seen that time has been reduced effectively in the e-GP processes for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in E/M Division-4, Dhaka at different stages can be represented as follows:

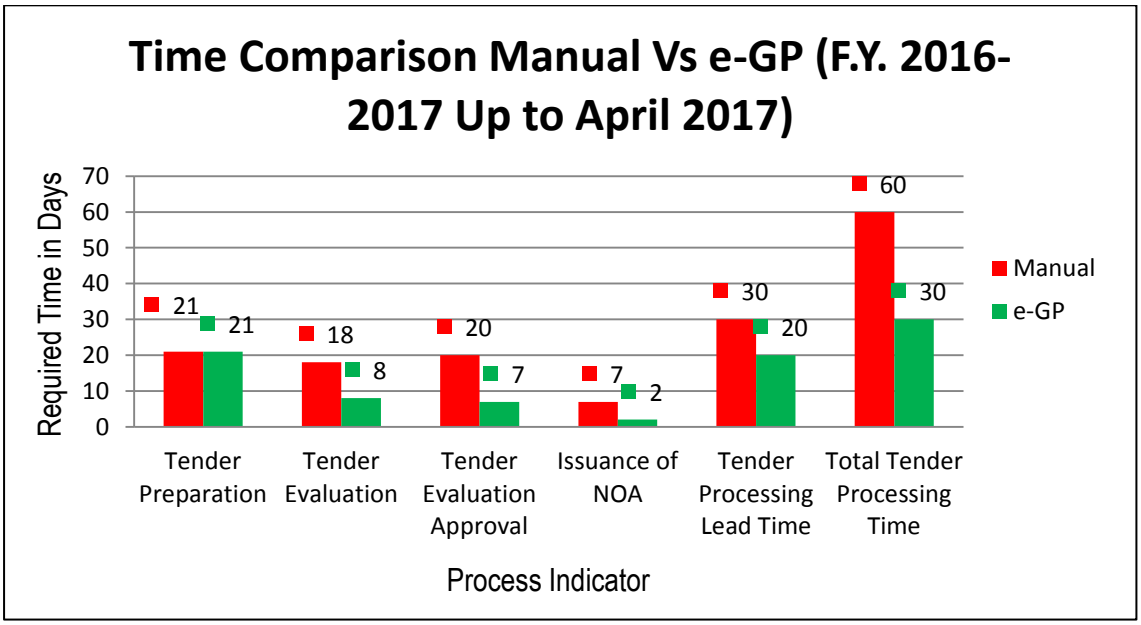
- Time savings for a single tender is 30 Days for F.Y.: 2015-2016
- Time savings for a single tender is 25 Days for F.Y.: 2016-2017 Up to April 2017

Figure 3.15: Required time for different stages of tender processing for PWD E/M Division-5, Dhaka (in F.Y. 2015-2016)



Source: Office of the Executive Engineer, PWD E/M Division-5, Dhaka

Figure 3.16: Required time for different stages of tender processing for PWD E/M Division-5, Dhaka (in F.Y. 2016-2017 up to April 2017)

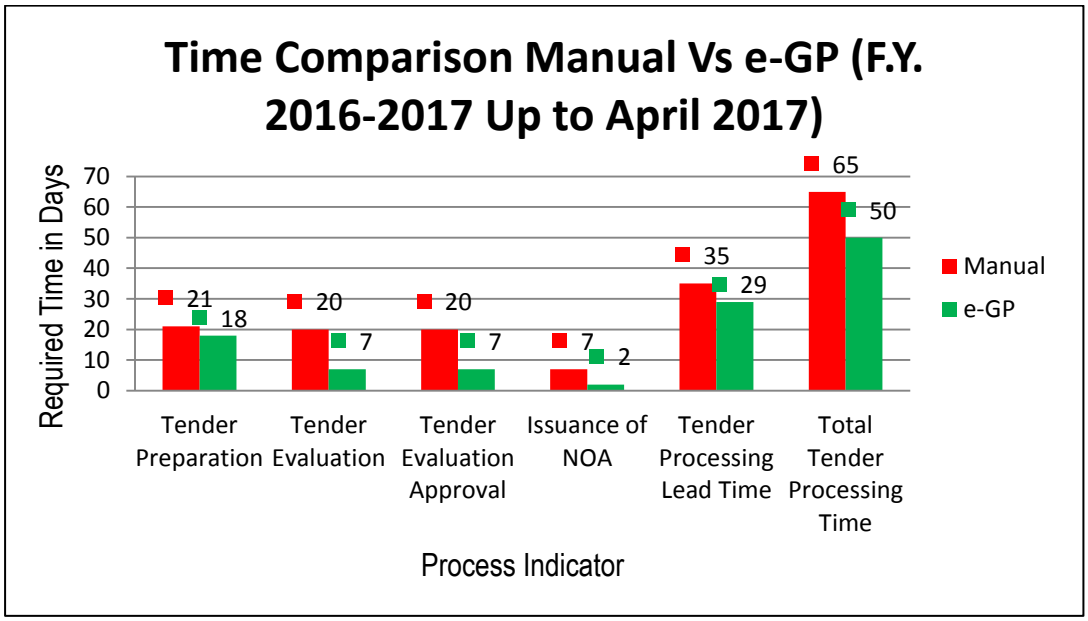


Source: Office of the Executive Engineer, PWD E/M Division-5, Dhaka

Based on the Figure 3.15 and 3.16, it can be seen that time has been reduced effectively in the e-GP processes for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in E/M Division-5, Dhaka at different stages can be represented as follows:

- Time savings for a single tender is 30 Days for F.Y.: 2015-2016
- Time savings for a single tender is 30 Days for F.Y.: 2016-2017 Up to April 2017

Figure 3.17: Required time for different stages of tender processing for PWD Office, Urban Building Safety Project, Dhaka (in F.Y. 2016-2017 up to April 2017)



Source: PWD Office, Urban Building Safety project, Dhaka

Based on the Figure 3.15 and 3.16, it can be seen that time has been reduced effectively in the e-GP processes for the 3 stages: Tender Evaluation, Tender Evaluation Approval and Issuance of NOA. Time savings in Urban Building Safety Project, Dhaka at different stages can be represented as follows:

- Time savings for a single tender is 15 Days for F.Y.: 2016-2017 Up to April 2017

3.5 Findings and Analysis

3.5.1 Findings and Analysis of the Cost Saving Performance

The result shows that, e-GP was a revolutionary step in procurement process. As e-GP has a significant impact on PE offices, but the survey only focus on operating cost issue. In this respect, the result claims that in manual tender, different types of extra cost involve in the different stages of the tendering process to ensure that action is taken properly. As an example, in case of tender evaluation report sent to Approving Authority (AA), concerned TEC Chairperson arranges to send the report‟s hard copy by a messenger to assure that the report is properly sent to the Approving Authority within time frame. It does involve a messenger‟s conveyance and daily allowance cost for the respective PE. Similarly for Issuance of NOA, PE needs to assure that the NOA is properly sent to respective tenderer within time frame, who is going to be awarded the tender. So, again communication via messenger is required and it involves cost. On the other hand, in e-GP process the system assure that, all kinds of reports, documents, letters, comments etc. should be sent to respective concern within a moment just after applying a command in the system. So any operational cost related to TER sent to AA and Issuance of NOA on manual tender is now completely eliminated in e-GP.

Similarly in manual tender, PE needs to ensure availability of tender document‟s hard copy for different packages in the office before tender document selling deadline. But the volume of tender document is huge and thus tender preparation cost is high. There are paper, printing, photocopy related expenditures are involved here which expenditures is not required in case of e-Tender or e-GP. Also for e-Tender there is no need to prepare any report on paper. Thus paper savings also reduced any kind of operational cost. So any operational cost related to tender preparation and TER preparation on manual tender is now significantly reduced in e-Tender. Newspaper advertisement cost in e-Tender also significantly reduced as the details advertisement of tender is now published in e-GP portal. As it is a new technology still there is an obligation for PE to publish tender advertisement very briefly in newspapers. So newspapers advertisement cost in e-Tender is not completely eliminated but significantly reduced comparing to manual tender, as details package information is needed to provide in newspaper for manual tender.

According to PPR‟2008, PE needs to provide honorarium for members of TOC and TEC. Total

number of members for TOC and TEC is 8 (TOC Member 3 nos and TEC Member 5 nos) on the other hand in e-Tender, according to e-GP guidelines total number of members for TOC and TEC is 5 (TOC Member 2 nos and TEC Member 3 nos). As total number of members is reduced, respective honorarium value is also reduced in e-Tender. In manual tender there is a cost involve in arrangement of different types of tender related meetings in PE"s office, like pre-tender meeting, tender evaluation meeting etc. In e-Tender this types of meeting is done by virtually in online. Thus cost eliminated for this purpose. In manual tendering there is another cost that is the cost related to tender box security at multiple locations. PE has an expenditure on this purpose unofficially. As in e-Tender the Tender Submission in multiple locations concept is not applicable, so any type of cost related to multiple locations (i.e. tender collection cost from multiple locations also) is completely eliminated in e-GP.

3.5.2 Findings and Analysis of Time Management Performance

The analysis shows that by introducing e-GP system it has been possible to reduce lead time of tendering procedure. When considering the average tender preparation time in open tendering method (average number of days between publishing of advertisement and tender submission deadline) it is shown that, 22 days for manual tender and 20 days for e-Tender. Selected 6 PE offices show a reduced time in this indicator. But keeping sufficient time in this case is compliance to PPR, 2008.

In case of tender evaluation time (average number of days between tender opening and completion of evaluation) and tender evaluation approval time (average number of days taken between submission of tender evaluation and approval contract) an interesting findings is observed here. In manual tender selected 6 PE offices report shows that most of the value for average tender evaluation time is within 20 days except for E/M Division-4 which is 25 days but in case of e-Tender all of these values are within 10 days for F.Y. 2015-2016 and F.Y. 2016-2017 up to April 2017 except for Urban Building Safety Project which calculation is only for F.Y. 2016-2017. Again, in manual tender selected 6 PE offices report shows that most of the value for average tender evaluation approval time is above 07 days, for some offices above 20 days (Comilla in F.Y: 2015-16 and 16-17). But in case of e-Tender most of these values are significantly reduced compare to the values show for manual tender.

To keep the tender evaluation time within time frame is the responsibility of tender evaluation committee (TEC) members. For the district level PE offices concerned official of those PE offices are act as a member of TEC (i.e. XEN of the district, SDE of the subdivision). On the other hand, to keep the tender evaluation approval time within timeframe is the responsibility of AA. For PWD most of the cases the AAs are Superintending Engineers for the circles, Additional Chief Engineers for the zones or Chief Engineer (HOPE). These two indicators (tender evaluation time and tender evaluation approval time) value is fully dependent on human skills. Concerned officials dedication and responsibility for ensuring time compliance for these two stages help to improve on time management.

In case of time for issuance of NOA to tenderer (average number of days between final approval and notification of award (NOA)) there is a positive impact on time management for selected 6 PE offices for e-Tender compare to manual tender. Most of the cases the result shows that time saving are achieved in this indicator for e-Tender. Because, in case of e-Tender PE notified as quickly as AA just sent him the approval online and PE can also take prompt action for issuance of NOA accordingly. Here the process efficiency is the main factor for time saving.

In case of tender processing lead time (average number of days between tender opening and notification of award (NOA)) and total tender processing time (average number of days between invitation for tender (IFT) and Notification of Award (NOA)) there is a significantly positive impact on time management for selected 6 PE offices for e-Tender compare to manual tender. Most of the cases the result shows that time saving are achieved in this indicator for e-Tender. Basically these two indicators are the combination of previous indicators and represent the overall time. Thus these performance indicators for e-Tender are better than manual tender. In case of all, in F.Y.: 2015-16, the indicators value for Urban Building Safety Project is showing 0 (zero) days in the report. Values for these indicators can‟t be 0 (zero). This happened because in F.Y.: 2015-16, for Urban Building Safety Project office, Dhaka there was no tender. Thus the report shows the processing time as 0 (zero).

3.5.3 Summary of Findings

Both the analysis (from questionnaire survey and website data) reveals that e-GP has positive impact on operational cost of tendering and lead time of procurement. e-GP brought uniformity

among all the PE offices on procurement activities. The basic expectation of introducing any kind of new system or technology is to reduction of its operational cost compare to the existing system. The basic advantage of an internet based system is, it is a paperless system and it gives assure to user that what information he need to send, receive or share to others is properly communicated by the system. So paper saving is possible and messenger function can be eliminated in e-Tender. That‟s why, there is a cost reduction for each tender is occurred in case of e-Tender compare to manual tender.

Like cost less time is required for tendering process as technology reduced some human effort which is time consuming. The analysis shows that, in manual tender user can manipulate the time (date) especially for evaluation of tender and approval of tender evaluation report. But in e-Tender once an activity is done like sign the report, publish, send or receive a notification corresponding time is recorded in the system for future audit trail. User is aware that, there is no scope to manipulate the time. Thus users‟ have a tendency to complete any activity within stipulated time to ensure time compliance.

Thus the overall results show that, e-Tender or e-GP reduces the cost and time in procurement process.

Chapter 4: Analysis for Effectiveness

In the previous chapter, how e-GP can save the cost and time in procurement process is shown. This chapter analyzes how e-GP can enhance the transparency in the procurement process.

4.1 Specific Discussion

At an early stage, e-GP can provide access to a whole range of public procurement information at low cost and independently of time and location. Governments achieve a high level of transparency if they use the Internet for the free disclosure and distribution of public procurement information. Such information typically include the relevant legislation, policies and guidelines, procurement plans and notices, bidding documents, minutes of procurement activities, and contract award results. In reducing the asymmetry of public procurement information, e-GP contributes to increasing the competition in terms of quantity (participation) and quality (openness and fairness)

The application of online technologies can ensure compliance with the existing procurement policy end legislation. An e-GP system can automate the required procurement procedures thus allowing neither purchasing agencies nor bidders to deviate from the public procurement process. In this way, e-GP helps governments to reduce the opportunities for corruptive practices.

While enhanced compliance contributes to avoiding corruption and fraud, the transparency of real time procurement information allows the early detection of corruptive and fraudulent activities. In addition, e-GP contributes to reducing corruption and fraud by conducting the procurement process online and collecting all procurement data into a securely operated electronic system. Consequently, in-person contacts between purchasing agencies and bidders are no longer required, the risk of manipulating procurement information and documents can be minimized, and the availability and completeness of public procurement audit trails can be improved (Ruhunnabi, 2015).

4.2 Methodology for Hypothesis 3: Transparency in e-Tendering Process

It can be assumed that based on the discussion so far, implementing tendering process in e-GP system transparency should be achieved by a PE office. Considering this hypothesis a questionnaire survey was conducted within PWD officials, who are in charge of different PE offices. The survey questionnaire is attached as a reference at the end of this paper (Appendix-A).

4.2.1 Questionnaire Survey

Questionnaire was developed to assess e-GP portals system, information and service quality along with user‟s satisfaction level. Also some questions reflect the benefits of e-GP. The questionnaire included three parts. These parts are general information of the respondents, opinions regarding e-GP portal and their recommendations for any improvement needed. Eight questions were prepared asking for general information about respondents such as the name, designation, work experience and procurement experience. Second part of questionnaire consists of 26 questions related to e-GP portals considering benefits, information, system, service and satisfaction. 2 questions were respondent‟s opinion about problems and potential improvements of e-GP portal. (The questionnaire is included in Appendix -A)

4.2.2 Interviews

2 bidders were interviewed in depth. Open ended questions were asked and responses were noted down. It was very helpful to analyze the effectiveness of the e-GP process.

4.2.3 Overview of the survey questionnaire

The respondents were asked to give their perception on the basis of 5 statements. They are following:

Strongly Agree : Respondents have full confidence to the statement and no more expectations from the system.

Agree	:	Respondents have full confidence to the statement and have some expectations from the system but not that much necessary.
Neutral	:	Respondents are unsure about the statement.
Disagree	:	Respondents don‟t have confidence to the statement and the have more expectations from the system which should be fulfilled.
Strongly Disagree	:	Respondents don‟t have confidence to the statement and the have expectations from the system which must be fulfilled in order to continue the use of e-GP system.

4.2.4 Questions and Responses

Survey questionnaire of this study had 26 questions. Question No. 1 to 8 was about respondent‟s demographic details, their role and experience in procurement. Then questions No. 10-25 were asked about respondent‟s level of agreement/disagreement regarding some statements which reflect their perceptions and experience about e-GP. Finally question No. 9 and 26 reflects user‟s expectations and suggestions to improve the system. Summary of responses are given below.

Question-01: "Are you a registered user of e-GP in Bangladesh?"

Question-02: "Which one is your role or function regarding e-GP? (select multiple if applicable)"

All of the respondents (100%) were the registered users of e-GP portal shown in Figure 4.1. Most of the users have multiple procurement roles in e-GP shown in Table 4.1

Figure 4.1: Registered and Non-registered user of e-GP system

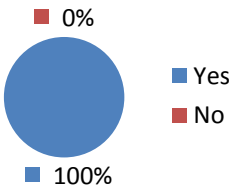


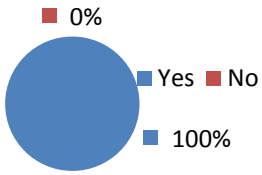
Table 4.1: Role of the respondents in e-GP process

Role	No. of Respondents
Approving Authority	1
Authorized officer	0
Procuring Entity	3
TEC/Member	5
TOC/Member	6

Question-03: "Do you have training on e-Government (e-GP) procurement? (if yes then please specify the number of days)"

All of the respondents had training in e-Government procurement shown in Figure 4.2

Figure 4.2: Respondents trained in e-GP



Question-04: "How long are you working in public procurement? (Mention years)"

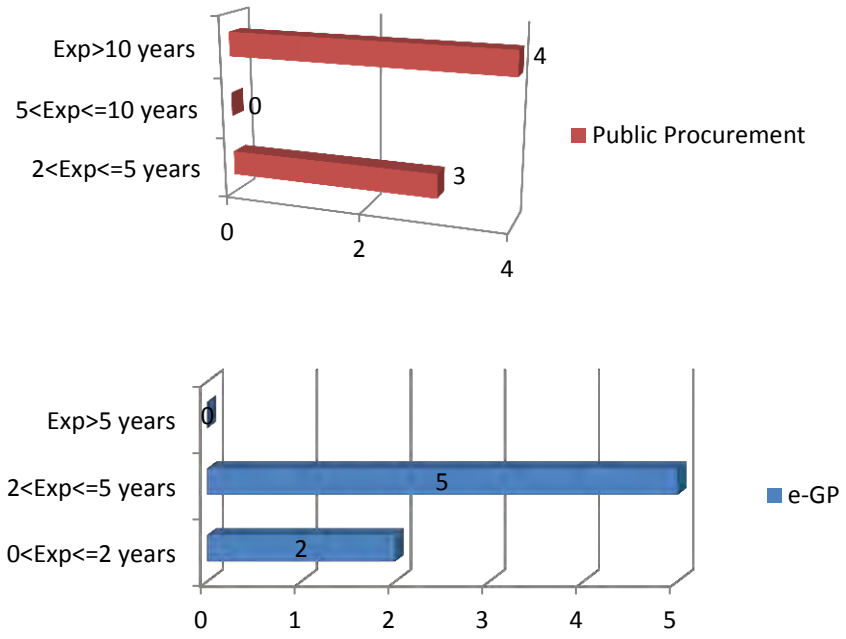
Question-05: "How long are you using e-GP? (Mention years)"

Question-06: "Approximately how many tenders have you invited/prepared through e-GP system?"

Question-07: "On an average how many Suppliers participated in each tender?"

Respondents were well experienced in public procurement and using e-GP system for long time. They came with various level of experience. The Figure 4.3 shows the various experience levels of the respondents.

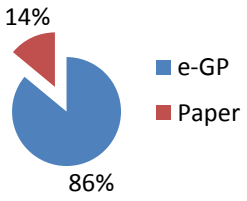
Figure 4.3: Comparison between experience in public procurement and e-GP



Question-08: "What tendering system do you like?"

Most of the respondents (86%) mentioned the e-GP shown in Figure 4.4

Figure 4.4: Comparison the opinion between paper based and e-GP system



Question-09: "What are the problems you face while using e-GP?"

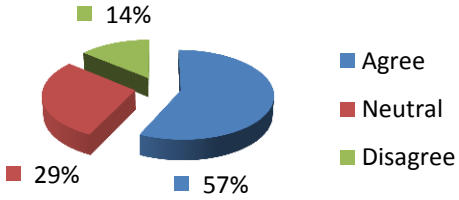
Respondents provided several problems they have faced while using e-GP system. These are listed below:

- Browser Incompatibility
- Slow e-GP server and random disconnection.
- Incompatible file system for BOQ uploading.

- Session expired within 10 minutes.
- Infrastructure is not developed and CPTU is not well communicative.
- Lack of reliable internet connection.
- Server Speed
- File System

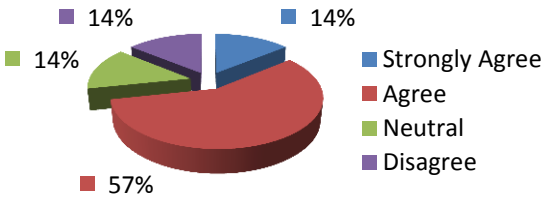
Question-10: "It is easy and convenient to use the e-GP systems"

This question was asked to assess how users found the interface and workflow of the e-GP system. In response to this statement, 57% respondents „Agreed" and 29% of the respondents were „Neutral", and 14% „Disagreed" with the statement.



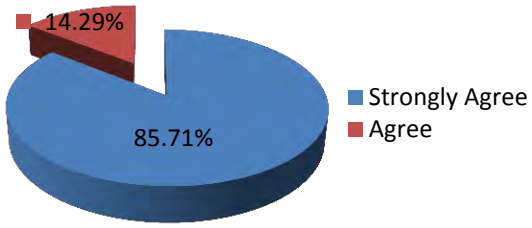
Question-11: "The Information of the e-GP system is complete"

The respondents expressed the information provided by the e-GP System as complete by responding „Strongly Agreed" (14%) and „Agreed" (57%). 14% of the respondents responded as „Neutral" with the statement and 14% „Disagreed".



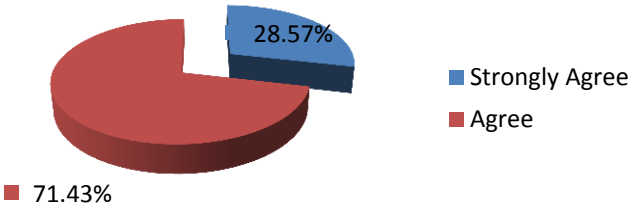
Question-12: "The Information of the e-GP system is accurate"

85.71% respondents with the statement „Agreed" and 14.29% „Strongly Agreed". None is „Neutral", „Disagreed" or „Strongly Disagreed".



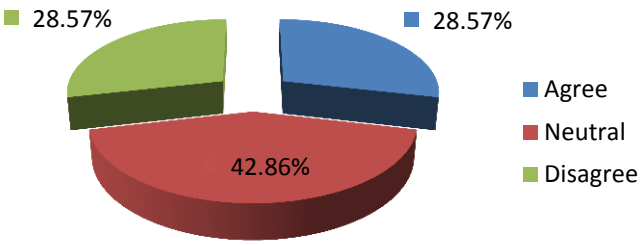
Question-13: "The Information of the e-GP system is secure"

Respondents perceive e-GP System as a secure one by „Strongly Agreed" (28.57%) and „Agreed" (71.43%) with the statement.



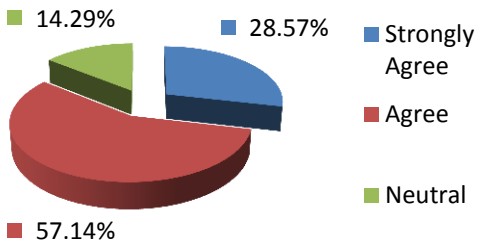
Question-14: "The e-GP system is reliable"

About e-GP systems reliability, 28.57% respondents „Agreed" with the statement. 42.86% responded as „Neutral" and 28.57% „Disagreed".



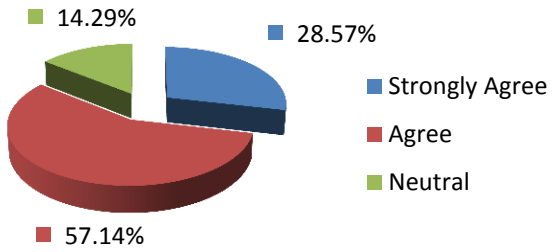
Question-15: "The use of e-GP system reduces the time of procurement cycle"

28.57% respondents „Strongly Agreed" and 57.14% of the respondents „Agreed" with the statement. There were some responses as „Neutral" (14.29%).



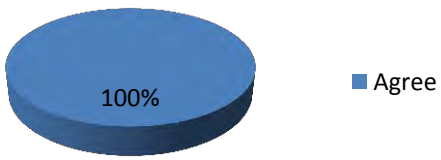
Question-16: "The use of e-GP system improves procurement performance (efficiency and effectiveness)"

28.57% respondents „Strongly Agreed" and 57.14% of the respondents „Agreed" with the statement. There were some responses as „Neutral" (14.29%).



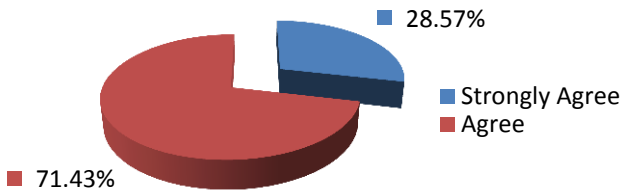
Question-17: "The use of e-GP system makes Decision making faster"

All of the respondents (100%) „Agreed" with this statement.



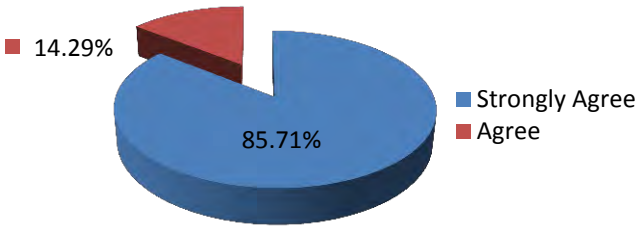
Question-18: "The use of e-GP system ensures competition"

Most of the respondents expressed that e-GP system can ensure competition. 28.57% respondents „Strongly Agreed" and 71.43% of the respondents „Agreed" with the statement.



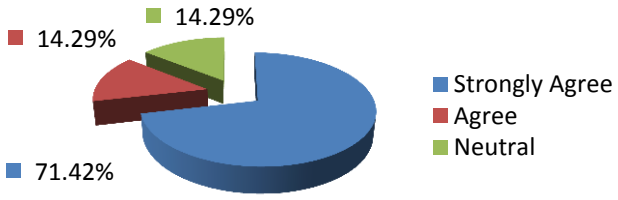
Question-19: "The use of e-GP system is helpful to reduce corruption"

e-GP system can be a major tool to reduce corruption as 85.71% respondents „Strongly Agreed" and 14.29% „Agreed" with this statement.



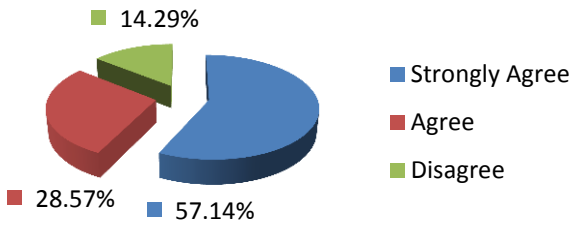
Question-20: "The use of e-GP system is helpful to reduce Coercion"

Again respondents express positive effect of e-GP system as 71.42% respondents replied „Strongly Agreed" , 14.29% respondents „Agreed" and 14.29% respondents were „Neutral" with this statement. None „Disagreed" or „Strongly Disagreed".



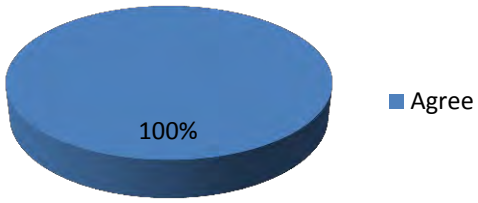
Question-21: "The use of e-GP system is helpful to reduce fraudulent practice"

57.14% respondents 'Strongly Agreed' and 28.57% of the respondents 'Agreed' with this statement, while 14.29% respondents 'Disagreed' with the statement.



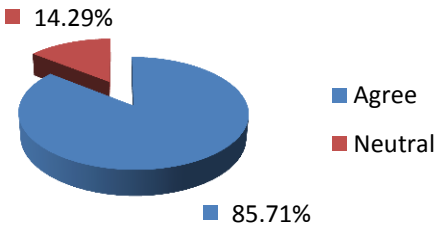
Question-22: "The e-GP system is Transparent"

e-GP systems seems to be treated as transparent as 100% „Agreed" with this statement.



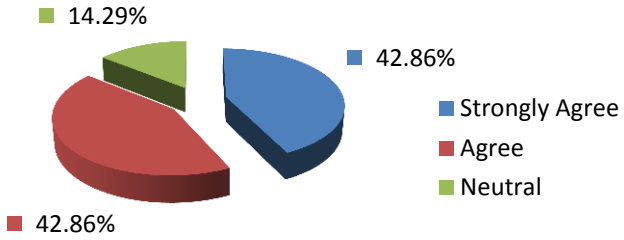
Question-23: "The e-GP system is more accountable"

In response to this statement, 85.71% respondents „Agreed" with the statement. 14.29% was „Neutral". None „Disagreed" or „Strongly Disagreed".



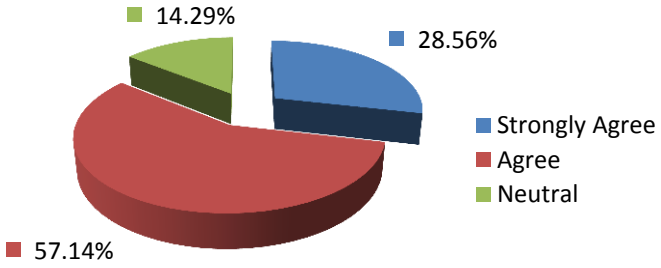
Question-24: "Power interruption and failure is one of the major Problem for e-GP Operation"

Above 85% of the respondents thinks power failure as a major problem for e-GP operation as 42.86% respondents „Strongly Agree" and „Agreed" each with this statement. Only 14.29% was „Neutral".



Question-25: "Your office has adequate hardware and internet support for e-GP Operation"

Most of the respondents support the statement as 28.56% respondents „Strongly Agreed", 57.14% „Agreed" and 14.29% reported as „Neutral".



Question-26: "Do You have any suggestions for the improvement of e-GP system?"

Respondents provided several suggestions to improve the e-GP system. These suggestions include server up gradations, software customization, process simplification, training need, browser compatibility, infrastructural obstacles. Summary of the suggestions are listed below:

- Server Speed should be improved it has a very slow response time and browser issue should be removed.
- Infrastructure Development should be ensured
- Certificate verification is required

- Responsiveness criteria and pre/post qualification criteria should be more specific in the e-GP system.
- All stakeholder of the e-GP process need extensive training and knowledge sharing regarding the system.
- Billing system needed
- Evaluation system should be simplified and detailed.
- Some interface are not compliant with PPR 2008, they should be aligned.

4.3 Analysis and Findings

4.3.1 Findings of Questionnaire Survey

A descriptive analysis was done on the data found against the question no 10 to 25. As the data collected from the respondents for these questions is ordinal data, key findings are listed in Table 4.2 below:

Table 4.2: Findings of the questionnaire survey

No.	Questions	Findings
10	It is easy and convenient to use the e-GP systems	Users indicated e-GP system is easy to use and there is more option to improve the user experience
11	The Information of the e-GP system is complete	Majority of the respondents agreed (57%), however few had different opinions such as 14% disagreed, 14% neutral and 14% strongly agreed.
12	The Information of the e-GP system is accurate	Most users (85.71%) indicate e-GP system provide accurate information
13	The Information of the e-GP system is secure	All users (100%) think e-GP system is secure
14	The e-GP system is reliable	Most of the respondents were neutral 42.86% but equal number of users were in the opposite point such as 28.57% disagreed and 28.57% agreed
15	The use of e-GP system reduces the time of procurement cycle	Most users (57.14% agreed and 28.57% strongly agreed) think e-GP system reduced the time of procurement life cycles
16	The use of e-GP system improves	Most users (57.14% agreed and 28.57%

	procurement performance (efficiency and effectiveness)	strongly agreed) think e-GP system has improved the procurement performance.
17	The use of e-GP system makes decision making faster	All users (100% agreed) find e-GP system has improved decision making
18	The use of e-GP system ensures competition	All users (71.43% agreed and 28.57% strongly agreed) express that e-GP system ensures competition
19	The use of e-GP system is helpful to reduce corruption	All users (71.43% agreed and 28.57% strongly agreed) identified that e-GP system can be a major contributor to reduce corruption.
20	The use of e-GP system is helpful to reduce coercion	Most users (71.42% strongly agreed and 14.29% agreed) found e-GP system to be helpful to reduce coercion
21	The use of e-GP system is helpful to reduce fraudulent practice	Most users (57.14% strongly agreed and 28.57% agreed) found e-GP system can prevent fraudulent practice
22	The e-GP system is transparent	Users (100% agreed) have full confidence over the transparency of e-GP system
23	The e-GP system is more accountable	Majority of the respondents agreed (85.71%) e-GP system as more accountable.
24	Power interruption and failure is one of the major problem for e-GP operation	Most users (85%) express that power interruption and failure is one of the major problems for e-GP operation.
25	Your office has adequate hardware and internet support for e-GP operation	Most of the users (28.56% strongly agreed and 57.14% agreed) express that they have required infrastructure.

4.3.2 Findings from Interview

2 of the bidders were interviewed who are directly related with the e-GP system. Summary of the discussion with them are as following:

- Bidders are needed training regarding tender submission.
- e-GP system should be more reliable such as user friendly, compatible software etc.
- e-GP system is transparent in respect of corruption, collusion, fraudulent and coercion.
- e-GP system reduce the procurement cycle time. It means that, time has been reduced between the tender opening time and issuance of NOA.
- Cost related to the participating in the tendering process is low.

4.3.3 Summary of findings

Analysis of questionnaire survey and interview responses reveals that users have significant positive perception towards e-GP system. Users opinioned that they had fair level of confidence on the system‟s reliability and transparency. However users also think e-GP system is not much open for customization of modification which is necessary to make e-procurement process more acceptable. Findings show that e-GP system need to provide information through customized reports according to the user need. Findings also show the support service quality is moderate especially from CPTU and the online service desk. Users have strong belief that e-GP has several potential benefits. e-procurement is making the procurement process easier and less time consuming. Also e-GP system is enhancing the efficiency of procurement process and compliance to the Public Procurement Rules. There needs an infrastructure for internet service. Both type of users who have or don‟t have training on e-GP system are moderately satisfied with the existing functionalities of e-GP system and have fair level of satisfaction on overall system.

Chapter 5: Conclusion and Policy Recommendations

5.1 Conclusion

e-GP is one of the blazing issues in e-government at this moment in time, and certainly it needs more attention to ensure its success. The objectives of this study was to evaluate the efficiency and effectiveness in the procurement process of PWD by using the e-GP system and providing recommendations that will ease the successful implementation of e-GP system in PWD to increase the efficiency and effectiveness.

Chapter three shows that e-GP has positive impact on operational cost of tendering and lead time of procurement. e-GP brought uniformity among all the PE offices on procurement activities. The basic expectation of introducing any kind of new system or technology is to reduction of its operational cost compare to the existing system. The basic advantage of an internet based system is, it is a paperless system and it gives assure to user that what information he need to send, receive or share to others is properly communicated by the system. So paper saving is possible and messenger function can be eliminated in e-Tender. That‟s why, there is a cost reduction for each tender is occurred in case of e-Tender compare to manual tender. Like cost less time is required for tendering process as technology reduced some human effort which is time consuming. Beside this, analysis shows that in manual tender, user can manipulate the time (date) especially for evaluation of tender and approval of tender evaluation report. But in e-Tender once an activity is done like sign the report, publish, send or receive a notification corresponding time is recorded in the system for future audit trail. User is aware that, there is no scope to manipulate the time. Thus users‟ have a tendency to complete any activity within stipulated time to ensure time compliance. Thus the overall results show that, e-Tender or e-GP reduces the cost and time in procurement process.

Chapter four shows that, users have significant positive perception towards e-GP system. Users opinioned that they had fair level of confidence on the system‟s reliability and transparency However users also think e-GP system is not much open for customization of modification which is necessary to make e-procurement process more acceptable. Findings show that e-GP

system need to provide information through customized reports according to the user need. Findings also show the support service quality is moderate especially from CPTU and the online service desk. Users have strong belief that e-GP has several potential benefits. e-procurement is making the procurement process easier and less time consuming. Also e-GP system is enhancing the efficiency of procurement process and compliance to the Public Procurement Rules. There needs an infrastructure for internet service. Both type of users who have or don‟t have training on e-GP system are moderately satisfied with the existing functionalities of e-GP system and have fair level of satisfaction on overall system.

So, e-GP can be a prime candidate to ensure accountability and transparency in public procurement process at PWD. Users in PWD think e-GP system is reliable and can be a major tool against CFCC (Corruption, Collusion, Fraudulent and Coercion) practice in Public procurement process. Analysis shows e-GP system has shown its potential to enhance the efficiency and effectiveness of public procurement process and procurement performance monitoring. Also users have dissatisfaction/moderate level of satisfaction regarding customization/modification options of e-GP system, information and reports generated by the system and current functionalities. However the e-GP system has gained a fair level satisfaction regarding overall use of the system. Thus efficiency and effectiveness has increased in the procurement process of PWD by using the e-GP system.

5.2 Recommendation

Based on the analysis of this research and international best practices, some practical measures can be recommended for ease the successful implementation of e-GP system in PWD to increase the efficiency and effectiveness:

- Regular training should be arranged for the contractors.
- Regular meetings should be initiated between CPTU and PWD officials can be helpful for resolve many unwanted software related problems.
- Various fees needed in e-GP operation should be kept on a reasonable level in order not to run the risk of reducing supplier‟s participation.
- The server system and data center of e-GP system needs to be upgraded.

- Any e-GP related problems should be solved collectively.
- Some of the indicators value fully depends on user‟s awareness and skills. There are no alternatives without user‟s capacity development in this regard.
- Internet connectivity throughout the country should be improved.

5.3 Future Works

e-GP has very important potential to contribute to the economic growth of the country by ensuring efficiency and effectiveness in public procurement. However this research was done based on 3 areas such as cost, time and transparency in the procurement process of PWD. Similar research work could be done for PWD considering factors other than cost, time and transparency. Later a separate research work could be done for PWD‟s manual contract and e-CMS.

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Appendix-A: Questionnaire

BRAC Institute of Governance and Development (BIGD)

BRAC University

Survey Questionnaire

Research Topic: Evaluating the e-GP System in Public Works Department (PWD)

(Questionnaire for officials of PWD)

Questionnaire No. _____ Date: / /

Name of the Respondent: _____ Gender : ☐ Male ☐ Female

Office Name: _____ Designation: _____

Phone No. _____ Email: _____

01. Are you a registered user of e-GP in Bangladesh?

☐ Yes ☐ No

02. Which one is your role or function regarding e-GP? (select multiple if applicable)

☐ Hope ☐ Approving Authority ☐ Authorized officer ☐ Procuring Entity

☐ TEC/Member ☐ TOC/Member

03. Do you have training on e-Government (e-GP) procurement? (if yes then please specify the number of days)

☐ Yes _____ Days ☐ No

04. How long are you working in public procurement? (Mention years)

_____ Years

05. How long are you using e-GP? (Mention years)

_____ Years

06. Approximately how many tenders have you invited/prepared through e-GP system?

_____

07. On an average how many Suppliers participated in each tender?

_____

08. What tendering system do you like?

☐ Paper based ☐ e-GP

09. What are the problems you face while using e-GP?

9.1

9.2

9.3

To what extent do you agree or disagree with the following statements (question no 10 - 25)

10. It is easy and convenient to use the e-GP systems

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

11. The Information of the e-GP system is complete

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

12. The Information of the e-GP system is accurate

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

13. The Information of the e-GP system is secure

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

14. The e-GP system is reliable

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

15. The use of e-GP system reduces the time of procurement cycle

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

16. The use of e-GP system improves procurement performance (efficiency and effectiveness)

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

17. The use of e-GP system makes Decision making faster

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

18. The use of e-GP system ensures competition

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

19. The use of e-GP system is helpful to reduce corruption

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

20. The use of e-GP system is helpful to reduce Coercion

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

21. The use of e-GP system is helpful to reduce fraudulent practice

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

22. The e-GP system is Transparent

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

23. The e-GP system is more accountable

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

24. Power interruption and failure is one of the major Problem for e-GP Operation

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

25. Your office has adequate hardware and internet support for e-GP Operation

☐ strongly agree ☐ agree ☐ neutral ☐ disagree ☐ strongly disagree

26. Do You have any suggestions for the improvement of e-GP system?

_____

Signature of the Respondent

***Declaration**: This Questionnaire has been prepared for the purpose of dissertation as partial requirement of Masters in Procurement and Supply Management (MPSM) program run by the BRAC Institute of Governance and Development (BIGD) of BRACUniversity, and will be used only for academic purpose.*

Appendix-B: Data Table for Time Analysis

1. PWD Office: Office of the Executive Engineer, Comilla PWD Division, Comilla

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	28	26	28	26
2.	Tender Evaluation	Tender Evaluation Time	14	10	12	10
3.	TER Approval	Tender Evaluation Approval Time	28	7	21	7
4.	Contract Award	Time for Issuance of NOA to Tenderer	14	3	14	3
		Tender Processing Lead Time	56	31	56	31
		Total Tender Processing Time	70	40	70	40

2. PWD Office: Office of the Executive Engineer, PWD E/M Division-6, Dhaka.

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	18	14	20	14
2.	Tender Evaluation	Tender Evaluation Time	17	09	10	07
3.	TER Approval	Tender Evaluation Approval Time	14	10	12	06
4.	Contract Award	Time for Issuance of NOA to Tenderer	6.5	02	07	02
		Tender Processing Lead Time	32	21	30	22
		Total Tender Processing Time	75	60	65	56

3. PWD Office: Office of the Executive Engineer, PWD E/M Division-7, Dhaka.

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	26	25.5	28	28
2.	Tender Evaluation	Tender Evaluation Time	18	10	14	08

3.	TER Approval	Tender Evaluation Approval Time	12	7	10	06
4.	Contract Award	Time for Issuance of NOA to Tenderer	07	03	07	02
		Tender Processing Lead Time	30	20	30	18
		Total Tender Processing Time	64	45	60	42

4. PWD Office: Office of the Executive Engineer, PWD E/M Division-4, Dhaka.

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	18	17	20	19
2.	Tender Evaluation	Tender Evaluation Time	25	10	20	07
3.	TER Approval	Tender Evaluation Approval Time	7	5	8	5
4.	Contract Award	Time for Issuance of NOA to Tenderer	7	2	7	2
		Tender Processing Lead Time	35	20	30	20
		Total Tender Processing Time	65	35	60	35

5. PWD Office: Office of the Executive Engineer, PWD E/M Division-5, Dhaka.

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	21	21	21	21
2.	Tender Evaluation	Tender Evaluation Time	18	10	18	08
3.	TER Approval	Tender Evaluation Approval Time	20	7	20	7
4.	Contract Award	Time for Issuance of NOA to Tenderer	7	2	7	2
		Tender Processing Lead Time	30	20	30	20
		Total Tender Processing Time	60	30	60	30

6. PWD Office: Urban Building Safety Project, Dhaka.

Sr. No.	Indicator Category	Process Indicator	F.Y. : 2015-2016		F.Y. : 2016-2017 (Up to April 2017)	
			Manual (Days)	e-GP (Days)	Manual (Days)	e-GP (Days)
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	No data	No data	21	18
2.	Tender Evaluation	Tender Evaluation Time			20	07
3.	TER Approval	Tender Evaluation Approval Time			20	7
4.	Contract Award	Time for Issuance of NOA to Tenderer			7	2
		Tender Processing Lead Time			35	29
		Total Tender Processing Time			65	50