Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices

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Dedicated

To

My beloved Children

Sirsha & Shihan

Declaration

I, the undersigned would like to declare that this paper is solely presented for the dissertation works titled as “Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices”. My polite request is to the honorable supervisor to accept this dissertation work which is the partial fulfillment of the requirement for the degree of “Masters in Procurement and Supply Management (MPSM)”.

I declare that the work done in this dissertation is unique and it is not used elsewhere. I am benefited by the work as I have obtained the knowledge and skill on e-GP implementation in LGED that certainly help me to play an important role in my organization. I limited my study in one governmental organization “LGED” which is the largest engineering department of the Government of the People’s Republic of Bangladesh in light of workforces involved, procurement expenditure incurred and existence of the Procuring Entity offices. I would like to do more investigations in future with this related topic.

Md. Saifur Rahman Joarder

January 29, 2015

Certificate of Originality by the Supervisor

The project entitled "Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices" has been prepared by Md. Saifur Rahman Joarder, (ID No. 14282023), BRAC Institute of Governance and Development (BIGD), BRAC University and submitted as partial fulfillment of the requirements for Masters in Procurement and Supply Management under my guidance and supervision. The report has been prepared based on original work done by the author. So far as I am aware, he did not submit this report as a required subject of study to this University or to any other institution. The report may be accepted for evaluation.

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Acknowledgement

I have the pleasure of presenting this dissertation as an integral part of my study on Masters in Procurement & Supply Management. I am very glad for doing this study under the BRAC Institute of Governance and Development (BIGD), BRAC University.

First, I would like to express my thanks and gratefulness to the Almighty Allah for ability given me to complete this great job. I would like to express sincere thanks and deep gratitude to my honorable supervisor Dr. M. Shamim Kaiser, Assistant Professor, Institute of Information Technology (IIT), Jahangirnagar University for his ingenious help, scholastic guidance, valuable suggestions, encouragement for preparation questionnaire and constructive criticism throughout the research work as well as reviewing the manuscript. His briefed but very significant to the point advice made me courageous to complete the dissertation work. Directly or behind the screen, always his eyes were tracing my activities to reach the goal. Without his keen assistance and persuasion this task would not be a successful one.

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The Author

Executive Summary

The dissertation report titled as "Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices" is submitted to the BRAC Institute of Governance and Development (BIGD), BRAC University. Identification, analyzing, quantification and observing the efficiency gain of LGED through e-Tendering process are the main purpose of this dissertation works. This report contains 5 (five) chapters.

Electronic Government Procurement (e-GP) solutions make purchasing activities more effective in terms of both times, cost and as well as improve quality of the procurement methods by ensuring compliance. e-GP is changing the way businesses purchase goods, works and services. Since most products and services are procured using the Internet, the application of e-GP is inevitable in both manufacturing and services. There are limited comparison studies in the literature on the adoption of e-Procurement in a country, that is, at the specific organization-level. Nevertheless, such a study will encourage other organizations to develop policies, strategies, and procedures to implement e-GP. Understanding the importance of such a study, I have collected the data regarding compliance and time issues are from secondary sources (websites) and conducted a questionnaire-based survey for cost comparison after adoption of e-GP in LGED. The main objective of this study is to identify whether there is any significant positive effect regarding the implementation of e-Procurement. A conceptual framework has been developed for the adoption of e-GP, and this subsequently has been tested with related data of LGED collected from websites and questionnaire-based survey. Also, this study examines the current status of e-GP adoption in LGED. The results indicate both current and future benefits would encourage the adoption of e-GP and make it sustain. Some critical success factors include adequate financial support, availability of internet based communication systems, top management support and commitment, enhancement of the manpower's skill through rigorous training activities, understanding the priorities of the organization and having suitable secured networks.

The Chapter 1 is termed as Introduction. e-GP system is launched in Bangladesh in the year 2011. LGED with other three Government Agency RHD, REB and BWDB were committed to the Government of Bangladesh that they will implement e-GP in their organization gradually. The target is fixed as 35%, 60%, 80% and 100% of the tender will be invited through e-GP in the year F.Y: 2013-14, F.Y: 2014-15, F.Y: 2015-16 and F.Y:2016-17 respectively.

The title of Chapter 2 is Literature Review. This chapter explains only two issues one is the introduction of e-Tendering process and its requirement, challenges & benefits. The other is its implication on

different countries both developed and developing. In the context of developing country, discussion on the procurement system of Bangladesh is also addressed.

The Chapter 3 describes acknowledgment of LGED. LGED's function, objectives, organogram, functional unit of LGED, areas of intervention and development out lay are briefed in this section. Beside this the background of e-GP implementation in LGED, impact of PPRP-II (AF)'s DLI target on 4 target agency, LGED's initiative to cope up the system it's all tier gradually, present e-GP status on LGED & expected future outcome is assessed. At last, a SWOT analysis is done to know the internal strength and weakness of the organization in e-GP implementation. Furthermore, this analysis will show the opportunity and threat of the organization that is external.

The Chapter 4 is the positive findings of e-GP implementation comparing with manual tendering process based on collected data analysis and discussion. In order to identify and quantify the assumption, logical and statistical analysis is done. In this chapter, for each assumption, research methodology is also explained separately. It is schematically shown that e-Tender brought very significant and high procurement performance outcome compare to manual tender on cost, quality and time related areas of procurement process. In this regard it is not possible to collect a lot of procurement related data from the offices where both types of tendering process are running simultaneously. I have chosen my organization LGED and its' 6 district PE offices as a sample for my study. I have done a comparative analysis for different indicators under two tendering process within same financial year (F.Y: 2012-13 & 2013-14). I have discussed case by case about the findings, analysis and my views about the result. Finally I have introduced an overview about the findings.

The last Chapter of this dissertation contains conclusion, recommendation and future works. Conclusion tells either e-GP provides the important principles of procurement such as economy and efficiency and others compared to manual tender. As a researcher, it can be concluded that research outcome will help the LGED as well as CPTU to take the strategic decision on e-GP and procurement process as well as identify the present short comings.

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Abbreviation

AA	Approving Authority
ADP	Annual Development Programme
AE	Assistant Engineer
BWDB	Bangladesh Water Development Board
CPTU	Central Procurement Technical Unit
DLI	Disbursement Link Indicators
e-GP	Electronic Government Procurement
e-CMS	Electronic Contract Management System
e-Tender	Electronic Tender
F.Y:	Financial Year
GDP	Gross Domestic Product
HOPE	Head of the Procuring Entity
HQ	Head Quarter
ICT	Information and Communications Technology
IMED	Implementation Monitoring and Evaluation Division
LGEB	Local Government Engineering Bureau
LGED	Local Government Engineering Department
LGD	Local Government Division
LGI	Local Government Institute
MLGRD&C	Ministry of Local Government, Rural Development and Co-operatives
NOA	Notification of Award
PE	Procuring Entity
PD	Project Director
PPRP (II) AF	Public Procurement Reform Project (II) Additional Financing
PPA'06	Public Procurement Act 2006
PPR'08	Public Procurement Rule 2008
RWP	Rural Works Program
RHD	Roads and High way Department
REB	Rural Electrification Board
SME	Small and Medium-sized Enterprises
Sr. AE	Senior Assistant Engineer
TIP	Thana Irrigation Program
TTDC	Thana Technical Development Committee
TOC	Tender Opening Committee
TOR	Tender Opening Report
TEC	Tender Evaluation Committee
TER	Tender Evaluation Report
UE	Upazila Engineer
WP	Works Program
XEN	Executive Engineer

Chapter-1: Introduction

1.1 Overview

Government procurement or public procurement must ensure transparency, efficiency & accountability to the general citizens and assure competitiveness, equitable treatment and free & fair competition amongst all intending persons wishing to participate in procurement. In Bangladesh, until 2003, these could not be ensured properly due to a lack of proper rules and regulation. To streamline the public procurement activities, in 2003, by World Bank's initiatives, Government of Bangladesh has made a revolution through introducing Public Procurement Regulation (PPR) 2003 which was legitimated in 2006 as Public Procurement Act (PPA) 2006 and later Public Procurement Rules (PPR) 2008. Since then government agencies are bound to abide by the act and rules very strictly in their procurement activities.

Over the last few years Bangladesh has made commendable progress in bringing a systemic change and creating a basic foundation for its public procurement system by mandating a uniform procurement policy. The annual volume of public procurement is estimated to be around US$ 3.0 billion in Bangladesh. It's a huge amount of money for a developing country. To improve the spending performance of the public money and to expedite the overall efficiency in public procurement activities, government is now gradually implementing the electronic Government Procurement (e-GP) system to all Government agencies after successful piloting e-Tendering process to the four target agencies. These organizations are Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), Roads and Highways Department of Bangladesh (RHDB) and Rural Electrification Board of Bangladesh (REBB).

1.2 Statement of the Problem

This is to mention that the Government of Bangladesh spends annually in the public procurement about 25% of GDP income. This is also remarkable that LGED solely spent almost 14% of development budget in F.Y: 2013-14 among several hundred government organization in public procurement. Year wise public expenditure by this organization evinces that LGED is keeping uptrend pattern in spending public money and earned the central government confidence as an efficient agency. LGED is also ready to take the challenges in e-GP operation shifting from manual operation and know way wants to lose its leadership in public procurement as before. It has been anticipated that LGED executes 4000 nos procurement contracts each year. Thus, it seems to be a good consideration to have a look what is

the effect of implementing e-Tendering (e-GP) process in performance efficiency issues on LGED's procurement activities comparing to its present & previous manual tendering process.

1.3 Research Objectives

The main goal of the research is to assess the performance efficiency of PE (procuring entity) offices of LGED after entering into e-GP system. This should be quantified by only three areas as cost, quality and time management issues. Here cost management refers only to the operational costs of tendering process as paper savings, staff savings, savings through electronic communication etc. Quality management refers compliance with PPA'06 and PPR'08 only. Time management refers time savings on complete cycle of tendering process. The details objective of this work is as follows:

- Ø To assess the saving in operational cost of the LGED's PE offices by entering into e-Tendering process.
- Ø To assess the efficiency gain by LGED's Govt. officials by inviting e-Tender frequently.
- Ø To assess the improvement of time management on e-Tendering process.
- Ø To identify any inevitable causes make the process lagging behind to achieve its implied benefit.

1.4 Outline of the Report

During the assessment of present performance efficiency issues by implementing e-Tendering process, response will certainly identify the organization's present and previous performance by manual tendering process and ask whether it achieve any positive effect by introducing new systems of technology. As a general concept, e-GP solutions will make purchasing activities more effective in terms of cost, quality & time management. If it is find that by implementing e-Tendering process there is no significant positive effect on cost, quality & time management on tendering process, then it is need to identify whether the causes behind this. Probable causes may be a learning curve effect, which can be overcome at the progress of time. If other issues which are inevitable at this moment find out during the assessment, then it will need to judge its future scenario accordingly.

Chapter-2: Literature Review

2.1 e-GP (e-Tendering)

2.1.1 Generic Definition of 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.

2.1.2 Generic Definition of e-Procurement

Any system that uses Information and Communication Technologies (ICT) in order to do business can be classified as e-Business system. In fact, e-Business is a broader definition of e-Commerce because it includes not only the buying and selling of goods and services, but also servicing customers, collaborating with business partners, conducting electronic transactions within an organization.

In this respect, e-Procurement is defined as a subset of e-Business concerning e-Commerce between private sector and public institutions where e-Commerce is intended as the activity of exchanging goods and services with some kind of payment by means of ICT. From this point of view, it is possible to make many definitions for e-Procurement.

In the simplest sense, e-Procurement means carrying out procurement decisions of the government online through the use of the Internet. In other words, e-Procurement is about transforming the processes associated with public procurement and refers to automating corresponding processes of public institutions. In other words, e-Procurement is more than simply buying online and it is changing the traditional way in which public institutions do business. e-Procurement involves the use of ICT in each step of the public procurement process from identification of the need to payment. Implementation of e-Procurement initiates automation of both internal and external processes associated with public procurement process.

In this regards, e-Government Procurement (e-GP) is the use of Information & Communications Technology (especially the Internet) by governments in conducting their procurement relationships with suppliers for the acquisition of goods, works, and consultancy services required by the public sector. It may help to understand e-GP not only from a technical but also from a business perspective.

e-Tendering component is developed to support competitive tendering process that is regulated by law. This component is suitable for acquisition of complex goods and services associated with the ICT such as embedded systems and obtaining of goods like construction and capital investment. These transactions are among the most challenging procurement activities because their technical content is diverse and difficult to define and they are subject to rapid technological change over the project life cycle. In addition, they involve combination of professional engineering services and supply of diverse hard and soft technologies. (WB, 2003)

The important point is to identify functionality to be performed online. Theoretically, all the functionality related to tendering can be performed online. The decision should be based on criteria such as culture, electronic readiness and human resources of public institutions.

2.1.3 Rationale of e-GP in Bangladesh Perspective

In our national budget, the public procurement has a substantial contribution that is almost 29%. So, once economy, the vital procurement principle is ensured that certainly leads to the economic development. Since integrity issue is almost ensured in e-GP, as such, economy becomes the compliance in receiving the tender. System generated performance actually ensures the efficiency in procurement. The same reason, compliance of environmental parameter is very easy. Political consensus is in favor of e-GP which might have been a strong hindrance. As such, social motivation and technical skill can bring Bangladesh in successful procurement implementation.

2.2 Requirement, Challenges and Benefits

2.2.1 Requirement & Challenges for e-Tendering

Most of the time, public institutions become unsuccessful in developing and carrying out the services they offer to the people in the web environment. The main reasons behind this are the overall ineffectiveness of the business processes, the difficulties of integration with back-office systems and the lack of common standards. In addition to these obstacles, perceiving ICT by public institutions as the only solution is also important. Each of these obstacles is to be explained below:

2.2.1.1 Overall Ineffectiveness of Existing Processes

It is important to improve the procurement processes of the government. Since the public procurement is central to the management of any operation and a comprehensive process covering every aspect of purchasing goods and services (such as determining the needs, ordering, payment and etc.), the effectiveness and efficiency of this process is essential to obtain goods and services of the right quality, at the right price and at the right time.

Therefore, for the government to benefit from e-Procurement, it needs to change/redesign its well-established public procurement processes. However, such changes are difficult to achieve, particularly for the government because the improvement of the public procurement process requires both the way of thinking and the way of behaving to change.

In summary, automating existing public procurement process using ICT will be the incorrect objective. To maximize e-Procurement benefits, public procurement processes must first be examined and re-engineered.

2.2.1.2 Difficulties of Internal and External Integration

Integration of e-Procurement system and back-office systems such as accounting, inventory management, public investments and etc. is important for both the public institutions and vendors. Since without such integration, the potential benefits of e-Procurement and also targeted efficiency and effectiveness cannot be achieved. In other words, it would not make sense to use the e-Procurement system while performing internal processes manually. It should also be considered that investments on back-office systems would be needed for public sector modernization in the wake of the networking revolution. Therefore, e-Procurement can serve as a driver of public information systems modernization investments that governments might otherwise delay."

2.2.1.3 Lack of Common Standards

e-Procurement remains a relatively new concept and standards for e-Procurement have yet to emerge or be developed. Lack of common open standards is seen as a significant barrier to supplier adoption because of the cost of maintaining electronic data in many different standards.

Open standards facilitate the implementation of e-Procurement system by providing common and interoperable platform for both public institutions and vendors enabling efficient and effective information exchange.

2.2.1.4 ICT Support

Electronic transformation of the public procurement process with support of the ICT can enhance both the efficiency and effectiveness of public institutions by simplifying administrative procedures existing in the public procurement process. However, the transformation of e-Procurement is not just a technological effort. In contrast, the transformation of e-Procurement requires fundamental changes in public administration and only a small part of this transformation can be done directly with the technology.

In other words, the ICT in itself should not be intended as either a solution or a key to success, but perceived as only an instrument to assess and improve existing procurement processes and to develop the e-Procurement solution. Therefore, attempts should not be made to make the processes fit the solution instead of controlling the technology to enable public procurement strategies.

2.2.2 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.

In the following sub-sections the benefits of e-Procurement will be described regarding the government and private sector separately.

2.2.2.1 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. The increased

efficiency and effectiveness of public procurement process will provide potential to reduce the cost of public procurement. These savings are due to:

- Ø Decrease in costs associated with publishing and getting information
  - ü 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.
  - ü Purchasing activities can be monitored better and statistical data for reporting on public procurement data and vendor activity will be provided.
  - ü Market search will become easier through the e-Catalogs of vendors.
  - ü Public institutions will access various goods and services of multiple vendors in a competitive environment.
- Ø Decrease in procurement transaction costs
  - ü Public procurement services like market search, ordering, tendering, etc. will become more efficient and effective.
  - ü Public resources will be used more efficiently and effectively.
    - Administrative costs and time such as time and cost associated with business meetings will be reduced.
    - Time spent in the requisition-to-payment cycle will be reduced through the use of electronic ordering, electronic invoicing and etc.
  - ü "Maverick buying" will be reduced.
  - ü Bureaucratic inertia will be reduced.
- Ø Increase competition
  - ü The public sector business opportunities will be accessible by all vendors, which in turn will enhance the competitive environment.
  - ü The purchasing power of the government can be better coordinated and costs of goods and services will be reduced through this aggregating purchasing volume.

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.

2.2.2.2 Benefits to the Private Sector

Improvement of public procurement process by the means of e-Procurement will also benefit and enable improvement in the private sector. At the simplest level, for vendors, e-Procurement means easier business dealings with the government.

The other benefits that are gained by implementing e-Procurement are listed below:

- The procurement process will become more efficient by reducing the transaction costs associated with gathering information and supply chain.
- Vendors will reach more public institutions.
- The information associated with public sector business opportunities and contract awards will be accessed easier and faster.
- Vendors will have a chance to present the technical and non-technical descriptions, prices and promotions related with their goods and services.
- The public procurement related processes like managing orders, managing inventories, financing, etc. will be more efficient and effective.
- Time and cost associated with business meetings will be reduced.
- The time consumed in the bureaucratic inertia will be reduced.
- New opportunities for SMEs will be formed such as increased participation in supply chain.

2.3 e-Tendering in Developed and Developing Countries

The uptake of e-Procurement in the government sector is on the rise. Developed nations such as Australia, Denmark, Singapore, the USA, Korea, and a few South American nations such as Chile and Brazil were the forerunners in implementing e-Procurement. The forerunners got into e-Procurement during the late 1990s. In India, the State of Andhra Pradesh pioneered with the implementation of e-Procurement during early 2000. Elsewhere in Asia, Philippines and Indonesia have embarked on implementing e-Procurement recently. Multi-lateral bodies such as the World Bank, Asian Development Bank, and Inter-American Development Bank have joined hands together to constitute a body for implementing e-Procurement all across the developing and less-developed nations. This body, named Multilateral Development Bank e-Government Procurement (MDB-e-GP), is actively promoting implementation of e-Procurement.

Government procurement is a voluminous activity, and in developing countries such as India, it is fast-growing. As per a country assessment report prepared by the World Bank, the Indian government is estimated to buy for US$ 100 billion each year. Similarly, across the globe, governments spend significant sums of money in public procurement. It is estimated that public procurement accounts for about 10-15%

of a nation's GDP. In a country, the government is typically the largest buying entity. Despite the significance, there have not been many analytical write-ups on implementation of e-Government Procurement (e-GP). The implementation of e-Procurement in the government setup is quite a challenging activity; in order to effectively deal with the challenges, it is vital that the nature of challenges are well-understood, and that the means to address the challenges.

2.4 Existing Procurement System of Bangladesh

A procurement system is a set of interaction or interdependent procurement components forming an integrated whole. Countries need well organized and structured procurement systems, where role and responsibilities of the procurement function are well defined. The key components of Public Procurement Systems consist of:

2.4.1 The Legislative and Regulatory Framework

This component describes either public procurement legislative and regulatory framework of Bangladesh achieves the certain standards and complies with applicable obligations. It covers the legal and regulatory instruments from the highest level (national law, act, regulation, decree, etc.) down to detailed regulation, procedures and bidding documents formally in use. The Public Procurement Act was enacted in Bangladesh in 2006 (PPA'06) followed by the Public Procurement Rules in 2008 (PPR'08). These two legal documents are considered at the level of world standard in the area of procurement as almost all the phases in tender management and contract management are covered with these complying generic procurement principles.

2.4.2 Institutional Framework and Procurement Governance

This component looks at how the procurement system as defined by the legal and regulatory framework in a country is operating in practice through the institutions and management systems that are part of the overall public sector governance in the country. There is a procurement secretariat office called CPTU (Central Procurement Technical Unit) is responsible to provide necessary assistance to comply act and rule. Furthermore, they provide STDs (Standard Tender Documents) to all Procuring Entity offices in the country. Each government offices have institutional set up to apply the procurement role as set in the act and rule. But still there is a room for improvement applying the procurement governance issue.

2.4.3 Procurement Operational-Market Practices

This component looks at the operational effectiveness and efficiency of the procurement system at the level of the implementing entity responsible for issuing individual procurement actions. It looks at the market as one means of judging the quality and effectiveness of the system when putting procurement

procedures into practice. This component is distinguished from Component 1 and Component 2 in that it is not looking at the legal/regulatory or institutional systems in a country but more at how they operate. This is the key area for LGED as its individual performance gives the competitive advantage compared to other organization.

2.4.4 Procurement Functional-Integrity and Transparency of the Public Procurement System

This component operates with integrity, has appropriate controls that support the implementation of the system in accordance with the legal and regulatory framework and has appropriate measures in place to address the potential for corruption in the system. It also covers important aspects of the procurement system that include stakeholders as part of the control system. There is lot of space for improvement in this area in Bangladesh.

Chapter-3: e-Tendering Process in LGED

3.1 Organization Selected for Study: LGED - A Public Sector

3.1.1 Introduction

The Local Government Engineering Department (LGED) is playing a pivotal role in rural infrastructure development. People at large in rural Bangladesh are now enjoying the benefits of LGED's different rural development projects. Rural infrastructure development projects undertaken by LGED are contributing a great deal towards the socio-economic development in the country along with the development of communication and market networks. Various activities under different projects have been creating short and long term employment opportunities for the poverty-stricken people. Similarly, LGED's infrastructure development activities, slum development activities and other socio-economic development activities in the urban areas have been creating employment opportunities and contributing towards environmental promotion.

Before I start my analysis on the "Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices" of this institution, I would first discuss briefly about the organization itself.

3.1.2 History of the Organization

The organizational background of LGED can be traced back to early sixties when implementation of Works Program (WP) comprising RWP, TIP and TTDC was started. A "Cell" was established under the Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) in 1970s. To administer WP nation-wide, the Works Program Wing (WPW) was created in 1982 borne on the Development Budget. It was converted into the Local Government Engineering Bureau (LGEB) under the Government Revenue Budget in October, 1984. LGEB was upgraded as the Local Government Engineering Department (LGED) in August, 1992. The organizational evolution of LGED is given below.

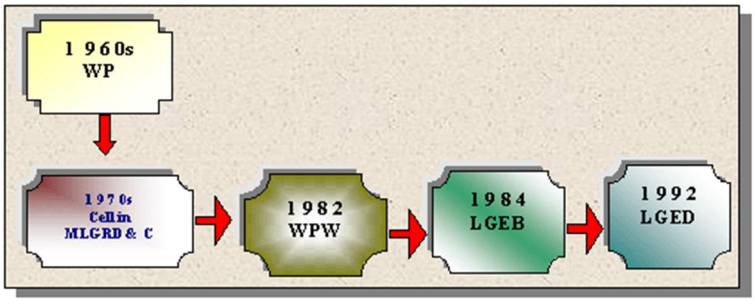

Fig 3.1: Evolution of LGED

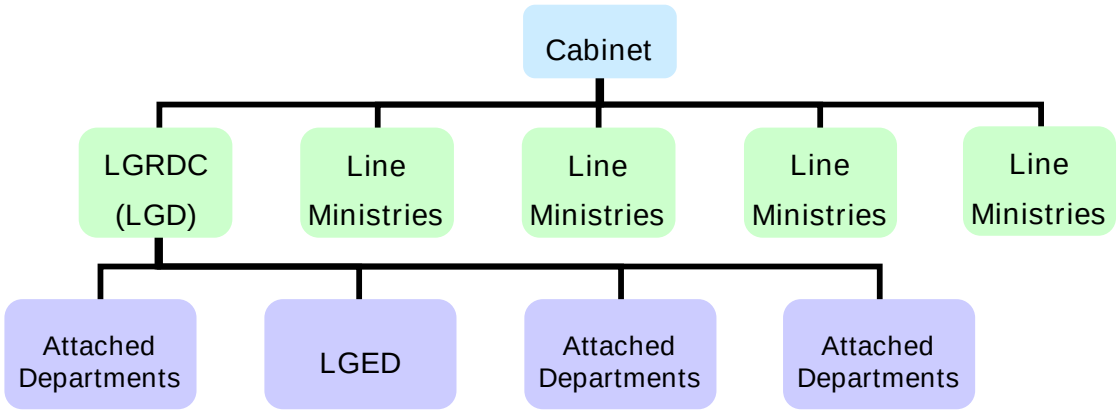

Fig 3.2: Organization's location in Government Hierarchy

3.1.3 Objectives of LGED

Current program of activities of the LGED has been developed on the basis of policies approved for the sub-sector under the Fifth Five Year Plan. The objectives of that policy are the following:

- Ø Reduction of poverty in the rural areas
- Ø Productive employment generation in the rural areas
- Ø Self-employment creation for the rural poor
- Ø Development of rural infrastructure
- Ø Development of basic infrastructure and services at zila, thana, union and village level
- Ø Development of small and landless farmers

The above objectives are sought to be achieved through the following strategies:

- Ø Development of rural infrastructure such as growth centers and roads, bridges and culverts connecting such centers
- Ø Provision of small irrigation and flood control related infrastructures
- Ø Preventing destitution through rural maintenance program

3.1.4 Major Functions & Responsibilities

The LGED looks upon its responsibilities in the following terms:

- Ø Provide technical support to the rural Local Government Institutions (LGIs)
- Ø Provide technical support to the urban LGIs
- Ø Planning, implementation, maintenance and monitoring of infrastructure development projects in the rural and urban areas
- Ø Prepare plan books, maps, database, design manuals, technical standards and specifications
- Ø Impart training to the LGED officials and LGI representatives.

3.1.5 LGED Organogram

LGED is headed by the Chief Engineer. He is supported by headquarter level offices, divisional level offices, regional level offices, district level offices and at the bottom tier upazila level offices. At HQ, there are 5 nos Additional Chief Engineer offices and 12 nos unit offices headed a Superintending Engineer. Furthermore, there exist 2 Additional Chief Engineer offices at divisional level, 14 Superintending Engineer offices at regional level, 64 Executive Engineer offices at district level and 489 Upazila Engineer offices at upazila level. The total number of engineers and other staff under the permanent establishment of LGED is 11068.

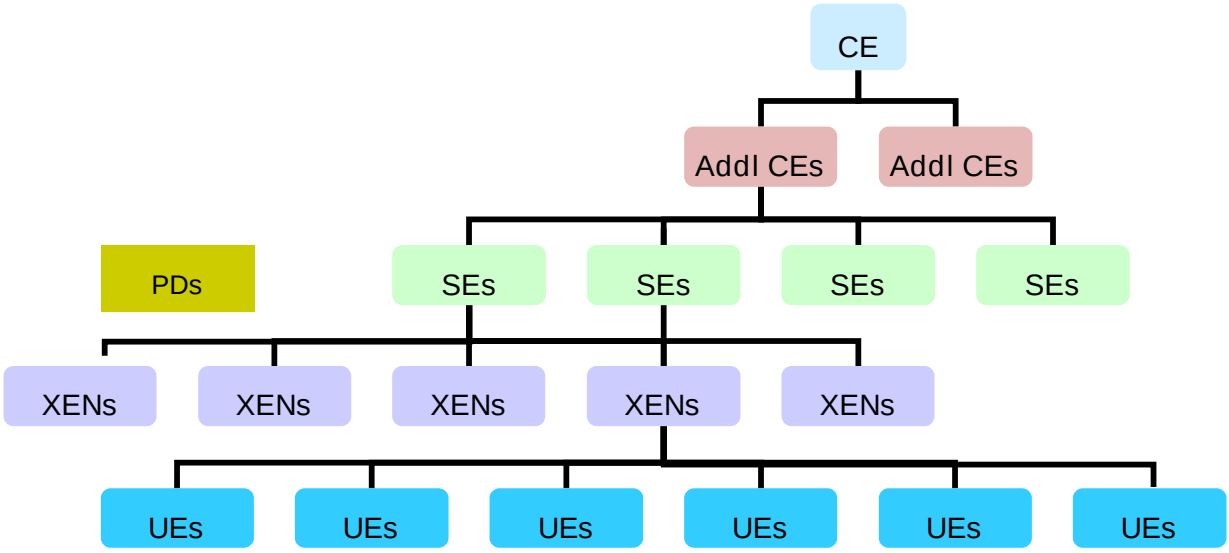

Fig 3.3: Chain of Command of LGED

Planning	Design	Project Monitoring & Evaluation
Admin	Urban Management	Integrated Water Resources Management
Quality Control	Building Management	Maintenance & Road Safety
Procurement	Training	ICT

Fig 3.4: Functional Units of LGED

3.1.6 Major Areas of Intervention

LGED's main responsibility is in rural area in infrastructure development. Also their involvement is in water and rural sector in rural area. But at present situation, their involvement is also in urban area.

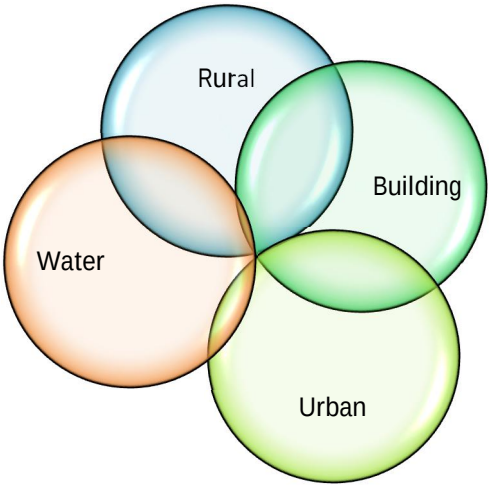

Fig 3.5: Area of Intervention

3.1.7 Development Outlay

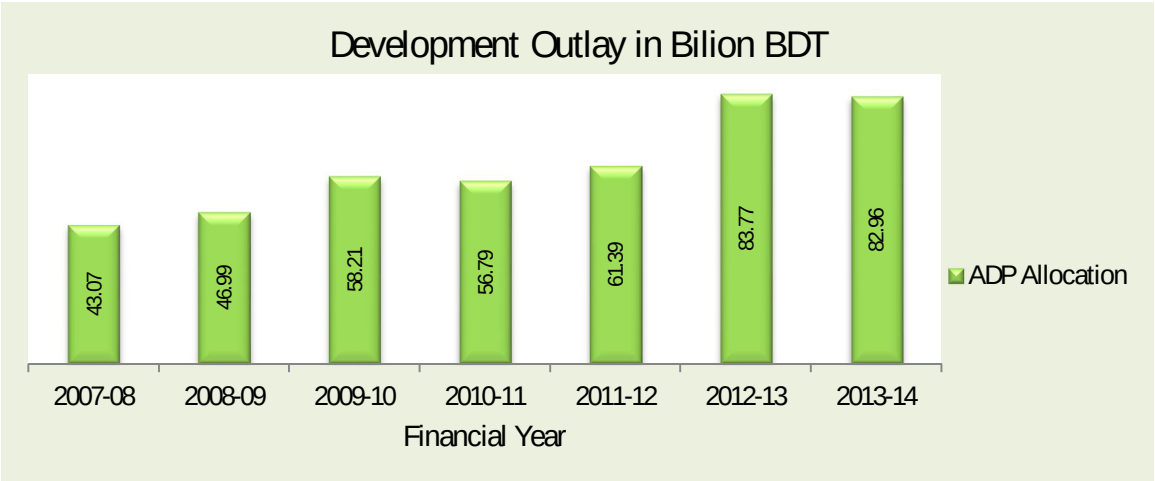

Fig 3.6: Year wise ADP Allocation

Sector	Projects	Cost (In Billion BDT)	Allocation (In Billion BDT)
RD&I	55	328.7567	42.2798
PPWS&H	15	64.1426	7.3152
Agriculture	3	14.0541	1.6115
Transport	3	15.5166	1.3800
Other Ministries	12	90.4777	22.2153
Maintenance	3	8.3480	8.1583
Total	91	521.2957	82.9601

Fig 3.7: Sector wise ADP Allocation in F.Y: 2013-14

3.2 Background of e-GP & PPRP-II (AF)

3.2.1 Background of e-GP in Bangladesh

The Government of the People's Republic of Bangladesh has approved the e-GP guidelines in pursuant to Section 65 of the Public Procurement Act, 2006 on February 2011. As per approved guidelines, e-GP system is being introduced in two phases.

In the first phase, e-Tendering process will primarily be introduced on pilot basis, in the CPTU and 16 (sixteen) Procuring Entities (PEs) under 4 (four) target agencies, namely: Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), Roads and Highways Department (RHD) and Rural Electrification Board (REB). The system will gradually be rolled out to 291 PEs of those 4 target agencies up to district level and ultimately it will be expanded to all the PEs of the government.

Procuring Entity will publish their tender notice in e-GP website. To participate in e-Tendering published on e-GP system, the tenderers/consulting firms/individual consultants/Govt. owned enterprises need to go through a registration process. Only after the successful registration process, a tenderer gets access to e-GP system dashboard and e-GP functions for participating in e-Tendering. Any fee stipulated in the tender document by PEs should be paid through scheduled member banks.

In the second phase, e-Contract Management System (e-CMS) will be introduced covering complete contract management processes such as work plan submission, defining milestone, tracking and monitoring progress, generating reports, performing quality checks, generation of running bills, vendor rating and generation of completion certificate.

3.2.2 The e-GP System

National e-Government Procurement (e-GP) portal (i.e. http://www.eprocure.gov.bd) of the Government of the People's Republic of Bangladesh is developed, owned and being operated by the Central Procurement Technical Unit (CPTU), IME Division 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 developed as a web portal, hosted in e-GP data center at CPTU, from where and through which PAs and PEs will perform their procurement related activities, i.e. to publish Annual Procurement Plans, Invitation for Tender (IFT), Request for Proposal (RFP), Request for Quotation (RFQ), Tender/Application/Proposals Preparation, Tender Submission, Opening, Evaluation, Contract Award Notices, Contract Management, Payments, Performance Monitoring through Procurement Management Information System with Key Procurement Performance Indicators, and other

procurement related information as required by the PPA'06 and PPR'08 along with subsequent amendments, using a dedicated secure web based dashboard.

As decided by the government, users may be charged and/or waived specified amount of money for different categories of use including registration (currently Tk. 5000.00 for registration and Tk. 2000.00 for annual renewal), For International tenderers and consultants, registration fee is USD $100 (US dollars one hundred only) and annual renewal fee is USD $30 (US dollars thirty only) transaction, periodic renewal, additional storage space, facilities to use specific features/modules of the e-GP system and different services from the operation, maintenance and management entity. CPTU/IMED, M/O Planning shall have the rights to set reasonable charges or waiver to promote the use of the e-GP system and sustainability of the system in long run.

3.2.3 Stakeholders of the e-GP System

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

- Ø Tenderers/Contractors/Applicants/Consultants.
- Ø Procuring Agencies/Entities.
- Ø Payment Service Providers (scheduled banks and other payment service providers).
- Ø Development Partners.
- Ø e-GP System Administrators (CPTU and Procuring Entity Administrators) and Auditors.
- Ø Operation & Maintenance Partners.
- Ø Committees (Opening/Evaluation/Technical Subcommittee etc.).
- Ø Approval Authorities
- Ø General Public for information related public procurement
- Ø Media Community for updates, announcements, news releases etc.

3.2.4 Public Procurement Reform Project II (PPRP-II, Additional Financing)

The e-GP solution is introduced under the Public Procurement Reform Project-II (Additional Financing), supported by the World Bank and being used by all the government organizations which will help in ensuring equal access to the bidders/tenderers, efficiency, transparency and accountability in the public procurement process in the country.

Under the PPRP-II (AF) financed by World Bank, LGED is making a pivotal role in implementing e-GP among other four organizations. Mainly the project is being implemented through CPTU. In order to implement e-GP, each organization needs to achieve a milestone for each year. The project is designed such a way that financing only depends based on the performance in e-GP implementation. It has been

anticipated that LGED executes 4000 nos procurement contracts each year. 1st year (F.Y: 2012-13) is considered as pilot year where milestone is fixed up to execute 100 nos tenders. After that, within the next 3 years, LGED needs to execute the fixed % of tenders in e-GP as 35%, 60%, and 80% respectively. As such, the tasks become very much challenging to the organization. This is a matter of fact as the financing through project would be stopped at the end of F.Y: 2015-16, but all the target agencies are committed that on fifth year (F.Y: 2016-17) all the tenders (100%) would be invited e-GP portal and it would be continued.

3.2.5 Implementation Policy Accepted by LGED

Assuming 4000 number of tenders invited annually, under the PPRP-II (AF) of CPTU financed by the World Bank, LGED agreed to invite all tenders by e-GP by 5 years. The project has set target in this regard as in 1st year in pilot basis the target is only 100 nos., 2nd year 1400 nos (35%), 3rd year 2400 nos (60%), 4th year 3200 nos (80%) and 5th year 4000 nos (100%) that is shown in the figure below:

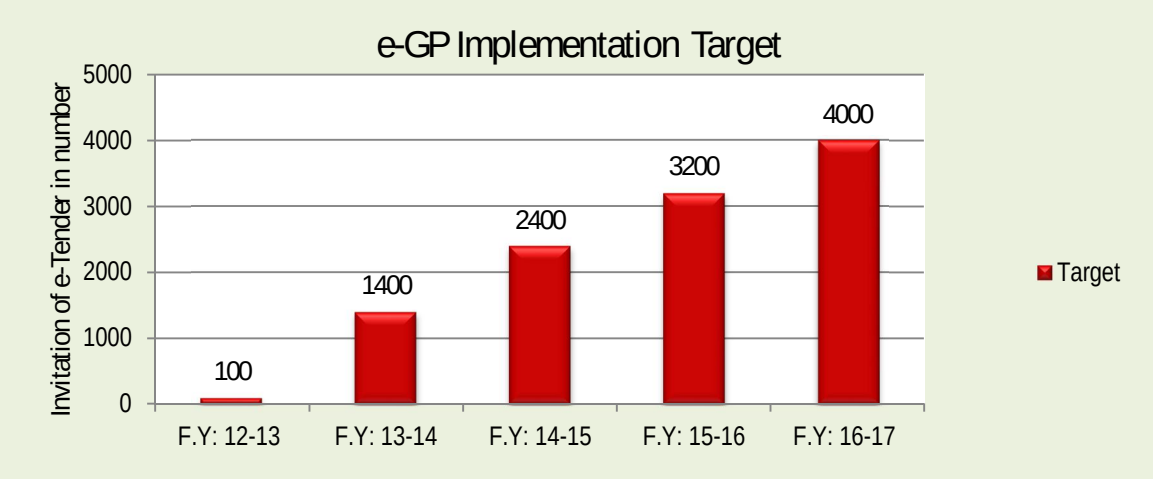

Fig 3.8: e-GP Implementation Target

3.3 Steps Taken by LGED for Implementation of e-GP

3.3.1 Establishment of Procuring Entity (PE) Offices of LGED in e-GP System

In order to implement the e-GP in LGED, the establishment of all Procuring Entity offices in e-GP portal was the first assignment but very important step. Without developing this infrastructure, e-GP cannot be run in any organization level. At the very beginning (F.Y: 2011-12), LGED started e-GP on pilot basis targeting its District Executive Engineer's office by establishing 4 PE offices at 4 districts. Later it created other 60 PE offices for remaining districts. In the F.Y: 2012-13 LGED decided to include its Upazila Engineer's office as a PE office in e-GP system to cover the e-Tendering target of F.Y: 2013-14 set by World Bank. Just within one month (June'13) under a crash program, LGED created its 485 PE offices at Upazila level with 5 nos Govt. Users for each office. Later LGED gradually establish all of its

offices in e-GP system which has procurement function. In present organizational structure of LGED, the different tiers of Procuring Entity offices are:

- Ø The office of the Chief Engineer (1 no)
- Ø The office of the Additional Chief Engineers (7 nos)
- Ø The office of the Superintending Engineers (26 nos)
- Ø The office of the Executive Engineers (64 nos)
- Ø The office of the Upazila Engineers (489 nos)

Based on organizational structure, the fixed Procuring Entity offices stand 587 numbers. Furthermore, there are approximately 91 development projects funded by different donor agencies which will be also considered as Procuring Entity offices headed by a Project Director. These are the variable (temporary) offices in LGED structure but belong very significant contribution in public procurement expenditure.

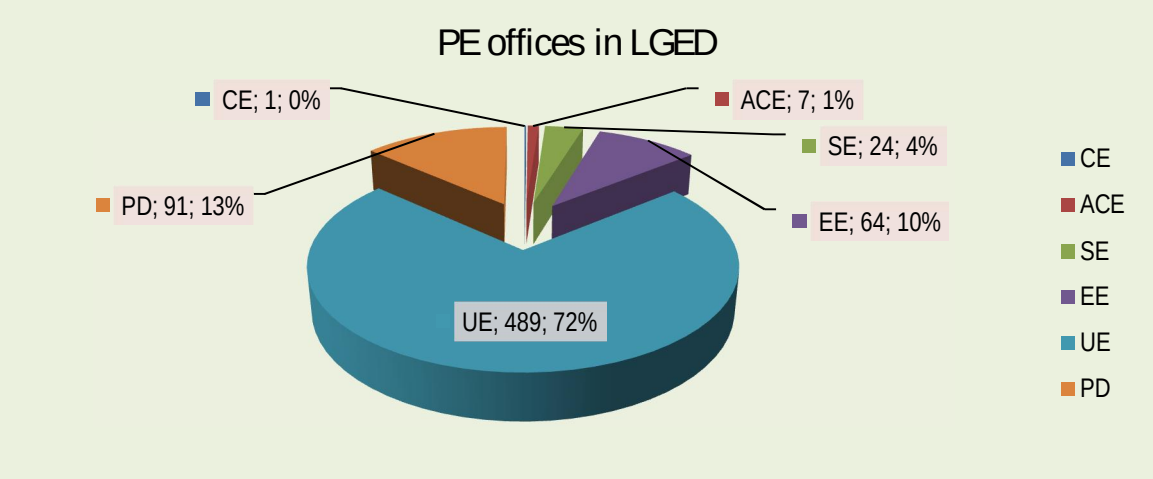

Fig 3.9: Different Tiers of PE Offices in LGED

3.3.2 Capacity Development Program on e-GP System for LGED's Government Users

e-GP implementation by the organization will not come to true unless all the persons involved in procurement are brought under extensive training in this area within certain time line. Based on the considerations LGED already trained a significant number of its officials and employee in last 2.5 years. The number of manpower trained on e-GP system is approximately 1200. LGED started to conduct this training program by its own training budget and later when LGED become eligible for World Bank's DLI condition under PPRP-II (AF), till then training program is conducted by DLI funding. It is need to mention from the beginning, LGED conduct its e-GP training program completely by its in-house trainers, who are different levels of LGED officials. LGED has meanwhile established a pool of smart trainers from potential officers those have keen interest in this area.

It is envisaged that in each PE office minimum 4 persons input (PE, TOC, TEC, AU) are needed in tender management and additional 1 person input (Accountant Officer) are needed in contract management. In addition of these 5 persons input, 1 person input is needed to play role for PE Admin as an Administrator of that virtual office. Considering approximately 700 nos PE offices, LGED needs to train about 6000 nos staffs for e-GP implementation.

3.3.3 Capacity Building Activities on e-GP System for Bidders

Bidders are the most important stakeholder in a tendering process. Without participation of considerable number of bidders in a tendering process, e-GP system can't achieve its ultimate benefit. LGED is the only department, which officially had taken the initiative to register a lot of bidders in e-GP system at F.Y: 2013-14. Beside this LGED started to train the registered bidders for their effective participation in e-Tendering process.

3.3.4 Try to Solve the Existing Difficulties in e-GP Software Operated by CPTU

Operational difficulties from the users are received, mitigated those are very simple in nature. But rest (features given in the software but system do not work) are compiled, analyzed, interpreted, addressed and transferred to CPTU. The types of difficulties are listed below:

- Ø Nonfunctioning of the software context;
- Ø Improvement requirement for efficiency and effectiveness context; and
- Ø Improvement requirement for the software in legal context.

3.4 e-GP Implementation Policies by LGED

In order to achieve the target set by the PPRP-II (AF), LGED fixes up the policy as follows:

- Ø The entire tender will be invited through e-GP if otherwise mentions in donor funded project.
- Ø Within the LGED, top down approach (strong authority) and intensive monitoring are being conducted to the personnel involved in procurement
- Ø Outside the LGED, who are directly involved to implement e-GP (tenderer, registered bank and CPTU), motivation and sharing approach are adopted.

Few of the strategic actions of LGED were:

- Ø All the district Executive Engineers are instructed taking initiative at least 15 nos tenderers bring into registration process by September 2013.
- Ø All the Upazila Engineers are instructed taking initiative at least 10 nos tenderers bring into registration process by September 2013.
- Ø Directive to the Procuring Entity offices to invite all tenders through e-GP Portal.

- Ø Directive to the Procuring Entity offices to have social session with the bank people.
- Ø Continuous interaction with CPTU.

Following outcome justifies that LGED's identification of risk, adaptation the policy and strategic action are so far perfect as the achievement is well ahead than the set target.

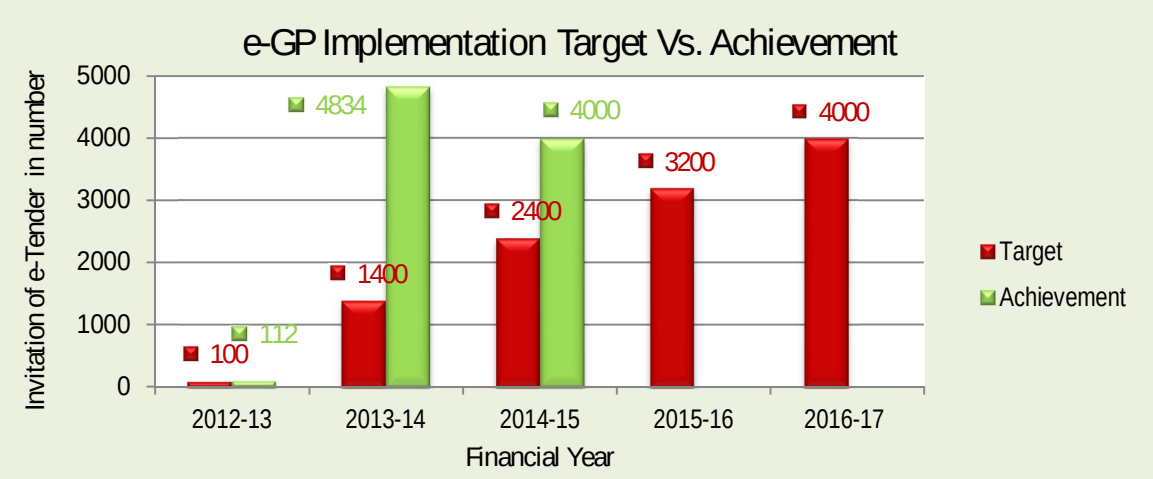

Fig 3.10: e-GP Implementation Target Vs. Achievement

3.5 SWOT Analysis - LGED

Analyzing the overall situation, SWOT analysis will provide the strength and weakness of the organization that are internal phenomena. At the same time this analysis will open up the opportunity and threat the organization will experience.

Strength of the organization. These are:

- Ø Experience in diversified works.
- Ø Organization tree spreads at root level i.e. strong organizational structure.
- Ø Decentralized procurement as the risks are shared.
- Ø Strong chain of command.
- Ø Minimum bureaucracy exists in organizational culture.
- Ø Delegation of authority is the beauty of this organization.

Weakness of the organization. These are:

- Ø Non uniform motivation due to very long organizational structure.
- Ø Presence of inadequate procurement personnel in all PE offices.
- Ø Excessive work load on top management hampers proper monitoring.

Opportunity the organization will enjoy. These are:

- Ø Higher number of PE offices will give the branding image of the organization.
- Ø Donor agencies will be motivated for further financing.
- Ø Strong trainers' pool of LGED in e-GP operation can create an opportunity to obtain the service contract in other agency.

Threat the organization will face. These are:

- Ø Confidence level of donor agencies to use e-GP system.
- Ø Support service from CPTU about the software.
- Ø Chance of skilled employee turnover.

Chapter-4: Data Analysis and Discussions

4.1 General Discussion

4.1.1 Purpose

The purpose of the clarifying the research methodology is to explain how efficiently and effectively the research objectives could be obtained. In order to assess the efficiency level of the PE offices 3 (three) hypothesis is set for this research work.

4.1.2 Data Collection

In order to conduct the research successfully, adequate information/data will be required. Within given institutional and administrative framework of LGED, most of the data for assess the time & quality performance is obtained from websites reports. This is used to the source of analyzing the research. Theoretically it would be interpreted as secondary source of data as website is the origin for data taken. In another sense, since these data are generated automatically as a report basis and documented by competent authority of the government (CPTU), so, these are 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 questionnaire survey to the officials who are in charge of a PE office of different tiers. 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.

4.2 Specific Discussion

4.2.1 Methodology for Hypothesis 1: Cost Savings in e-Tendering 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 refers only to the operational costs of tendering process as paper savings, staff savings, saving through electronic communication etc. Thus the savings pattern is almost same for different PE offices. Considering this hypothesis a questionnaire survey was conducted within LGED officials, who are in charge of different PE offices. At first the performance indicators for the operating cost of tendering process is identified. Based on this a survey questionnaire is set up, which is attached as a reference at the end of this paper (Appendix-A).

4.2.1.1 Performance Indicators for Operational Cost: (Data Collected by Questionnaire Survey)

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)
2.	Tender Submission	Cost for Pre-tender Meeting
		Cost for Collection of Tenders from Multiple Locations
3.	TOC and TEC	TOC & TEC Members Creation & Mgt. Cost (Process, Communication, etc.)
4.	Tender Evaluation	TOC & TEC Members Honorarium
		Tender Evaluation Report Preparation Cost
5.	TER Approval	Cost for Tender Evaluation Report sent to AA
6.	Contract Award	Cost for Issuance of NOA & Communicate with Tenderer
		Cost for Contract Agreement
		Cost for Contract Award Publication to CPTU's Website

4.2.1.2 Comparison Result for Operational Cost

As I consider the result may be almost same, but a wide variety of result was found. Analyze the response some extreme data was found which seems that it's not logical. As an example, some respondent show that for a single tender, operating cost might be more than Tk. 1.0 Lac. Thus I consider the average representative figure for a single tender from participant's response and prepare the best fitted values as follows:

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tender	Cost for e-Tender
1.	Invitation for Tender	Newspaper Advertisement	18,000.00	8000.00
		Tender Preparation	3,500.00	500.00
		Subtotal	21,500.00	8,500.00
2.	Tender Submission	Pre-tender Meeting	500.00	0.00
		Multiple Locations	750.00	0.00
		Other (Tender Box Security at Multiple Locations)	1,000.00	0.00
		Subtotal	2,250.00	0.00
3.	TOC and TEC	Creation & Management	200.00	0.00
4.	Tender Evaluation	Members Honorarium	8,000.00	5000.00
		TER Preparation	1,500.00	300.00
		Other (Meeting &Document Verification)	500.00	200.00
		Subtotal	10,000.00	5,500.00
5.	TER Approval	TER Sent to AA	1,000.00	0.00
6.	Contract Award	NOA	200.00	0.00
		Contract Agreement	500.00	200.00
		Subtotal	700.00	200.00
7.	Other	Internet Connectivity	0.00	2000.00
Total			35,650.00	16,200.00

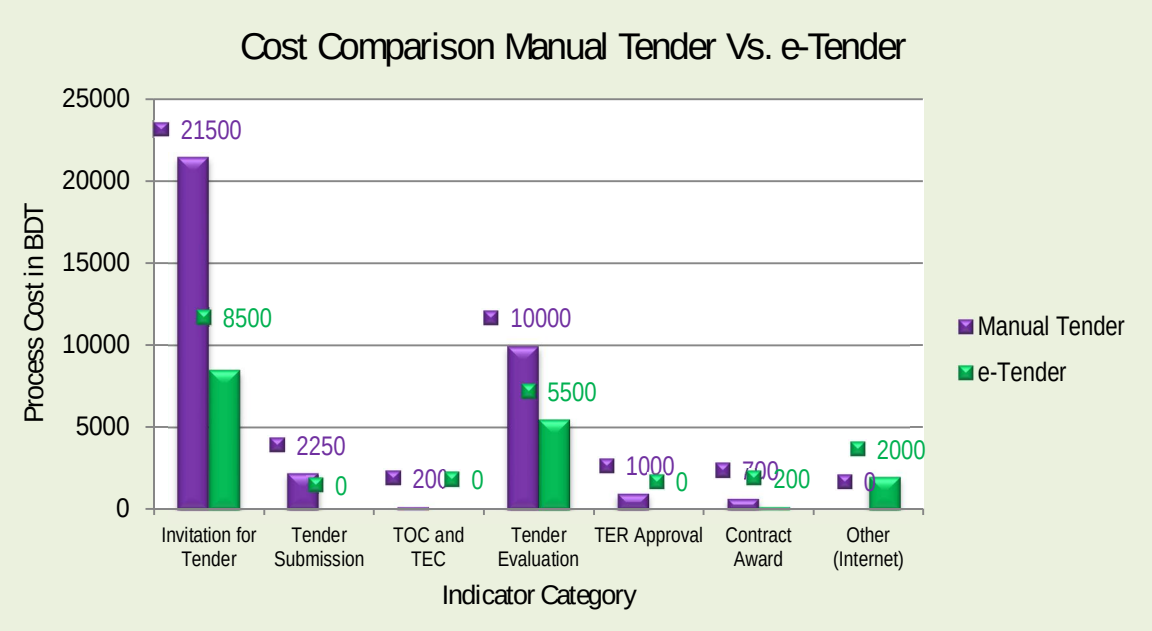

Fig 4.1: Major Cost Head of Manual Tender & Electronic Tender in LGED

Based on the above results it can be concluded that by introducing e-Tendering process, cost savings in LGED at different condition can be represented as follows:

- Ø Cost savings within a PE office, for a single tender is Tk. 19,450.00
- Ø Cost savings for LGED's 700 PE offices, for a single tender is Tk. 1,36,15,000.00
- Ø Cost savings for LGED's targeted 4000 tenders in a financial year, for different PE offices is Tk. 7.78 Crore.

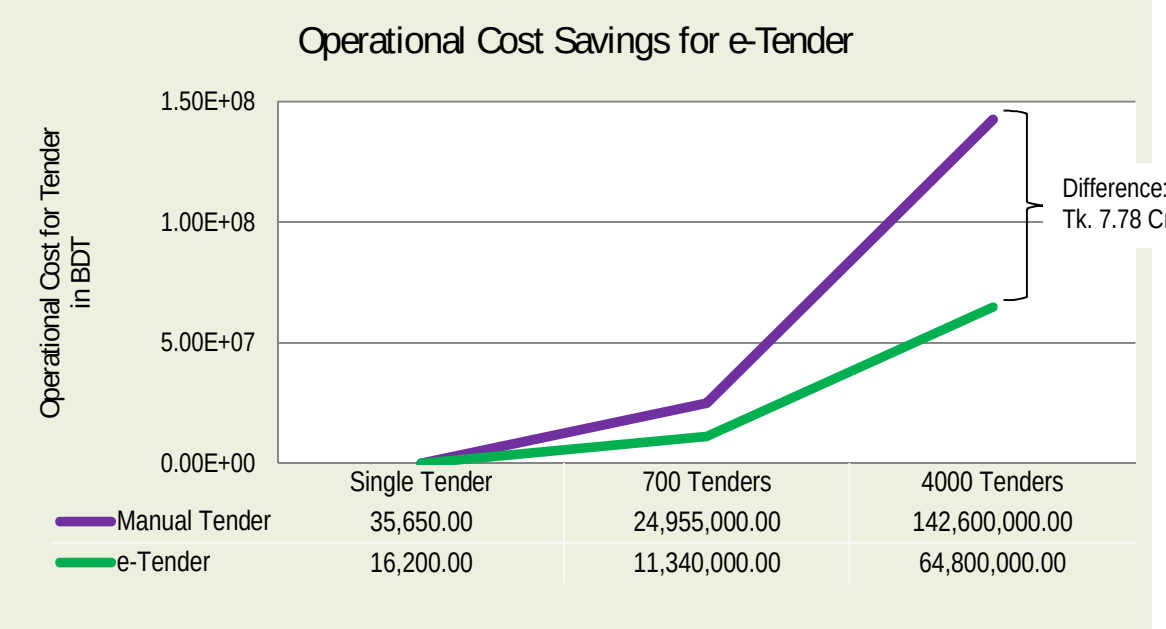

Fig 4.2: Pictorial Representation of Operational Cost Savings by Electronic Tender for LGED

4.2.2 Data Collection Methodology for Hypothesis 2& 3: Quality & Time Efficiency

LGED started its journey for implementing e-GP in the F.Y: 2011-12. At the beginning it was a pilot program and only 4 tenders were invited during this financial year. In the F.Y: 2012-13 & F.Y: 2013-14, 132 nos & 5519 nos tenders were invited through e-Tendering process in LGED. Beside this there was an obligation for district Executive Engineer's office to provide information in PROMIS software (which is also operated by CPTU) about those offline contracts which have a contracted amount of more than Tk. 1.0 Crore. So I have collected the different tendering processes KPI data from two different sites (e-GP Portal: www.eprocure.gov.bd and PROMIS software www.cptu.gov.bd/promis.aspx). Among these two sites e-GP Portal contains all of the LGED's PE offices (district & upazila level) tendering data as the report is generated automatically from the system. But in PROMIS software as the input is given manually by concerned PE offices and in case of LGED only the district level PE offices are instructed to input their manual tendering data with a threshold of above Tk. 1.0 Crore contract, it contains limited PE offices (only district level) information.

Based on the mentioned limitation I have selected the 6 district level PE offices of LGED, in which two types of data for two financial years in both the sites are available. These PE offices have at least 10 nos tendering data for F.Y: 2012-13 & 2013-14 in PROMIS site. In F.Y: 2012-13 as LGED perform only 132 nos tender in e-GP system, so in average each district PE office has only 2 or 3 nos tendering data in e-GP Portal. In F.Y: 2013-14 as LGED perform 5519 nos tenders in e-GP system; a considerable amount of tendering data is available for each district PE office. The selected PE offices are as follows:

- Office of the Executive Engineer, LGED, Cox'sbazar;
- Office of the Executive Engineer, LGED, Gopalganj;
- Office of the Executive Engineer, LGED, Laxmipur;
- Office of the Executive Engineer, LGED, Narayanganj;
- Office of the Executive Engineer, LGED, Narshingdi; and
- Office of the Executive Engineer, LGED, Netrokona

Beside these PE offices, the overall scenario of LGED's all PE offices in respect to quality and time management issue on procurement process is also came out for two financial years in both the sites.

4.2.3 Methodology for Hypothesis 2: Quality Improvement in e-Tendering Process

LGED has approximately 700 nos PE offices and more than 11000 permanent staffs are working in this organization. They work all over the country scattered in head quarter, divisional, regional, district and upazila level mainly in 5 tiers as such the Office of the Chief Engineer, the Office of the Additional Chief Engineer, the Office of the Superintending Engineer, the Office of the Executive Engineer and finally the Office of the Upazila Engineer. Apart from the mentioned permanent offices, there are temporary

offices in LGED that are the Office of the Project Director (PD). Additional about 1500 nos staffs are working in PD offices. In total around 12500 nos staffs are working in LGED.

As an engineering department, a significant number of LGED workforces are engaged in government procurement process. Thus the quality of the procurement process (mainly the compliance issues in tendering process) mainly depends on skill and knowledge of LGED's staffs. In e-Tendering process a significant portion of the process is ensured automatically by software. So in respect of this phenomenon it is assumed that quality of procurement process of LGED is improved after implementation of e-Tendering process.

4.2.3.1 Performance Indicators for Quality: (Data Collected from PROMIS & e-GP Software)

A complete set of 13 nos Indicator Category and 45 nos Process Indicator for a full procurement cycle (Invitation for Tender to Procurement Management Capacity) is available in the websites, whereas I have limited my research within the tendering process as Invitation for Tender to Contract Award. Within this boundary there are 6 nos Indicator Category and 29 nos Process Indicator. These indicators show different types of performance on tendering process for a PE office. Among them following 6 nos Indicator Category and 9nos Process Indicator can be best fitted for compliance issues on tendering process only.

Sr. No.	Indicator Category	Process Indicator	Description
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	Percentage of Invitation for Tender (above threshold) Advertised in CPTU's Website
2.	Tender Submission	Tender Time Compliance	Percentage of Tenders having Sufficient Tender Submission Time
3.	TOC and TEC	Tender Opening Committee Formation	Percentage of Cases TOC Included at Least One Member From TEC
		Tender Evaluation Committee Formation	Percentage of Cases TEC Formed by Contract Approving Authority
4.	Tender Evaluation	Compliance of Tender Evaluation Time	Percentage of Cases Tender Evaluation has been Completed within Timeline
5.	Tender Evaluation Report Approval	Compliance of Financial Delegation	Average Number of Tenders Approved by Proper Financial Delegated Authority
		TER Approval Compliance	Percentage of Cases Contract Award Decision Made within Timeline by Contract Approving Authority
6.	Contract Award	Publication of Award Information	Percentage of Contract Award Published in CPTU's Website
		Efficiency in Contract Award	Percentage of Contract Awarded within Initial Tender Validity Period

4.2.3.2 Comparison Result for Quality Improvements (Compliance Issues)

Upshot for Office of the Executive Engineer, LGED, Cox'sbazar

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	11.11%	100%	0%	100%
2.	Tender Submission	Tender Time Compliance	11.11%	100%	42.86%	100%
3.	TOC and TEC	TOC Formation	5.56%	100%	50%	100%
		TEC Formation	11.11%	100%	50%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	100%	0%	91.57%
5.	TER Approval	Compliance of Financial Delegation	17%	100%	0%	90.36%
		TER Approval Compliance	0%	100%	0%	90.36%
6.	Contract Award	Publication of Award Information	41.67%	100%	0%	67.47%
		Efficiency in Contract Award	0%	100%	0%	67.47%

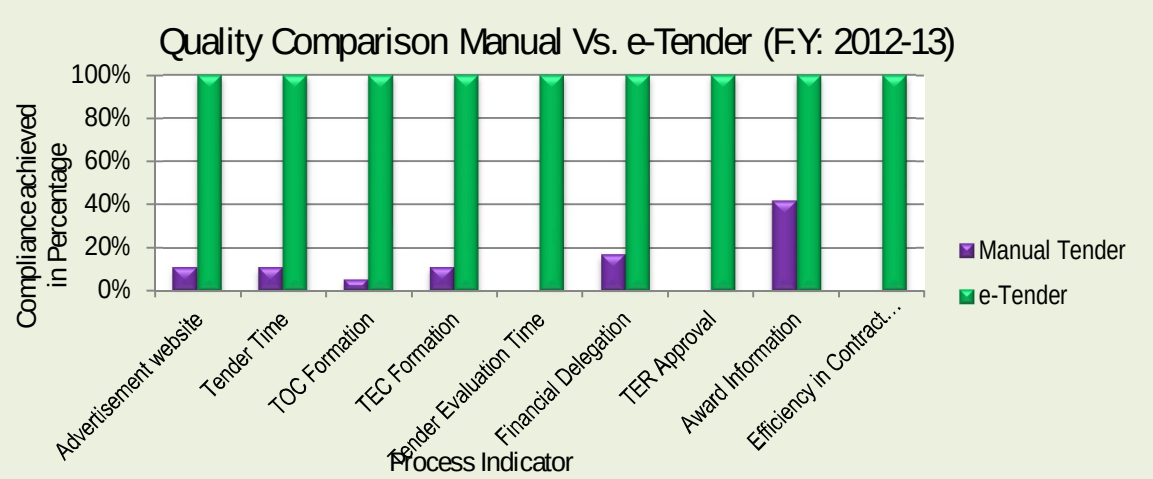

Fig 4.3: Compliance Achieved in Process Indicator for XEN Office, Cox'sbazar (in F.Y: 2012-13)

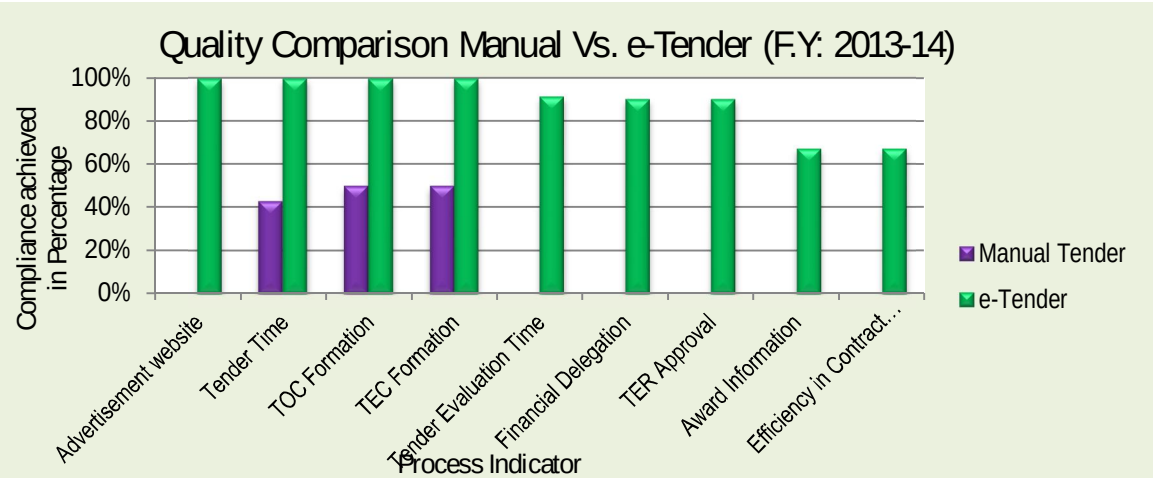

Fig 4.4: Compliance Achieved in Process Indicator for XEN Office, Cox'sbazar (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Gopalganj

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	0%	100%	0%	100%
2.	Tender Submission	Tender Time Compliance	50%	100%	76.32%	100%
3.	TOC and TEC	TOC Formation	0%	100%	94.74%	100%
		TEC Formation	0%	100%	97.37%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	100%	0%	95.88%
5.	TER Approval	Compliance of Financial Delegation	0%	100%	95%	95.88%
		TER Approval Compliance	0%	100%	0%	95.88%
6.	Contract Award	Publication of Award Information	40%	100%	5.56%	90.72%
		Efficiency in Contract Award	0%	100%	0%	90.72%

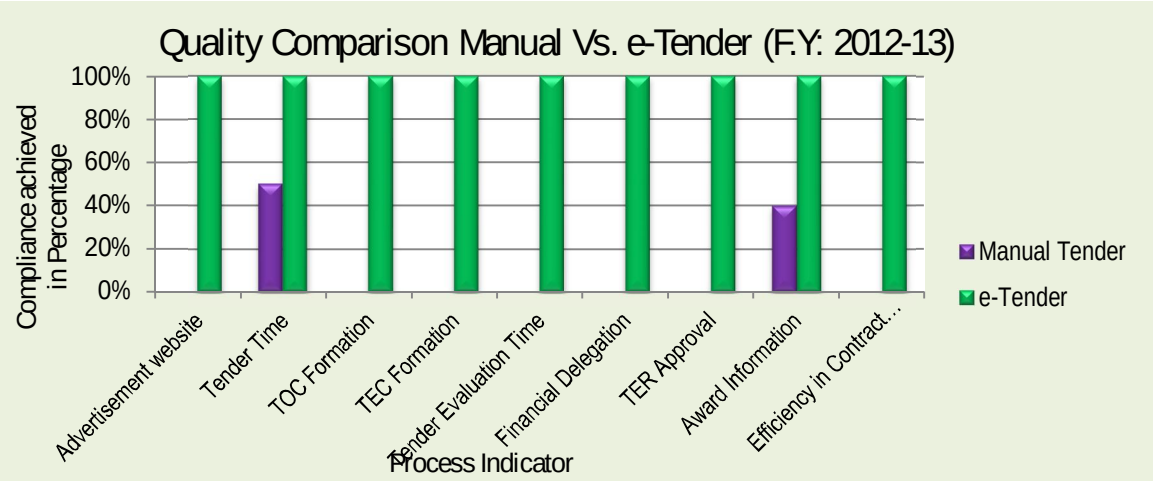

Fig 4.5: Compliance Achieved in Process Indicator for XEN Office, Gopalganj (in F.Y: 2012-13)

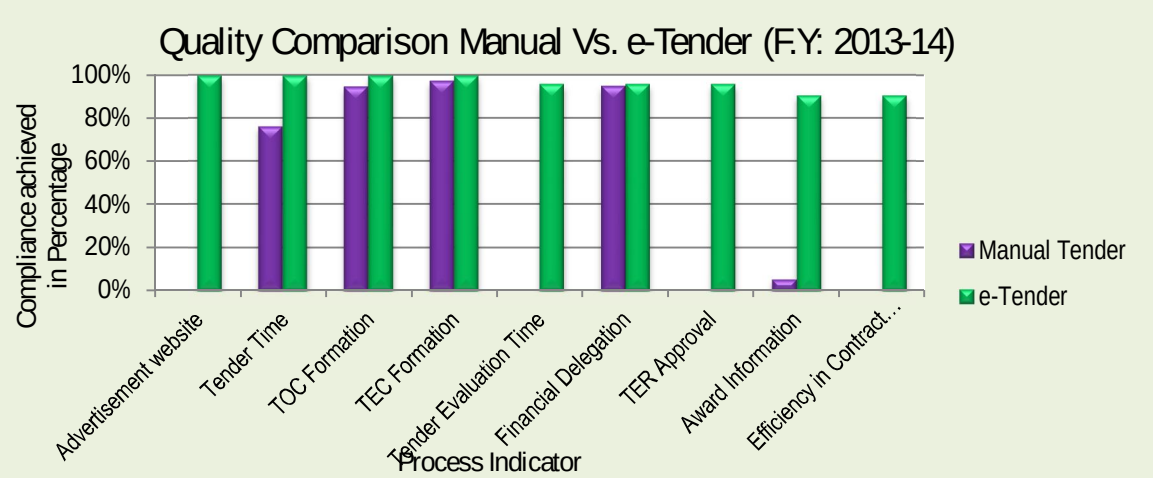

Fig 4.6: Compliance Achieved in Process Indicator for XEN Office, Gopalganj (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Laxmipur

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	0%	100%	0%	100%
2.	Tender Submission	Tender Time Compliance	50%	100%	54.55%	100%
3.	TOC and TEC	TOC Formation	0%	100%	54.55%	100%
		TEC Formation	0%	100%	54.55%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	50%	0%	100%
5.	TER Approval	Compliance of Financial Delegation	30%	50%	100%	100%
		TER Approval Compliance	0%	50%	0%	100%
6.	Contract Award	Publication of Award Information	60%	50%	16.67%	97.44%
		Efficiency in Contract Award	0%	50%	0%	97.44%

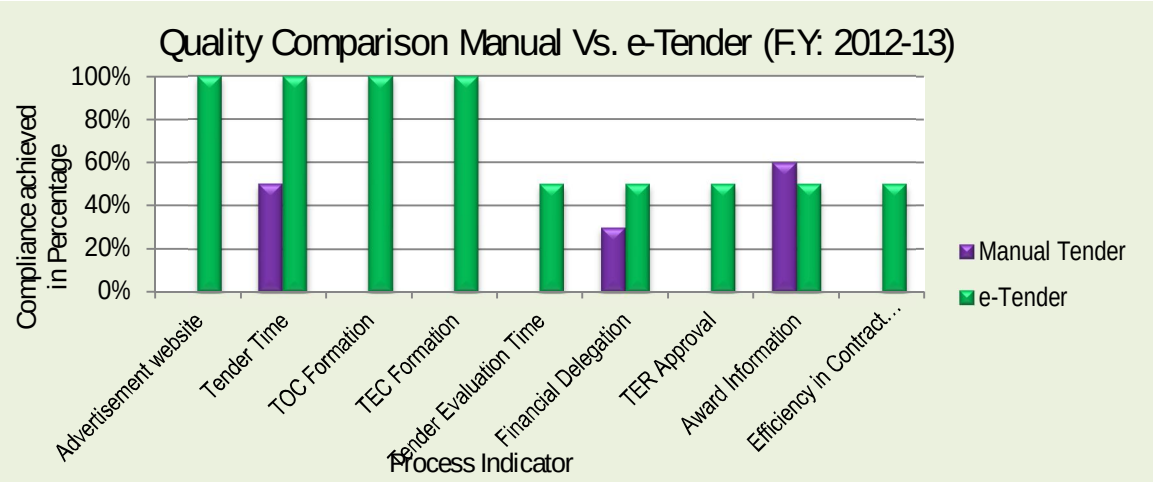

Fig 4.7: Compliance Achieved in Process Indicator for XEN Office, Laxmipur (in F.Y: 2012-13)

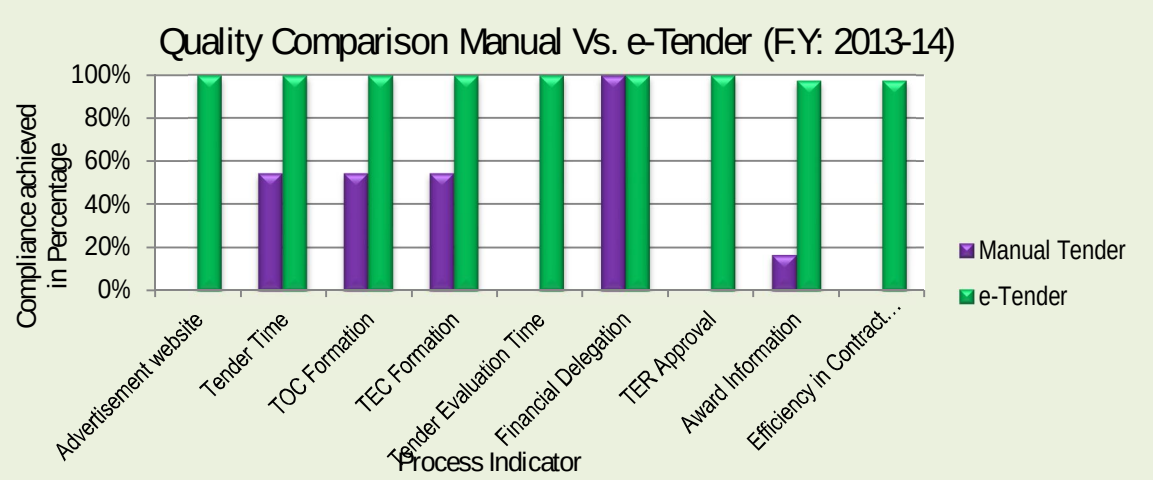

Fig 4.8: Compliance Achieved in Process Indicator for XEN Office, Laxmipur (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Narayanganj

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	0%	100%	26.32%	100%
2.	Tender Submission	Tender Time Compliance	50%	100%	47.37%	100%
3.	TOC and TEC	TOC Formation	0%	100%	94.74%	100%
		TEC Formation	0%	100%	94.74%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	25%	0%	58.51%
5.	TER Approval	Compliance of Financial Delegation	8%	25%	16%	58.51%
		TER Approval Compliance	0%	25%	0%	58.51%
6.	Contract Award	Publication of Award Information	36.36%	25%	94.44%	46.81%
		Efficiency in Contract Award	0%	25%	0%	46.81%

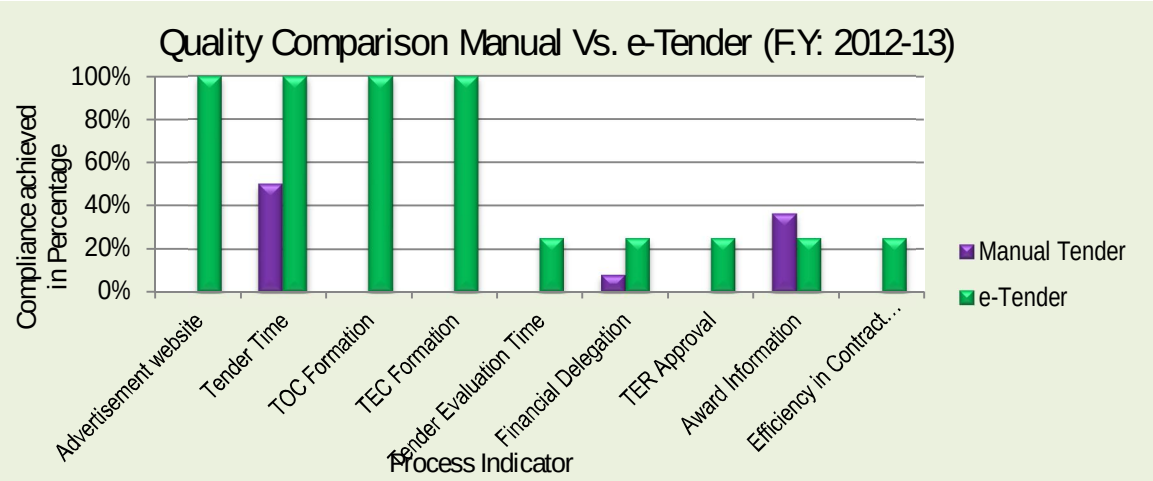

Fig 4.9: Compliance Achieved in Process Indicator for XEN Office, Narayanganj (in F.Y: 2012-13)

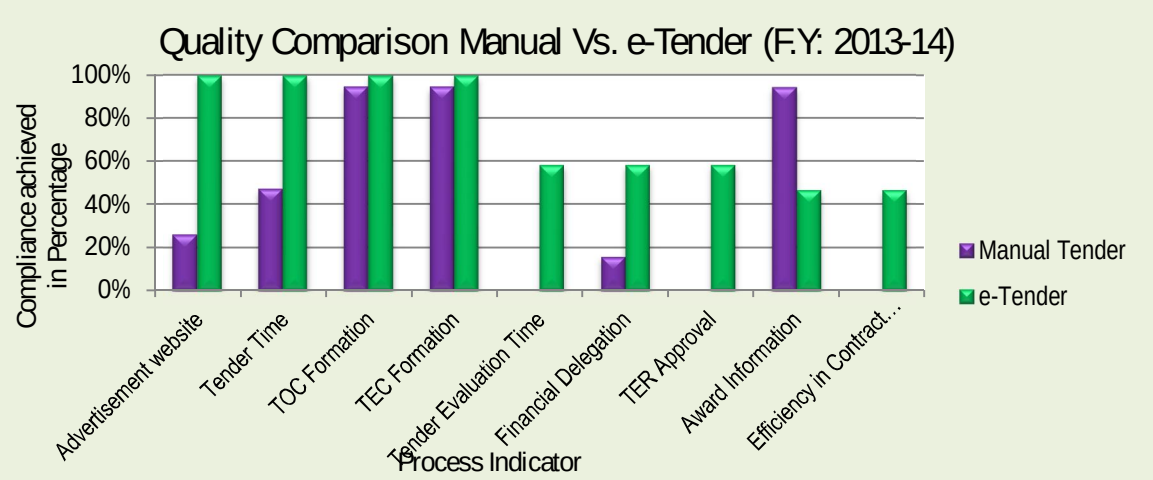

Fig 4.10: Compliance Achieved in Process Indicator for XEN Office, Narayanganj (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Narshingdi

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	5.88%	100%	22.22%	100%
2.	Tender Submission	Tender Time Compliance	23.53%	100%	51.85%	100%
3.	TOC and TEC	TOC Formation	5.88%	100%	92.59%	100%
		TEC Formation	0%	100%	0%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	100%	0%	96.30%
5.	TER Approval	Compliance of Financial Delegation	94%	100%	93%	96.30%
		TER Approval Compliance	0%	100%	0%	96.30%
6.	Contract Award	Publication of Award Information	58.82%	100%	32%	96.30%
		Efficiency in Contract Award	0%	100%	0%	96.30%

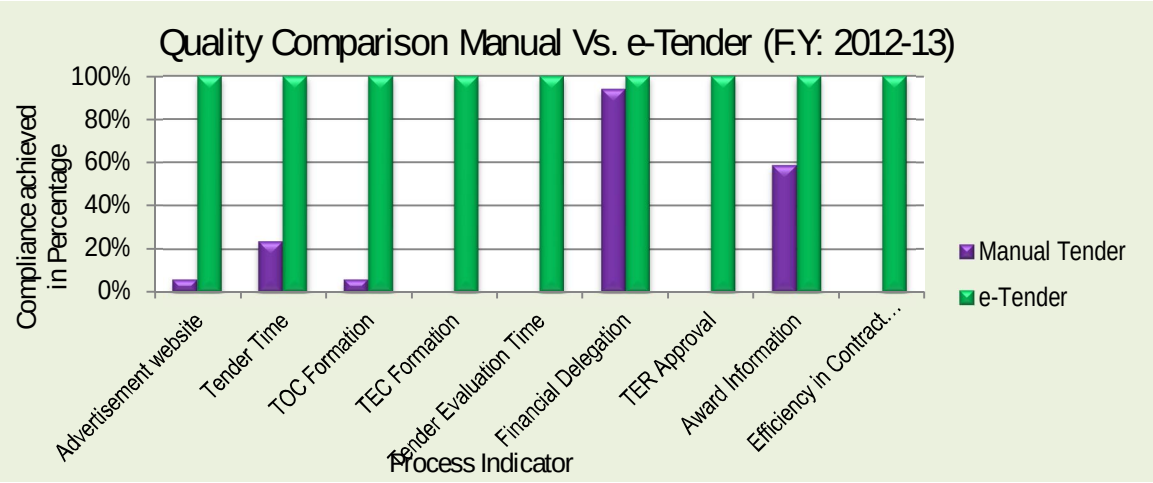

Fig 4.11: Compliance Achieved in Process Indicator for XEN Office, Narshingdi (in F.Y: 2012-13)

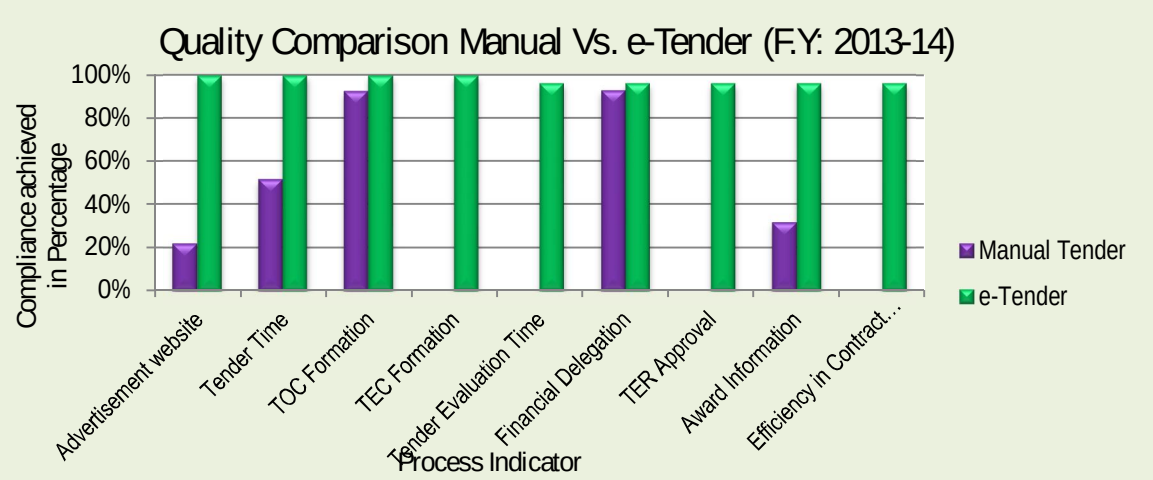

Fig 4.12: Compliance Achieved in Process Indicator for XEN Office, Narshingdi (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Netrokona

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	0%	100%	88.89%	100%
2.	Tender Submission	Tender Time Compliance	18.75%	100%	22.22%	100%
3.	TOC and TEC	TOC Formation	0%	100%	88.89%	100%
		TEC Formation	0%	100%	88.89%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	100%	0%	96.55%
5.	TER Approval	Compliance of Financial Delegation	100%	100%	6%	96.55%
		TER Approval Compliance	0%	100%	0%	96.55%
6.	Contract Award	Publication of Award Information	46.67%	50%	31.25%	94.83%
		Efficiency in Contract Award	0%	50%	0%	94.83%

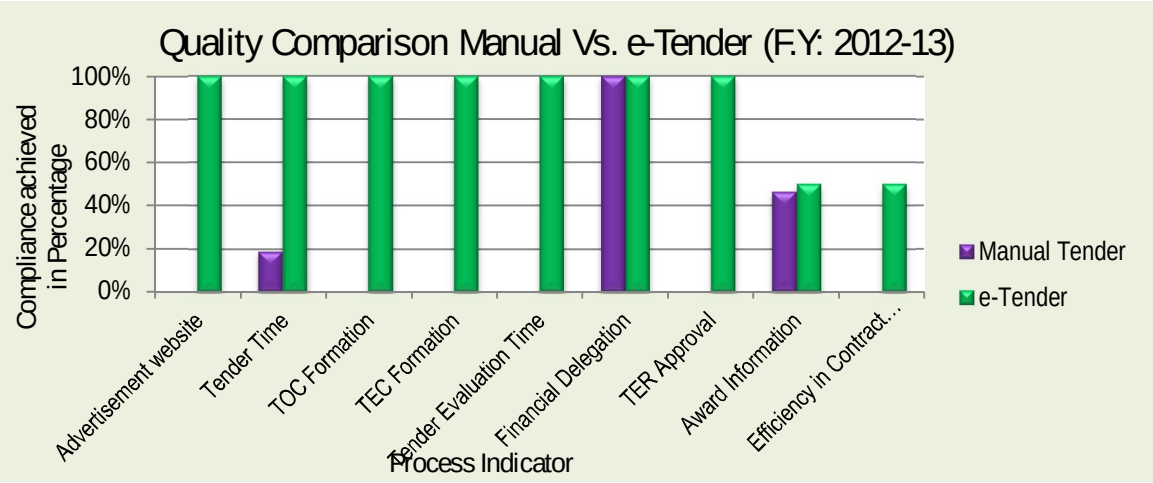

Fig 4.13: Compliance Achieved in Process Indicator for XEN Office, Netrokona (in F.Y: 2012-13)

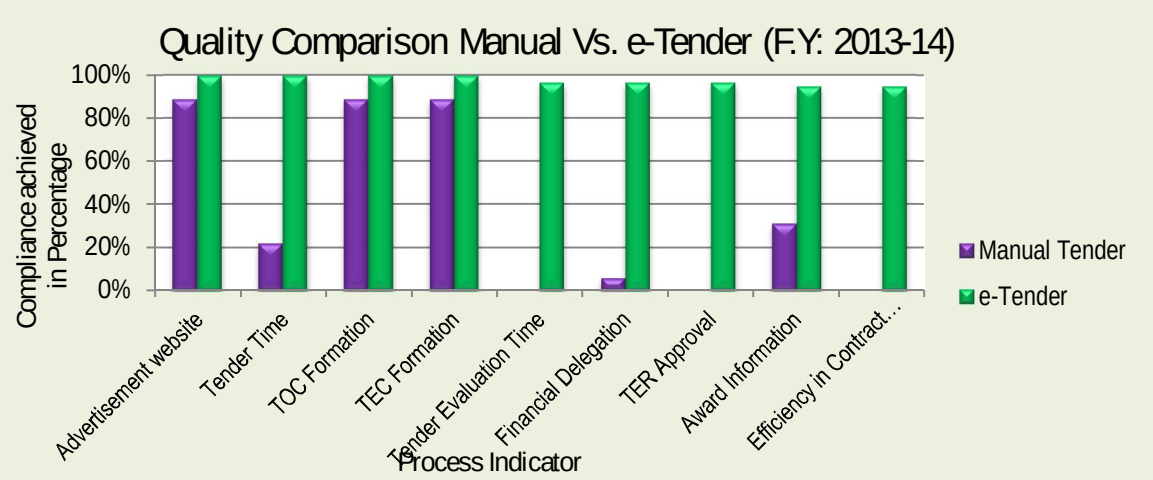

Fig 4.14: Compliance Achieved in Process Indicator for XEN Office, Netrokona (in F.Y: 2013-14)

Upshot for overall performance of all the PE offices in LGED

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	2.49%	100%	24%	100%
2.	Tender Submission	Tender Time Compliance	34.99%	100%	40.5%	100%
3.	TOC and TEC	TOC Formation	4.44%	100%	76%	100%
		TEC Formation	4.44%	100%	64%	100%
4.	Tender Evaluation	Compliance of Tender Evaluation Time	0%	90.22%	0%	78.70%
5.	TER Approval	Compliance of Financial Delegation	50%	89.43%	55%	78.55%
		TER Approval Compliance	0%	89.43%	0%	78.55%
6.	Contract Award	Publication of Award Information	56.24%	74.17%	27.94%	60.82%
		Efficiency in Contract Award	0%	76.91%	0%	61.00%

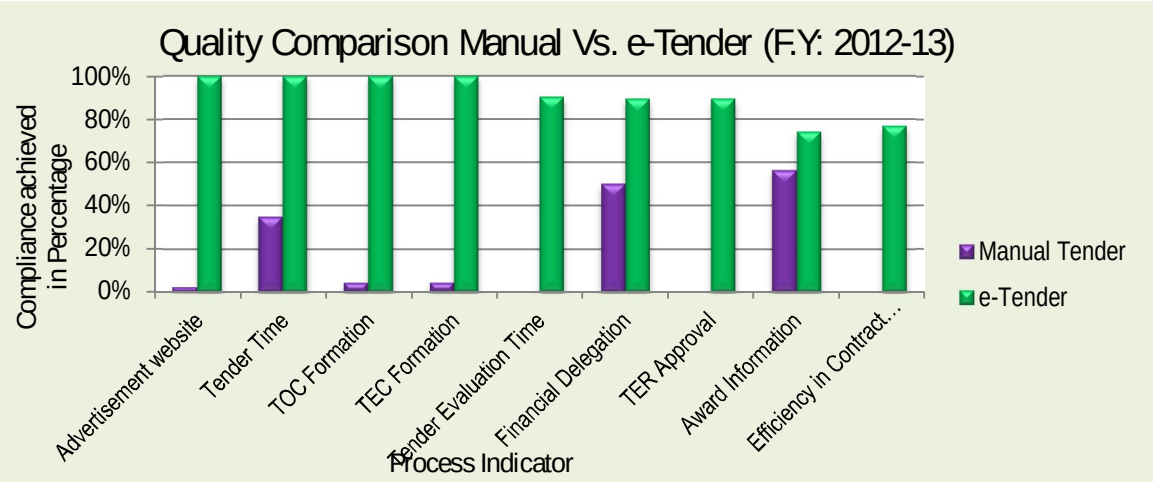

Fig 4.15: Compliance Achieved in Process Indicator for LGED (in F.Y: 2012-13)

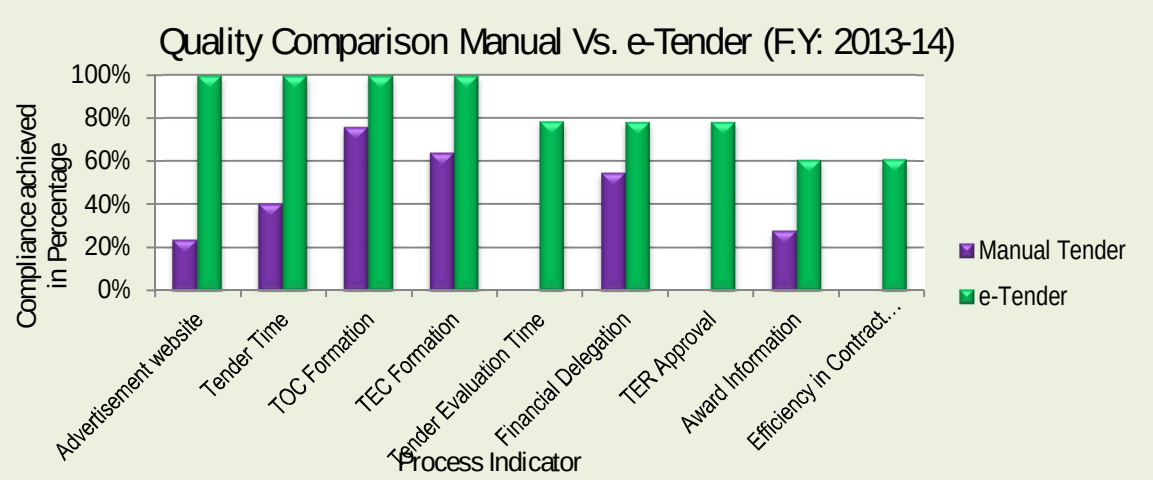

Fig 4.16: Compliance Achieved in Process Indicator for LGED (in F.Y: 2013-14)

4.2.4 Methodology for Hypothesis 3: Time Management in e-Tendering 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 process 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-Tendering 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 LGED is improved after implementation of e-Tendering process.

4.2.4.1 Performance Indicators for Time: (Data Collected from PROMIS & e-GP Software)

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

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)

4.2.4.2 Comparison Result for Time Management

Upshot for Office of the Executive Engineer, LGED, Cox'sbazar

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	28.25	27.33	No Data	20.3
2.	Tender Evaluation	Tender Evaluation Time	14.08	21	8.29	16.23
3.	TER Approval	Tender Evaluation Approval Time	24.25	12.67	23.14	0.25
4.	Contract Award	Time for Issuance of NOA to Tenderer	5.75	4.67	6.57	2.08
		Tender Processing Lead Time	45	25.67	38	23.85
		Total Tender Processing Time	71.83	53	69.29	46.56

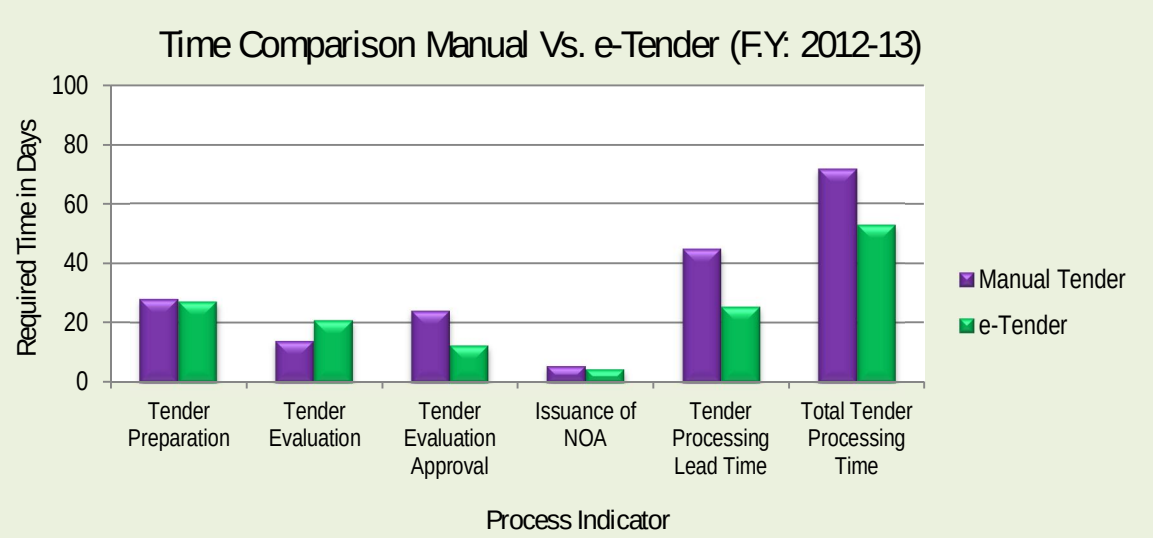

Fig 4.17: Required Time in Process Indicator for XEN Office, Cox'sbazar (in F.Y: 2012-13)

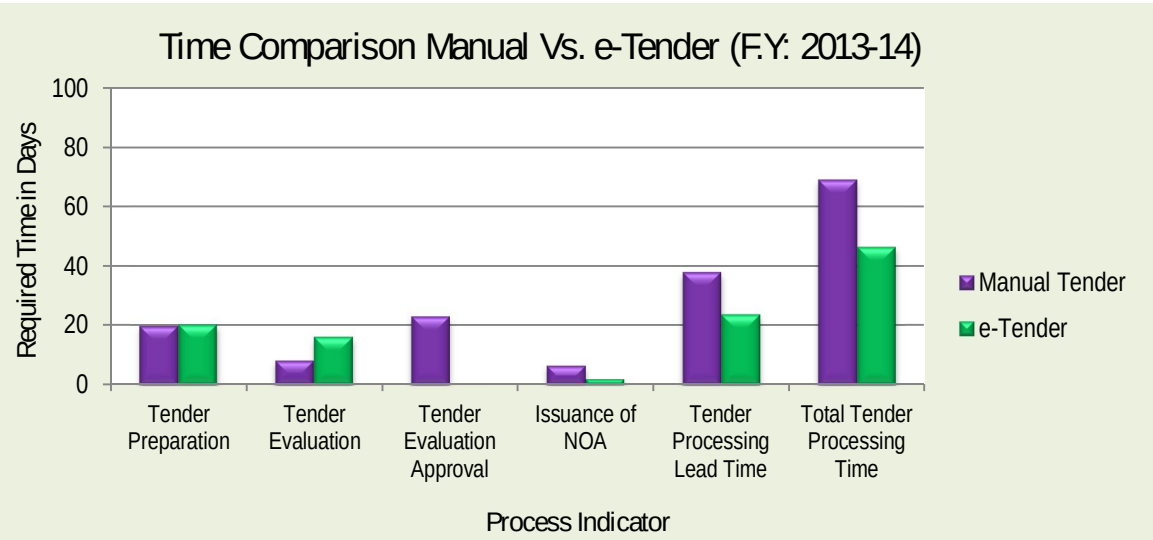

Fig 4.18: Required Time in Process Indicator for XEN Office, Cox'sbazar (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Gopalganj

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	16.2	19.50	43	21.19
2.	Tender Evaluation	Tender Evaluation Time	11.1	38	17.08	26.28
3.	TER Approval	Tender Evaluation Approval Time	13.8	14.5	8.22	0.55
4.	Contract Award	Time for Issuance of NOA to Tenderer	4.2	9.5	6.75	4.30
		Tender Processing Lead Time	29.1	47.5	23.75	31.52
		Total Tender Processing Time	49.6	67	48.06	52.56

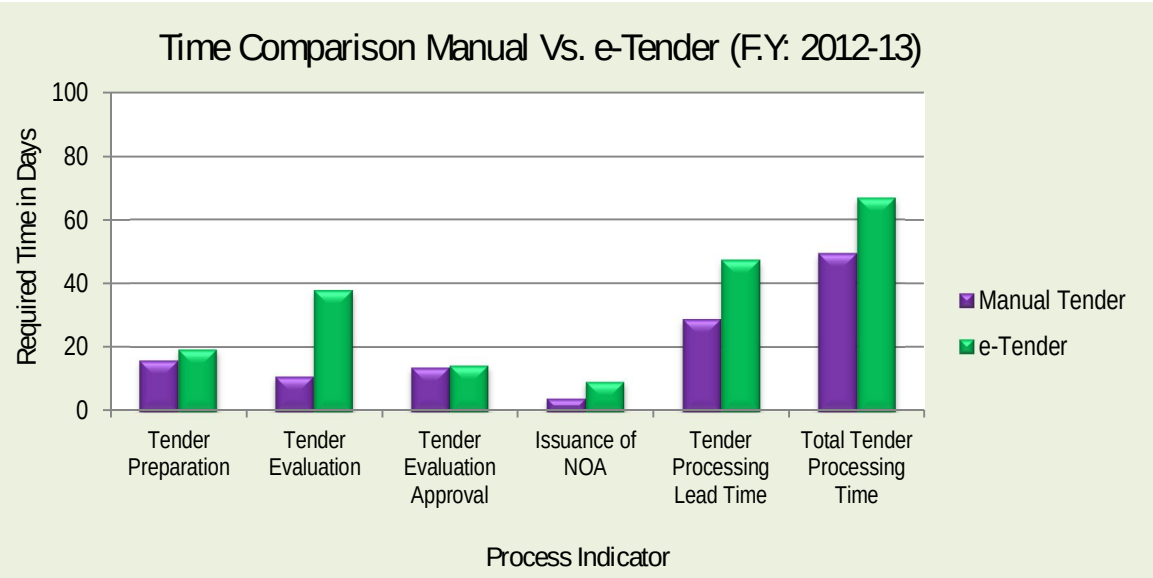

Fig 4.19: Required Time in Process Indicator for XEN Office, Gopalganj (in F.Y: 2012-13)

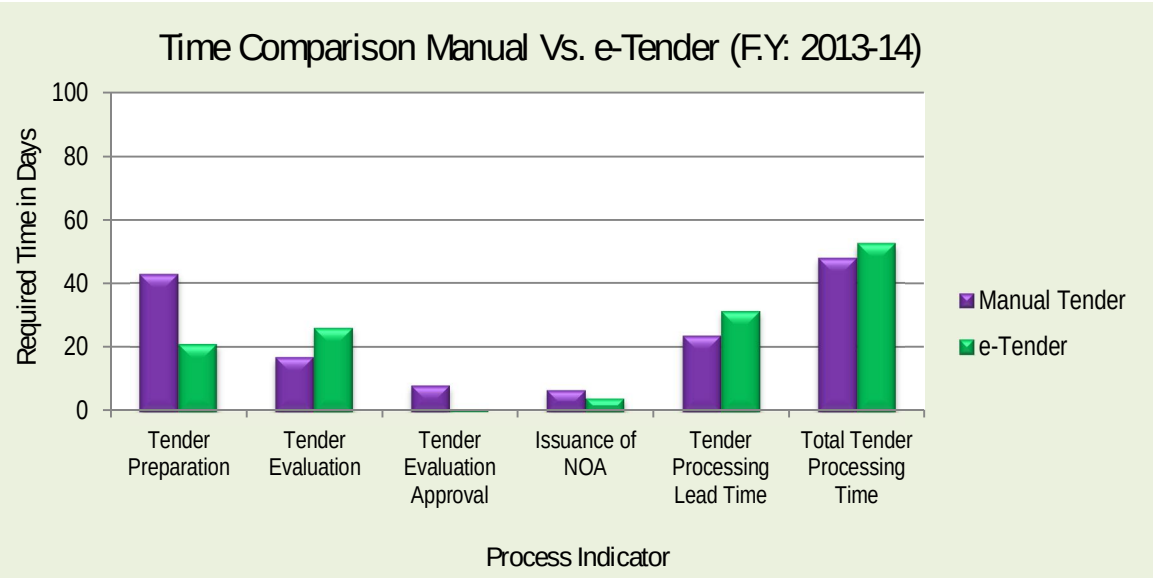

Fig 4.20: Required Time in Process Indicator for XEN Office, Gopalganj (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Laxmipur

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	25.4	25.50	No Data	23.05
2.	Tender Evaluation	Tender Evaluation Time	9.6	10.50	9	22.92
3.	TER Approval	Tender Evaluation Approval Time	22.6	14	8.83	0.9
4.	Contract Award	Time for Issuance of NOA to Tenderer	16.6	6.50	25.71	5.21
		Tender Processing Lead Time	48.8	34	23.5	26.92
		Total Tender Processing Time	73	56	46	50.51

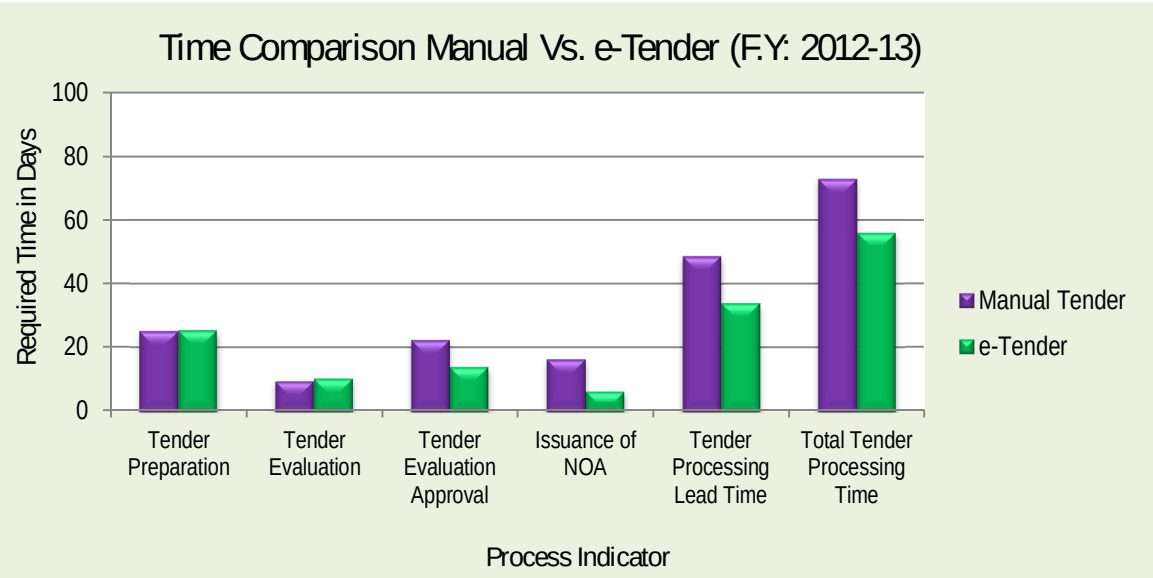

Fig 4.21: Required Time in Process Indicator for XEN Office, Laxmipur (in F.Y: 2012-13)

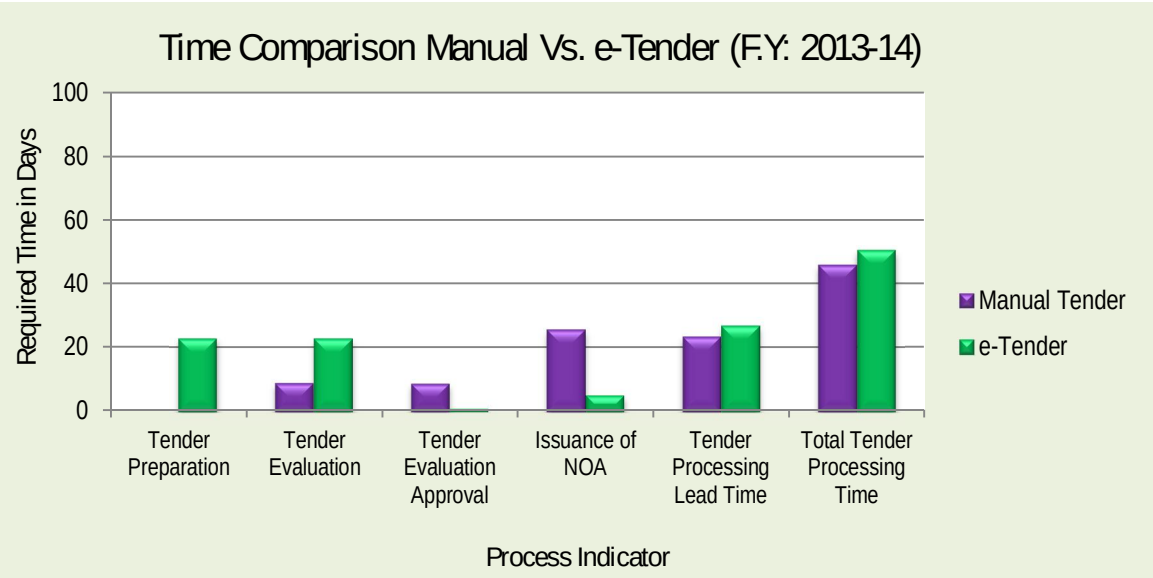

Fig 4.22: Required Time in Process Indicator for XEN Office, Laxmipur (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Narayanganj

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	28.2	28.25	25.6	25.49
2.	Tender Evaluation	Tender Evaluation Time	11.27	6.75	10.06	10.53
3.	TER Approval	Tender Evaluation Approval Time	14.73	17	15.56	0.38
4.	Contract Award	Time for Issuance of NOA to Tenderer	6.55	0.5	4.5	2.66
		Tender Processing Lead Time	32.55	29	30.11	22.8
		Total Tender Processing Time	58.82	78	55.28	50.48

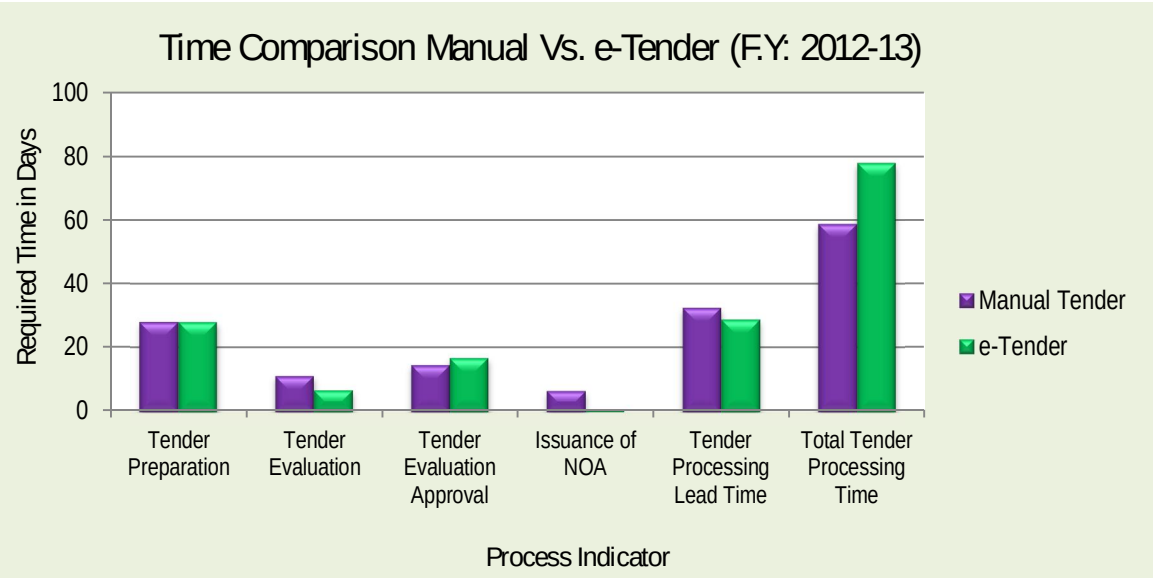

Fig 4.23: Required Time in Process Indicator for XEN Office, Narayanganj (in F.Y: 2012-13)

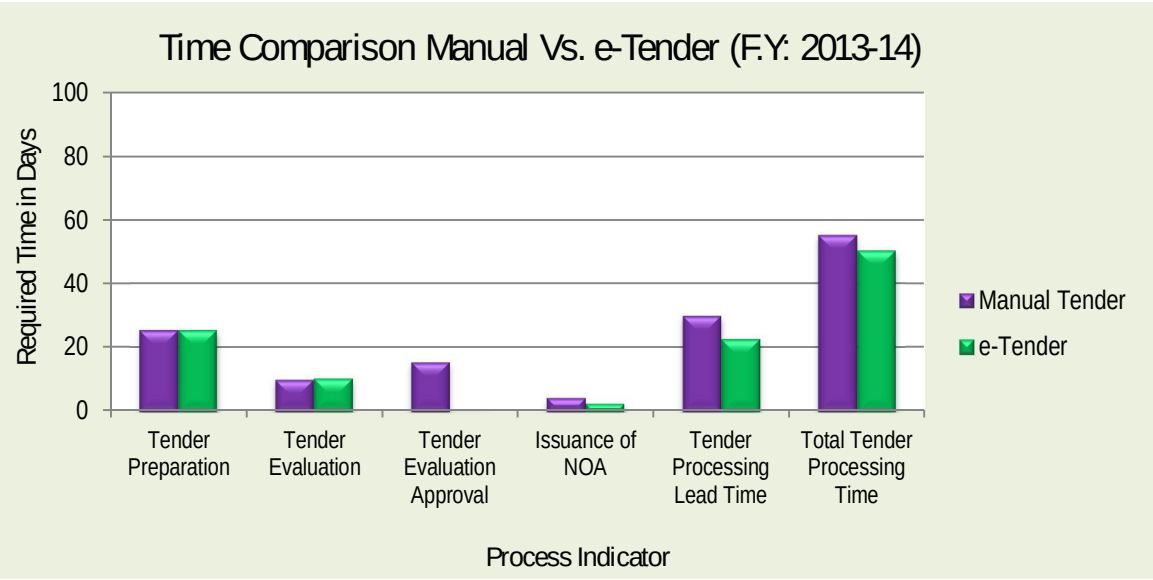

Fig 4.24: Required Time in Process Indicator for XEN Office, Narayanganj (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Narshingdi

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	34	23.33	30.11	23.5
2.	Tender Evaluation	Tender Evaluation Time	11.07	22.67	7.58	12.89
3.	TER Approval	Tender Evaluation Approval Time	19.47	16	6.12	0
4.	Contract Award	Time for Issuance of NOA to Tenderer	9.25	5	3.92	5.52
		Tender Processing Lead Time	35.8	27.67	17.62	19.49
		Total Tender Processing Time	65.73	51	41.46	43.53

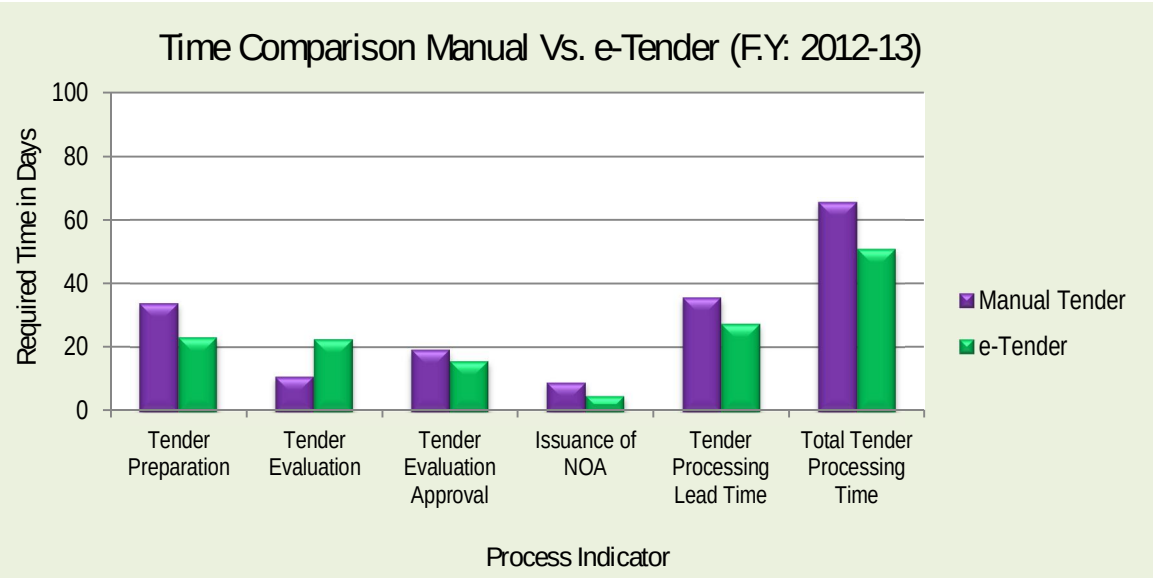

Fig 4.25: Required Time in Process Indicator for XEN Office, Narshingdi (in F.Y: 2012-13)

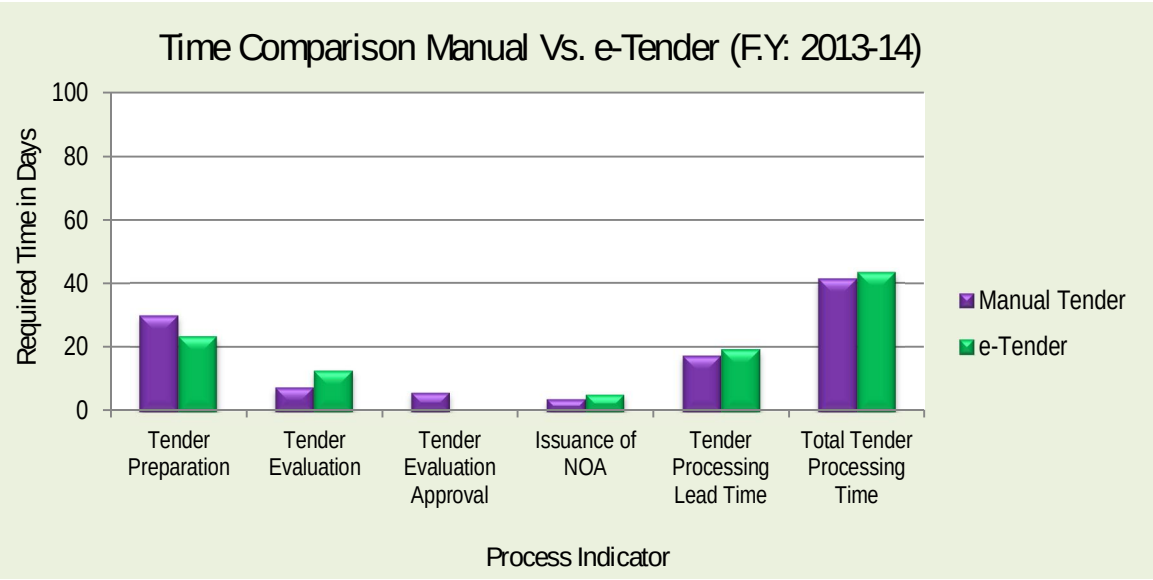

Fig 4.26: Required Time in Process Indicator for XEN Office, Narshingdi (in F.Y: 2013-14)

Upshot for Office of the Executive Engineer, LGED, Netrokona

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	15.15	45	23.67	32.43
2.	Tender Evaluation	Tender Evaluation Time	15.13	34	13.69	21.31
3.	TER Approval	Tender Evaluation Approval Time	23.2	13.5	27.13	0
4.	Contract Award	Time for Issuance of NOA to Tenderer	13	0	12.56	3.88
		Tender Processing Lead Time	51.33	0	53.38	27.06
		Total Tender Processing Time	66.8	0	76.5	60.93

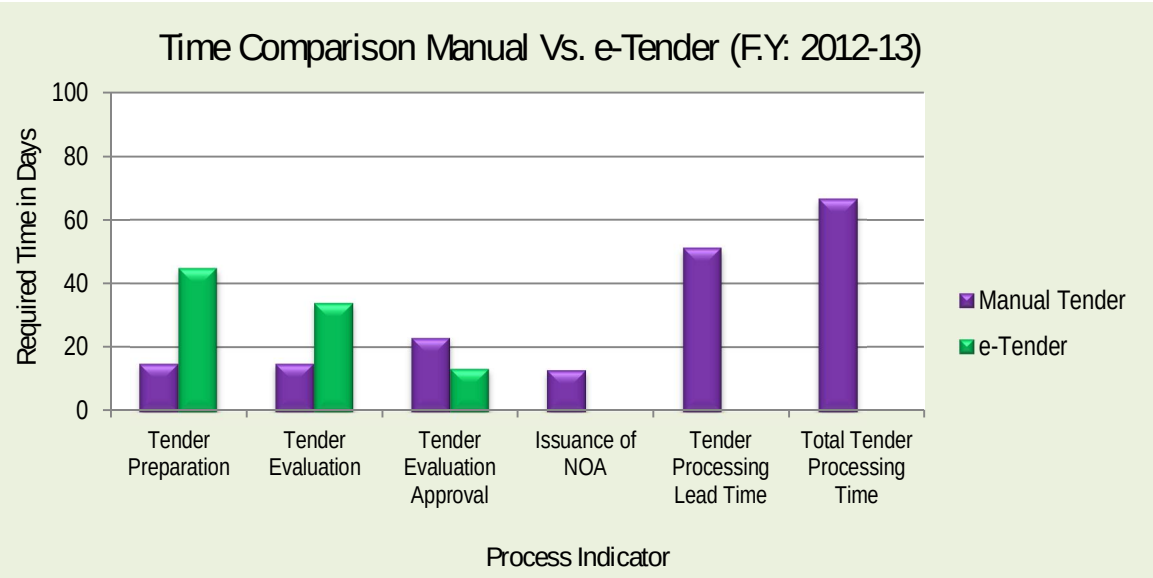

Fig 4.27: Required Time in Process Indicator for XEN Office, Netrokona (in F.Y: 2012-13)

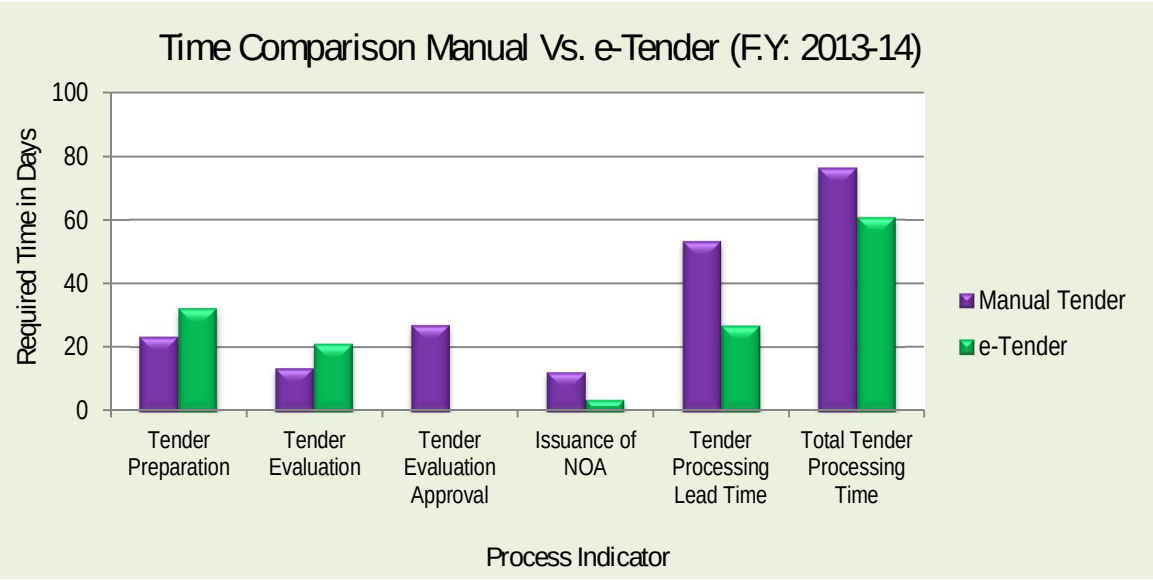

Fig 4.28: Required Time in Process Indicator for XEN Office, Netrokona (in F.Y: 2013-14)

Upshot for overall performance of all the PE offices in LGED

Sr. No.	Indicator Category	Process Indicator	F.Y: 2012-13		F.Y: 2013-14	
			Manual	e-Tender	Manual	e-Tender
1.	Tender Submission	Tender Preparation Time in Open Tendering Method	26.45	22.93	28.89	22.16
2.	Tender Evaluation	Tender Evaluation Time	15.46	27.19	12.87	22.01
3.	TER Approval	Tender Evaluation Approval Time	20.78	7.98	17.36	0.45
4.	Contract Award	Time for Issuance of NOA to Tenderer	6.69	5.03	7.49	3.6
		Tender Processing Lead Time	41.91	37.72	33.6	34.94
		Total Tender Processing Time	67.88	63.17	58.84	58.91

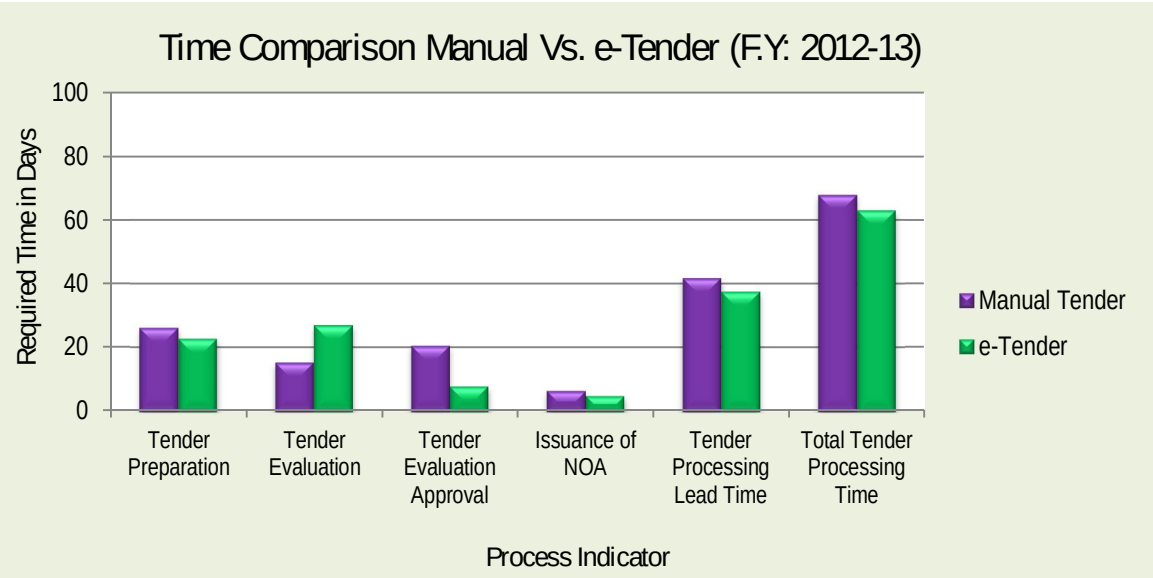

Fig 4.29: Required Time in Process Indicator for LGED (in F.Y: 2012-13)

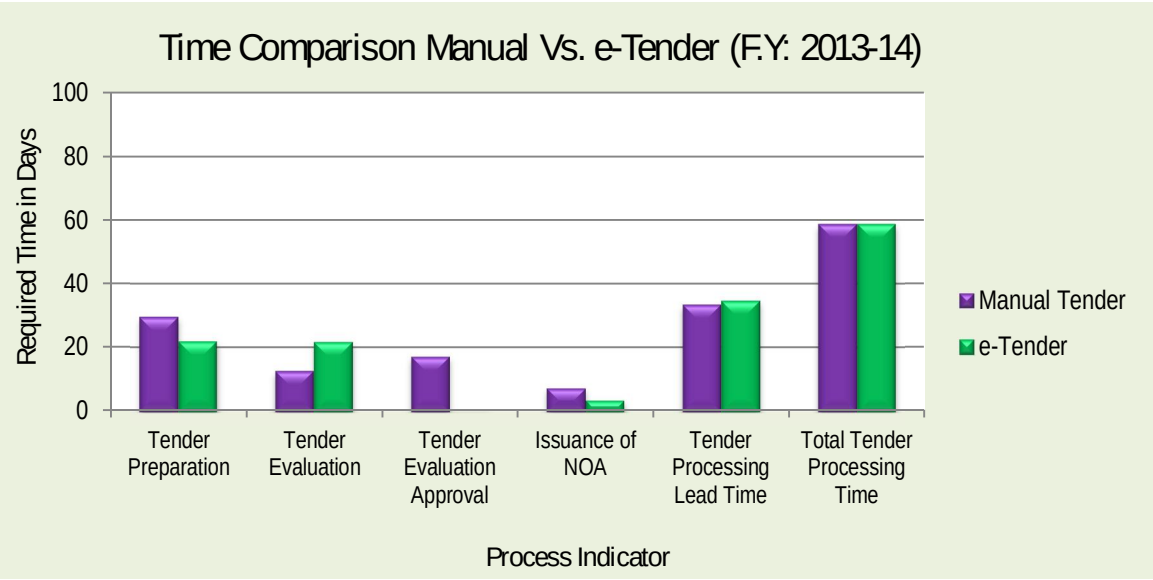

Fig 4.30: Required Time in Process Indicator for LGED (in F.Y: 2013-14)

4.3 Findings and Analysis

4.3.1 Findings and Analysis of the Survey to LGED Officials

Questionnaire survey has been conducted with three Executive Engineers, eight Upazila Engineers and one Assistant Engineer. All of them told introducing of e-GP was a revolutionary step in procurement process. As e-GP has a significant impact on PE offices overall efficiency, but the survey only focus on operating cost issue. In this respect, they told that in manual tender, they have different types of extra cost involve in the different stages of the tendering process to ensure their taken action is properly done.

As an example, in case of tender evaluation report sent to Approving Authority, 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-Tendering 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-Tender.

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. 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. In district level, 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.

Lastly, in my survey questionnaire, initially I was not aware about any 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-Tender.

4.3.2 Findings of Secondary Data Collected from Websites

4.3.2.1 Information about Number of Tenders

A total of 651 tenders' information (manual tender: 210 nos and e-Tender: 441 nos) for 6 different PE offices were selected for study. Beside this, an overall scenario of LGED's tender is analysis where, average result is considered from all the available tenders' information exists in both of the sites. Data collected from websites on the basis of pre-defined procurement performance indicator for quality & time covering partial procurement process (Invitation of Tender to Contract Award). Nine indicators were selected to assess the quality and six indicators were selected to assess the time performance of procurement. As some cases the considering part of procurement process for a single tender is not completed within a financial year, those tenders' information exists in both the consecutive financial years. Thus for some cases under an individual financial year for a particular PE office, the PROMIS software counts different number of tenders if the time frame for some tenders is not cover within a specific financial year. The number of tenders counted for considering analysis for each PE office on F.Y: 2012-13 and F.Y: 2013-14 are shown below:

Sr. No.	Name of the PE office	Number of Tender's Data count for Analysis			
		F.Y: 2012-13		F.Y: 2013-14	
		Manual	e-Tender	Manual	e-Tender
1.	Office of the Executive Engineer, LGED, Cox'sbazar	18 to 12	3	14 to 7	83
2.	Office of the Executive Engineer, LGED, Gopalganj	10	2	38 to 36	97
3.	Office of the Executive Engineer, LGED, Laxmipur	10	2	11 to 6	39
4.	Office of the Executive Engineer, LGED, Narayanganj	12 to 11	4	19 to 18	94
5.	Office of the Executive Engineer, LGED, Narshingdi	17	3	27 to 25	54
6.	Office of the Executive Engineer, LGED, Netrokona	16 to 15	2	18 to 16	58
7.	LGED (Total of all the PE office)	563 to 425	132	200 to 136	5519

4.3.2.2 Analysis of Quality Performance Data Collected from Websites

Quality performance data are collected from the websites. During assess the quality performance indicators it is found that among 9 process indicators first four indicators' performance for e-Tender is completely achieved by all the PE offices for both the financial year and it also reflects on overall result of LGED. These four indicators are (i) Advertisement of Tender Opportunities in CPTU's Website, (ii) Tender Time Compliance, (iii) TOC Formation and (iv) TEC Formation. These four indicators show the 100% compliance result on F.Y: 2012-13 and F.Y: 2013-14, for each PE offices just for the use of systems. There is no human skills is involved here and the system ensure the compliance. While in case of manual tender these indicators show different values for different PE offices. In F.Y: 2012-13 performance of all the PE offices and overall LGED's performance on these indicators are very poor. Even some cases ((i), (iii) and (iv) no. indicators) the compliance is 0% for some PE offices (Gopalganj, Laxmipur, Narayanganj and Netrokona). In F.Y: 2013-14 performance of the mentioned PE offices is showing a better compliance result. As in manual tender these 4 indicators is dependent on human skills, so there is a sign on improvement of human skills is showing here.

The rest five quality performance indicators are (v) Compliance of Tender Evaluation Time, (vi) Compliance of Financial Delegation, (vii) TER Approval Compliance, (viii) Publication of Award Information and (ix) Efficiency in Contract Award. These five indicators are completely dependent on human skills in case of both manual tender and e-Tender. There is a significantly improvement sign in case of e-Tender for performance on these indicators for all the 6 PE offices comparing with manual tender. For manual tender, in F.Y: 2012-13 and 2013-14 performance of all the PE offices and overall LGED's performance on these indicators are very poor. For all 6 PE offices and overall LGED's compliance is 0% on (v), (vii) and (ix) no. indicators for both the financial years. But in case of e-Tender, compliance is achieved from 50% to 100%. It is done because the system makes its' users aware to perform accordingly. So there is a sign on improvement of human skills is showing when tendering process is done by e-GP system.

4.3.2.3 Analysis of Time Management Performance Data Collected from Websites

Time management performance data are also collected from the websites. PPR'08 ensures different time periods for different activities. So PPR'08 has significant impact on total procurement time. The analysis told that by introducing e-GP system it has been possible to reduce lead time of tendering procedure.

When considering the overall LGED status, average tender preparation time in open tendering method (average number of days between publishing of advertisement and tender submission deadline) is 27 days for manual tender and 22.5 days for e-Tender. Selected 6 PE offices (except Netrokona), show a

reduced time in this indicator. I have discussed earlier, that 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 and overall LGED's report shows that most of the value for average tender evaluation time is below 15 days but in case of e-Tender most of these values (except Narayanganj) are above 20 days, for some offices above 35 days (Gopalganj & Netrokona in F.Y: 2012-13). Whereas, in manual tender selected 6 PE offices and overall LGED's report shows that most of the value for average tender evaluation approval time is above 15 days, for some offices above 20 days (Cox'sbazar & Netrokona in F.Y: 2012-13 & 13-14 and Laxmipur in F.Y: 2012-13). 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, Sr. AE, AE, SAE of the district). On the other hand, to keep the tender evaluation approval time within timeframe is the responsibility of Approving Authority. For LGED most of the cases the Approving Authorities are Project Director, Regional Superintending Engineer 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 & responsibility for ensuring time compliance for these two stages help to improve on time management.

So the two indicators result describes that in case of manual tender district officials were more dedicated and cautious to keep the tender evaluation time within time frame. But in case of e-Tender they are not much aware about this and the impact on time saving is negative. On the other hand, the role of Approving Authority is completely reversed than district officials for manual tender and e-Tender. The result shows that in case of e-Tender, the role of Approving Authority for impact on time saving is positive.

But the actual situation is not as simple as the result describes. My observation is that, the respected indicator's values which are shown for e-Tender for selected PE offices are right and for manual tender the values should be also like e-Tender. Because, in e-Tender what result I have received from the website are automatically generated from system. All the activities in e-GP system are recorded accordingly and there is no chance for manipulating the data. So I received positive role of Approving Authority here. But, in case of manual tender, I have received the data from CPTU's PROMIS website, where the information is provided by concerned district officials. To show their (district

officials)dedication to keep the tender evaluation time within timeframe they manipulate the data by introducing less time on their side and to balance the total time just introducing more time for tender approval procedure. However, this is an observation from my side. Further research can be done for these interesting findings.

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 (except Gopalganj in F.Y: 2012-13 & Narshingdi in F.Y: 2013-14) 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 Approving Authority 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. For two cases (Gopalganj & Narshingdi), where the impact is not positive more investigation is required to identify the causes behind this exceptionality.

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 (except Gopalganj in both the financial years, Laxmipur & Narshingdi in F.Y: 2013-14) 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 e-Tender, in F.Y: 2012-13, three indicators (i.e. time for issuance of NOA to tenderer, tender processing lead time and total tender processing time) value for district Netrokona is showing 0 (zero) days in the report. Values for these indicators can't be 0 (zero). This happened because in F.Y: 2012-13, for XEN office, Netrokona there was no tender on the issuance of NOA stage. Thus the report shows the processing time as 0 (zero).

4.3.3 Summary of Findings

Both the analysis (from questionnaire survey and website data) reveals that e-Tender has positive impact on operational cost of tendering, compliance and lead time of procurement. e-Tender brought uniformity among all the PE offices on procurement activities. This study reveals that all advertisement of tender opportunities in CPTU's website are published properly, tender time compliance, TOC formation and TEC formation are done accordingly to PPR'08. Most of the cases, there is a significantly improvement is observed on compliance of tender evaluation Time, compliance of financial delegation,

TER approval compliance, publication of award information and efficiency in contract award for e-Tender compare to manual tender.

The factors which affect the quality performance of procurement are knowledge and commitment of different users like both officials and tenderers. Political influence is also affecting the performance of procurement. Sometimes, the officials cannot maintain PPR compliance in manual tender due to political pressure. Beside this, lack of knowledge, experience and awareness make its user noncompliance to PPR.

In e-GP system, system sometime prohibited its users to perform noncompliance, give sufficient warning during violation of compliance to PPR and in case of maintaining time compliance, sometimes system prohibited the user to take action after the required time is passed (like NOA received by the tenderer after 7 working days of Issuance of NOA).

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's 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 and quality, less time is required for tendering process as technology reduced some human effort which is time consuming. Beside this, I have seen that in manual tender, user can manipulated 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. I observed a significant time reduction on tender processing lead time and total tender processing time in my case studies.

We can make my view in a sentence that e-Tender ensures discipline in procurement process.

Chapter-5: Conclusion and Recommendation

5.1 Conclusion

While the comparison between manual tender and e-Tender in LGED I observe that, achievement in reduction of tender operational cost, improve quality in tendering process by ensure compliance and reducing the tendering cycle time are successfully done at maximum PE offices of LGED by implementing e-GP system. Beside this the information shows that in F.Y: 2013-14, against 1400 nos target in inviting the tender in e-GP, LGED's achievement is 4834 nos. In the running financial year, the number of tenders in e-GP is much higher than the target. Only the number of e-Tender's figures represents that LGED and all its PE offices are benefitted by applying e-Tender instead of manual tender. This benefit is not come along with cost, quality and time basis, many other side has also significantly improve the culture and environment of LGED by implementing e-GP, like monitoring the procurement process is now done by more easily, frequently, reliably and cheaply after introducing e-GP in LGED. While performing this journey, the researcher who is also directly involved e-GP activities in LGED, keenly observed that e-Procurement works as an instrument in compliance of generic procurement principles. Despite we have very strong 'legislative & regulatory framework' in our procurement system; we could not earn the absolute confidence of the neutral body in integrity point of view in manual procurement. Competitive advantages in e-Tender compared to manual tender are as follows:

- Free: Law & order situation and unethical political pressures are the main risks in manual procurement. System eliminates these threat in e-Procurement;
- Fair: Compliance depends on human intervention in manual. System eliminates these threat in e-Procurement;
- Transparency: Compliance depends on human intervention in manual. System ensures compliance;
- Efficiency: Procurement processing time found less in e-Procurement compared to manual;
- Economy: Tendered amount found less in e-Procurement compared to manual. System generated operation, some extent eliminates integrity problem in procurement;
- Remote operation: Limitation exists in optimum use of time resource and place. System eliminates time and space barrier;
- Internal Control: Cumbersome in manual procurement. Very easy to manage in e-Procurement;
- Tender Challenging: Many complaints were received in manual. Lot of time and human resources input were requested to manage.

5.2 Recommendations

In view of the findings and analysis, the following recommendations may be made:

- Ø Manual tender data for all PE offices of different financial years yet not incorporated in PROMIS software. For proper monitoring the procurement performance of PE offices, need to incorporate all manual tender data in PROMIS software.
- Ø Improve monitoring of procurement performance within LGED using indicators through constant tracking of activities that will show expected deadlines/deliverables/requirements, deviations and reasons for deviations. A fit list may be prepared for posting a focal person for procurement purpose in each project/unit of LGED.
- Ø During tender evaluation, still there is no difference for e-Tender and manual tender, while the process of tenderer's document verification during post qualification. This is a time consuming issue and sometimes TEC can't complete the evaluation within the PPR'08 specified time frame. A central database can be established where contractors' previous qualification will be stored, which is already verified. Thus repetition of verification of same information for a tenderer by different PE offices can be eliminated and corresponding time and cost required for verification purposes also be reduced.
- Ø According to my hypothesis, compare with manual tender, e-Tender will improve the performance related cost, quality and time issue for all the PE offices in LGED. Among selected 6 PE offices, I found some of the data is not meet the hypothesis. Proper investigation on agency level is needed to introduce the root causes behind this.
- Ø 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.
- Ø There are still many scope for software development to gain more efficiency in case of e-Tendering process, by developing this area system can ensure more compliance on tendering process. As example, for compliance of financial delegation and publication of award information can be done 100% by just developing the software. CPTU can take initiative for this development.

5.3 Future works

- Ø A similar research work could be done for LGED's different tier PE offices.
- Ø A Separate research work could be done for LGED considering factors other than cost, quality and time.
- Ø Later a separate research work could be done for LGED's manual contract and e-CMS.

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Appendix-A

QUESTIONNAIRE

Title of Dissertation: Assessment of e-Tendering (e-GP) process in LGED: a case study for selected offices.

Name of the Researcher: Md. Saifur Rahman Joarder, Senior Assistant Engineer, Procurement Unit, LGED

[This is a survey questionnaire intended to perform an academic research on assessment of present performance efficiency issues by implementing e-Tendering process in LGED. Response will certainly identify the organization's present & previous performance and ask whether it achieve any positive effect by introducing new systems of technology. As a general concept, e-GP solutions will make purchasing activities more effective in terms of Cost, Quality & Time management. This questionnaire only assesses the Cost Efficiency in the Tendering Process. It is a requirement for the Partial Fulfillment of the Degree of "Masters in Procurement and Supply Management (MPSM)" at the BRAC Institute of Governance and Development (BIGD), BRAC University. Your honest response is valuable for the researcher. The researcher does assure that the information given by you will be kept confidential and will be used only for the academic purpose.]

SECTION-1: GENERAL INFORMATION OF THE RESPONDER

1. Name of the Department/Organization: LOCAL GOVERNMENT ENGINEERING DEPARTMENT
2. Name of the Responder (Optional): ……
3. Designation: ……
4. Present Place of Posting (Optional): ……..
5. Years of Experiences in Procurement Activities: ……..
6. Mention Average Annual Volume of Procurement you were Involved (in F.Y: 2012-13 & 2013-14):
   [Please Provide Tick (√) marks within relevant field]

Tendering Process	Financial Year	Average Annual Volume of Procurement (Amount in BDT, Crore)						
		< 1.0	1.0 – 2.0	2.0 – 4.0	4.0 – 6.0	6.0 – 8.0	8.0 – 10.0	> 10.0
Manual Tendering	2012-13							
	2013-14							
e-Tendering	2012-13							
	2013-14							

SECTION-2: ASSESSMENT FOR THE COST EFFICIENCY

[Please consider average cost expenditure for a works Tender valued 1.0 to 2.0 Crore (PW2a & e-PW2a)]

Sr. No.	Indicator Category	Process Indicator	Cost for Manual Tendering	Cost for e-Tendering
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		Not Applicable
		Any other Cost (Please Specify) ……		
3.	TOC and TEC	TOC & TEC Members Creation & Management Cost (Process, Communication, etc.)		
		Any other Cost (Please Specify) ……		
4.	Tender Evaluation	TOC & 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 & Communicate with Tenderer		
		Cost for Contract Agreement		
		Cost for Contract Award Publication to CPTU's Website		
		Any other Cost (Please Specify) ……		
Total Amount in BDT, Thousands				

**Consider required average number of Tender Document you need to prepare for one Tender. A PW2a Tender Document contains average 54 numbers of pages without BOQ, General Specifications, Particular Specifications and Drawings.