

The impact of e-GP system in Dhaka WASA a case study for selected offices

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**BRAC Institute of Governance and Development,
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Dedicated
To
My beloved parents

Declaration

.....
I, the undersigned would like to declare that this paper is solely presented for the dissertation works titled as "**The impact of e-GP system in Dhaka WASA** : 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 Dhaka WASA that certainly help me to play an important role in my organization. I limited my study in one governmental organization "Dhaka WASA" 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.

Mohammad Sohel Khan
September, 2016

Certificate of Originality by the Supervisor

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The project entitled " The impact of e-GP system in Dhaka WASA: a case study for selected offices" has been prepared by Mohammad Sohel Khan, (ID No. 005599481), BRAC Institute of Governance and Development (BIGD), BRAC University and submitted as partial fulfilment 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 honourable 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 “The impact of e-GP system in Dhaka WASA: 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 Dhaka WASA 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 Dhaka WASA. 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 Dhaka WASA collected from websites and questionnaire-based survey. Also, this study examines the current status of e-GP adoption in Dhaka WASA. 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. Four Government Agency like LGED, 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 Dhaka WASA. Dhaka WASA's function, objectives, organogram, functional unit of Dhaka WASA, areas of intervention and development out lay are briefed in this section. Beside this the background of e-GP implementation in Dhaka WASA, impact of PPRP-II (AF)'s DLI target on 4 target agency, Dhaka WASA's initiative to cope up the system it's all tier gradually, present e-GP status on Dhaka WASA & 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 Dhaka WASA 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: 2014-15 & 2015-16). 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 Dhaka WASA 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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Abbreviations

AA	Approving Authority
ADP	Annual Development Programme
ADB	Asian Development Bank
AE	Assistant Engineer
BDT	Bangladesh Taka (Currency)
BCC	Bangladesh Computer Council
BOQ	Bill of Quantity
BTRC	Bangladesh Telecommunication Regulatory Commission
BTTB	Bangladesh Telegraph and Telephone Board
BWDB	Bangladesh Water Development Board
CPTU	Central Procurement Technical Unit
DWASA	Dhaka Water Supply and Sewerage Authority
DPD	Deputy Project Director
EDI	Electronic Data Interchange
E-CMS	Electronic Contract management System
e-GP	Electronic Government Procurement
ERP	Enterprise Resource Planning
F.Y	Financial Year
GOB	Government of Bangladesh
HOPE	Head of Procuring Entity
ICT	Information and Communication Technology
IP	Internet Protocol
ISP	Internet Service Provider
ITES	Information Technology Enabled Services
IMED	Implementation Monitoring and Evaluation Division
LAN	Local Area Network

LGED	Local Government Engineering Department
Mbps	Megabyte per Second
MIS	Management Information System
NOA	Notification of Award
PD	Project Director
PE	Procuring Entity
PPA	Public Procurement Act
PPR	Public Procurement Rules
PPRP (II) AF	Public Procurement Reform Project (II) Additional Financing
PROMIS	Procurement Monitoring Information System
RHD	Roads and Highway Department
REB	Rural Electrification Board
TEC	Tender evaluation committee
TER	Tender Evaluation Report
TOC	Tender Opening Committee
WB	World Bank
WAN	Wide Area Network
XEN	Executive Engineer

Chapter 1: Introduction

.....

1.1 Background

Public procurement involves acquisition through contracts of goods, works, or services required by governments. 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 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. Year wise public expenditure by this organization evinces that Dhaka WASA is keeping uptrend pattern in spending public money and earned the central government confidence as an efficient agency. Dhaka WASA is also ready to take the

challenges in e-GP operation shifting from manual operation and know way wants to the effect of implementing e-Tendering (e-GP) process in performance efficiency issues on Dhaka WASA procurement activities comparing to its present & previous manual tendering process. It has been anticipated that Dhaka WASA executes 1700 nos procurement contracts each year. Thus, it seems to be a good consideration to have a look what is 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 Dhaka WASA executes 1700 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 Dhaka WASA'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 Dhaka WASA 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:

- To assess the saving in operational cost of the Dhaka WASA's PE offices by entering into e-Tendering process.
- To assess the efficiency gain by Dhaka WASA's Govt. officials by inviting e-Tender frequently.
- To assess the improvement of time management on e-Tendering process.
- 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 lifecycle. 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 favour 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 reengineered.

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:

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

- Decrease in procurement transaction costs
- ✓ Public procurement services like market search, ordering, tendering, etc. will become more efficient and effective.
- ✓ 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.
- ✓ "Maverick buying" will be reduced.
- ✓ Bureaucratic inertia will be reduced.
- Increase competition
- ✓ The public sector business opportunities will be accessible by all vendors, which in turn will enhance the competitive environment.
- ✓ The purchasing power of the government can be better coordinated and costs of goods and services will be reduced through this aggregating purchasing volume. 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 Dhaka WASA 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 Dhaka WASA

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3.1 Organization Selected for Study: Dhaka WASA - A Public Sector Organization

3.1.1 Introduction

Dhaka Water Supply and Sewerage Authority (DWASA) is a service oriented autonomous commercial organization. It is playing a great role in providing safe water and drainage facilities to the Dhaka city dwellers and also to the people of Narayangonj city. Before I start my analysis on the "Assessment of e-Tendering (e-GP) process in Dhaka WASA: 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

Dhaka WASA was established in 1963 as an independent organisation under the EAST Pakistan Ordinance XIX. It is a service oriented autonomous commercial organization in the public sector, entrusted with the responsibility of providing water supply, sewerage disposal (Wastewater), and storm water drainage service to the urban dwellers of Dhaka city. Till June, 1989, the jurisdiction of Dhaka WASA was limited only to Dhaka metropolitan area. Afterwards Dhaka WASA had the responsibility for supplying water and operating sewerage system of Narayangonj city also in 1990. At present Dhaka WASA service area includes mega city Dhaka and Narayangonj. For easy operation, maintenance and providing better public service, Dhaka WASA service areas have been divided into 11 geographical zones. Among those, 10 zones within Dhaka city and one in Narayangonj city.

3.1.3 Goals and Objectives of Dhaka WASA: The objective of Dhaka WASA is supplying safe and portable water in mega city Dhaka and Narayangonj and improving the sewerage and drainage system. At present major responsibilities of Dhaka WASA are as follows:

- Construction, operation, development and maintenance of necessary infrastructure (Deep Tubewell, Water Treatment Plant) for supplying safe water to residential, industrial and commercial customers.
- Construction, development and maintenance of sewerage treatment plant and sewerage system.
- Construction, development and maintenance of storm sewer lines to remove water congestion in the city.

3.1.4 Dhaka WASA Organogram

Dhaka WASA is headed by the Managing Director. It is comprised of four wings each of which headed by deputy managing director. The organizational structure of Dhaka WASA was changed according to the Act no 6, 1996. As mentioned in the Act, Dhaka WASA Board consists of 13 members, headed by the chairman. The Board is formed by representatives from different professional organizations and government officials. According to the organisational structure of 2007 the total number of approved posts is 4667. The organogram of Dhaka WASA is shown below:

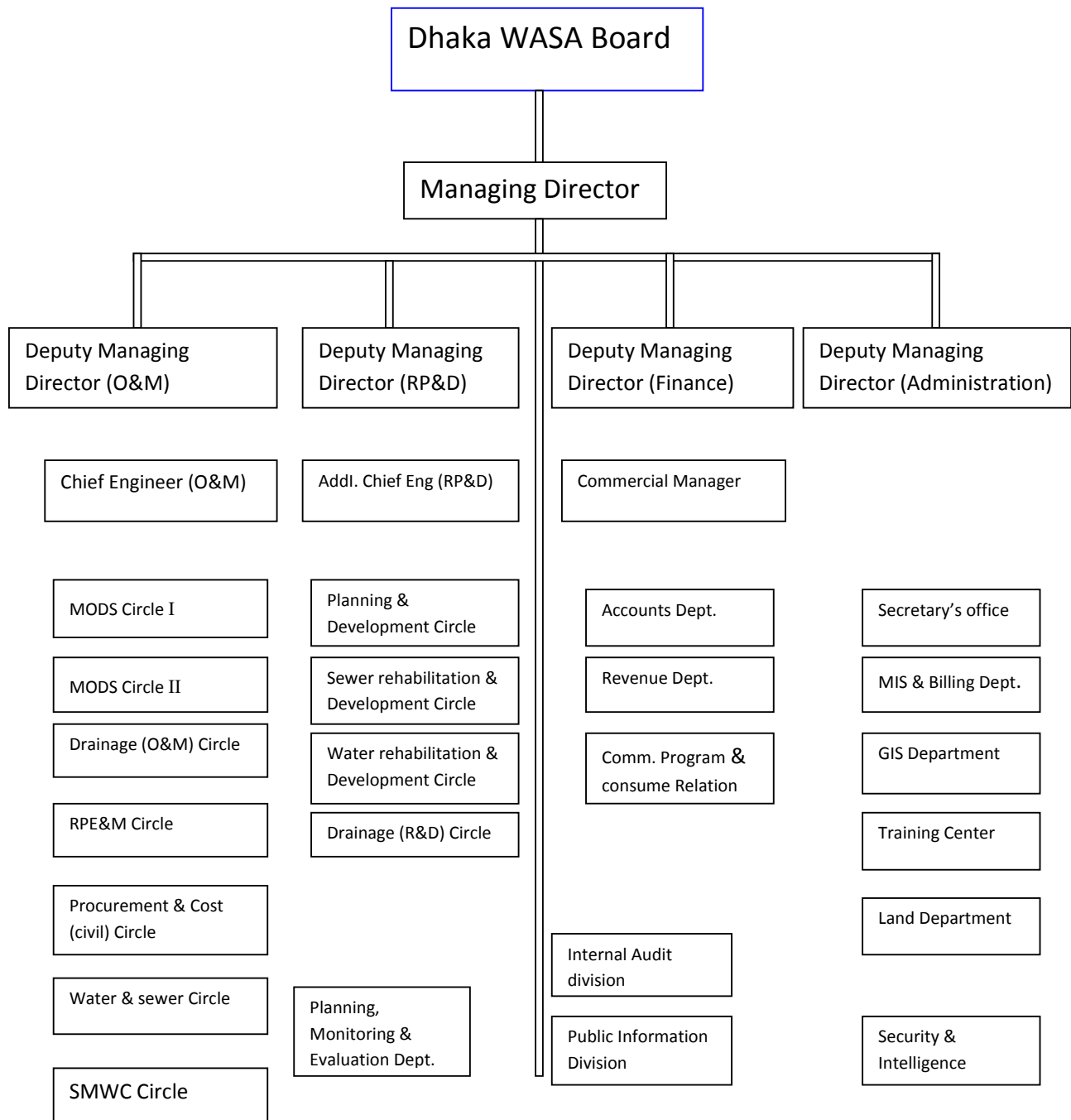


Figure: Organogram of Dhaka WASA

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:

- Tenderers/Contractors/Applicants/Consultants.
- Procuring Agencies/Entities.
- Payment Service Providers (scheduled banks and other payment service providers).
- Development Partners.
- e-GP System Administrators (CPTU and Procuring Entity Administrators) and Auditors.
- Operation & Maintenance Partners.
- Committees (Opening/Evaluation/Technical Subcommittee etc.).

- Approval Authorities
- General Public for information related public procurement
- 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. Mainly the project is being implemented through CPTU. In order to implement e-GP, each organization needs to achieve a milestone for each year.

3.3 Steps Taken by Dhaka WASA for Implementation of e-GP

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

In order to implement the e-GP in Dhaka WASA, 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: 2014-15), Dhaka WASA started e-GP on pilot basis targeting its 2 departments. Later it created almost every PE offices. In the F.Y: 2015-16 Dhaka WASA implemented its e-Gp system in every PE offices.

3.3.2 Program for Capacity Development on e-GP System for Dhaka

WASA'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 Dhaka WASA already trained a significant number of its officials and employee in last 2 years. The number of manpower trained on e-GP system is approximately 500. Dhaka WASA started to conduct this training program

by its own training budget and later when **Dhaka WASA** 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, **Dhaka WASA** conduct its e-GP training program completely by its in-house trainers, who are different levels of Dhaka WASA officials. Dhaka WASA 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.

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. Dhaka WASA officially had taken the initiative to register a lot of bidders in e-GP system at F.Y: 2015-16. Beside this Dhaka WASA started to train the registered bidders for their effective participation in e-Tendering process.

3.3.4 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:

- Non functioning of the software context;
- Improvement requirement for efficiency and effectiveness context; and
- Improvement requirement for the software in legal context.

3.4 e-GP Implementation Policies by Dhaka WASA

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

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

3.5 SWOT Analysis - Dhaka WASA

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:

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

Weakness of the organization. These are:

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

Opportunity the organization will enjoy. These are:

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

Threat the organization will face. These are:

- Confidence level of donor agencies to use e-GP system.
- Support service from CPTU about the software.
- 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 Dhaka WASA, 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 Dhaka WASA 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)

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 & Management Cost (Process, Communication, etc.)
4	Tender Evaluation	TOC & TEC Members Honorarium
		Tender Evaluation Report Preparation Cost
5	Tender Evaluation Report 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

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 Tendering	Cost for e-Tendering
1	Invitation for Tender	Newspaper Advertisement	18000	8000
		Tender Preparation	3500	500
		Subtotal	21500	8500
2	Tender Submission	Pre-tender Meeting	500	0
		Multiple Locations	750	0
		Other (Tender Box Security at Multiple Locations)	1000	0
		Subtotal	2250	0
3	TOC and TEC	Creation & Management	200	0
4	Tender Evaluation	Members Honorarium	8000	5000
		TER Preparation	1500	300
		Other (Meeting & Document Verification)	500	200
		Subtotal	10000	5500
5	Tender Evaluation Report Approval	TER Sent to AA	1000	0
6	Contract Award	NOA	200	0
		Contract Agreement	500	200
		Subtotal	700	200
7	Others	Internet connectivity	0	2000
Total			35650	16200

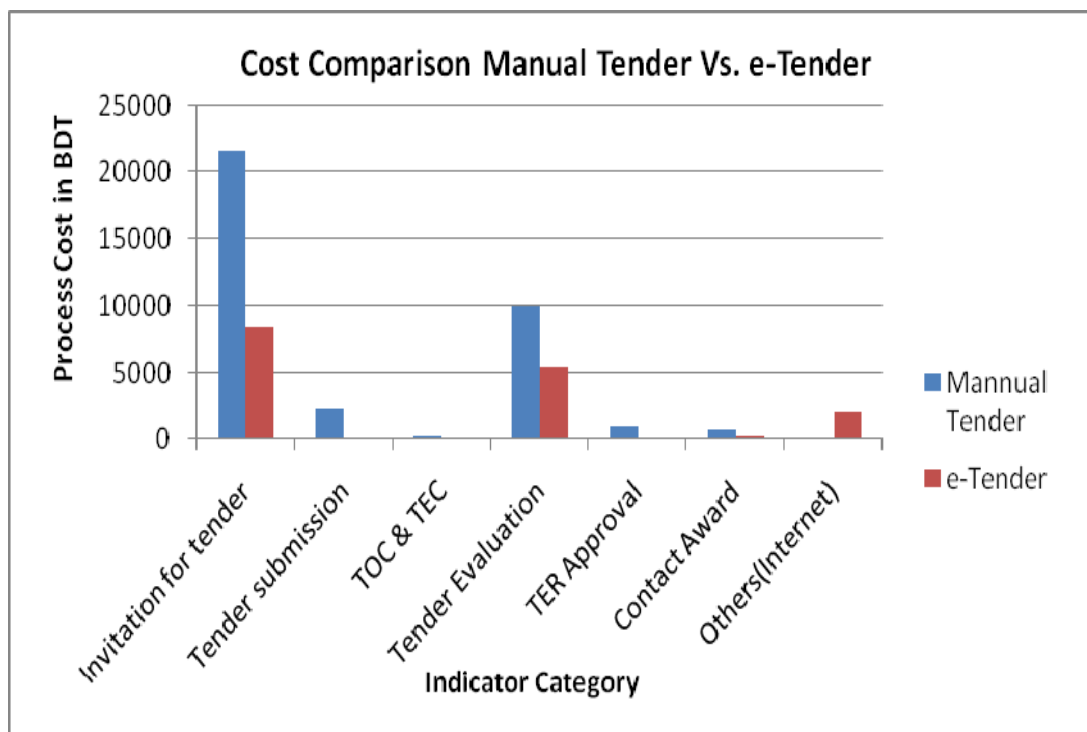


Fig 4.1: Major Cost Head of Manual Tender & Electronic Tender in Dhaka WASA

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

Dhaka WASA started its journey for implementing e-GP in the F.Y: 2014-15. In the F.Y: 2014-15 & F.Y: 2015-16, 252 nos & 956 nos tenders were invited through e-Tendering process in Dhaka WASA. 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 Dhaka WASA’s PE offices 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 are instructed to input their manual tendering data with a threshold of above Tk. 1.0 Crore contract, it contains limited PE offices information. Based on the mentioned limitation I have selected the 6 PE offices of Dhaka WASA, 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: 2014-15 & 2015-16 in PROMIS site. In F.Y: 2014-15 as Dhaka WASA perform only 252 nos tender in e-GP system. In F.Y: 2015-16 as Dhaka WASA perform 956 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:

- Procurement Division-1, Dhaka WASA
- Procurement Division-2, Dhaka WASA
- SOC Division, Dhaka WASA
- Drainage Division-1, Dhaka WASA
- Drainage Division-2, Dhaka WASA and
- Bottle Water Plant Production, Dhaka WASA

Beside these PE offices, the overall scenario of Dhaka WASA'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

Dhaka WASA has approximately 70 nos PE offices and more than 3000 permanent staffs are working in this organization. They work all over the Dhaka city. Additional about 1200 nos staffs are working in PD offices. In total around 4200 nos staffs are working in Dhaka WASA. As an engineering organization, a significant number of Dhaka WASA 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 Dhaka WASA'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 Dhaka WASA 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 9 nos Process Indicator can be best fitted for compliance issues on tendering process.

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 Procurement Division-1, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	50	100	0	100
2	Tender Submission	Tender Time Compliance	100	100	100	100
3	TOC and TEC	Tender Opening Committee Formation	100	100	100	100
		Tender Evaluation Committee Formation	100	100	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	100	100	100	100
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	100	100	100	100
		TER Approval Compliance	100	100	100	100
6	Contract Award	Publication of Award Information	0	100	0	100
		Efficiency in Contract Award	100	100	100	100

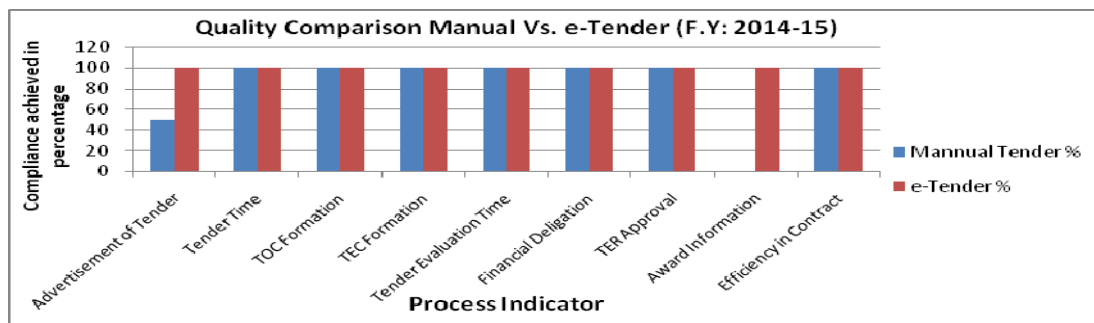


Fig 4.2: Compliance Achieved in Process Indicator for Procurement-1 Division (in F.Y: 2014-15)

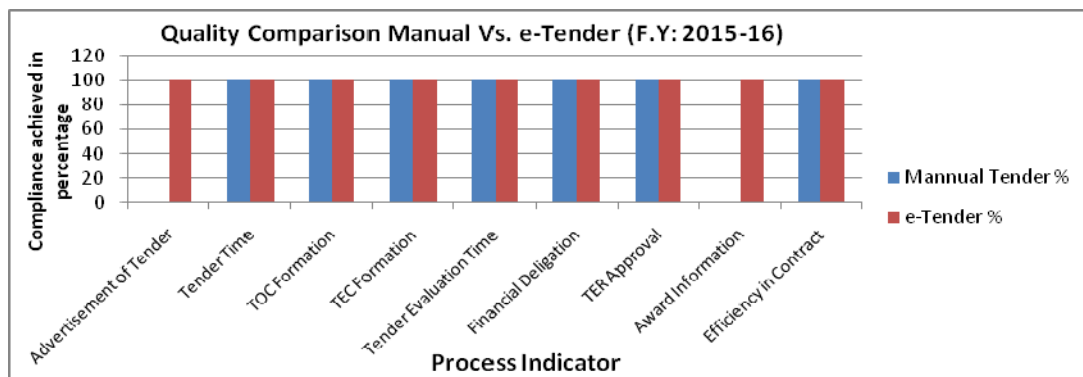


Fig 4.3: Compliance Achieved in Process Indicator for Procurement-1 Division (in F.Y: 2015-16)

Upshot for Office of the Procurement Division-2, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	38	100	0	100
2	Tender Submission	Tender Time Compliance	100	100	100	100
3	TOC and TEC	Tender Opening Committee Formation	100	100	100	100
		Tender Evaluation Committee Formation	100	100	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	100	100	100	100
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	100	100	100	100
		TER Approval Compliance	100	100	100	100
6	Contract Award	Publication of Award Information	90	100	0	100
		Efficiency in Contract Award	100	100	100	100

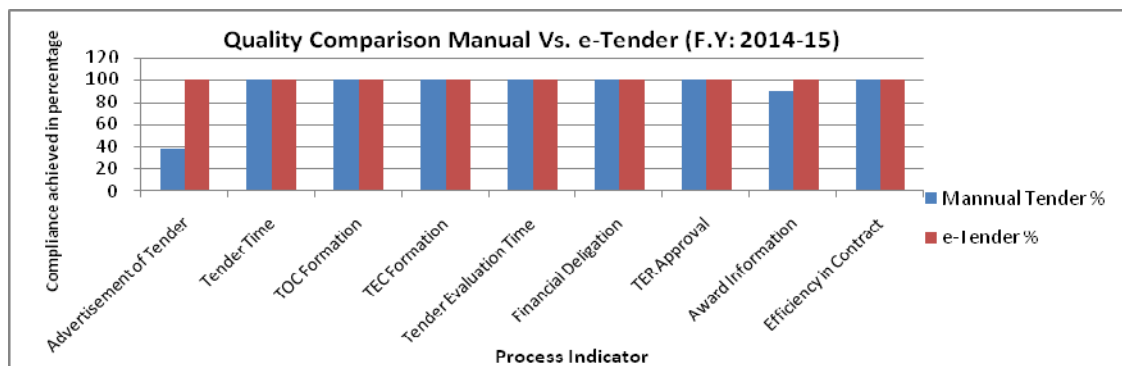


Fig 4.4: Compliance Achieved in Process Indicator for Procurement-2 Division (in F.Y: 2014-15)

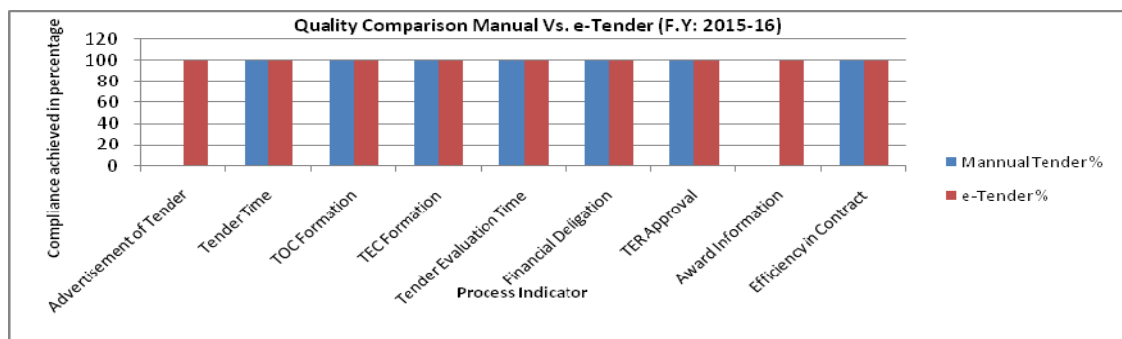


Fig 4.5: Compliance Achieved in Process Indicator for Procurement-2 Division (in F.Y: 2015-16)

Upshot for Office of the SOC Division, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	40	100	0	100
2	Tender Submission	Tender Time Compliance	0	100	60	100
3	TOC and TEC	Tender Opening Committee Formation	100	100	100	100
		Tender Evaluation Committee Formation	100	100	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	100	100	100	100
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	100	100	100	100
		TER Approval Compliance	100	100	100	100
6	Contract Award	Publication of Award Information	85	100	0	100
		Efficiency in Contract Award	100	100	100	100

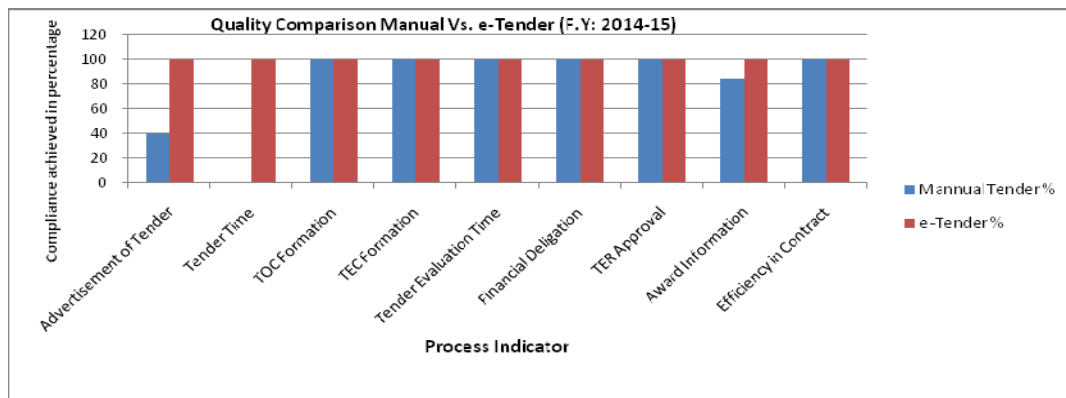


Fig 4.6: Compliance Achieved in Process Indicator for SOC Division (in F.Y: 2014-15)

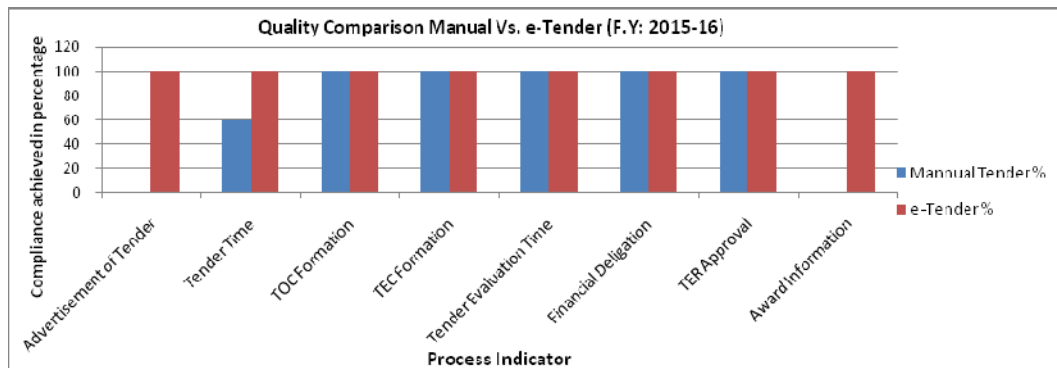


Fig 4.7: Compliance Achieved in Process Indicator for SOC Division (in F.Y: 2015-16)

Upshot for Office of the Drainage (O&M) Division-1, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	2	100	0	100
2	Tender Submission	Tender Time Compliance	80	90	80	85
3	TOC and TEC	Tender Opening Committee Formation	100	100	100	100
		Tender Evaluation Committee Formation	100	100	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	50	70	60	75
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	100	100	100	100
		TER Approval Compliance	70	80	70	85
6	Contract Award	Publication of Award Information	0	100	0	100
		Efficiency in Contract Award	95	99	95	100

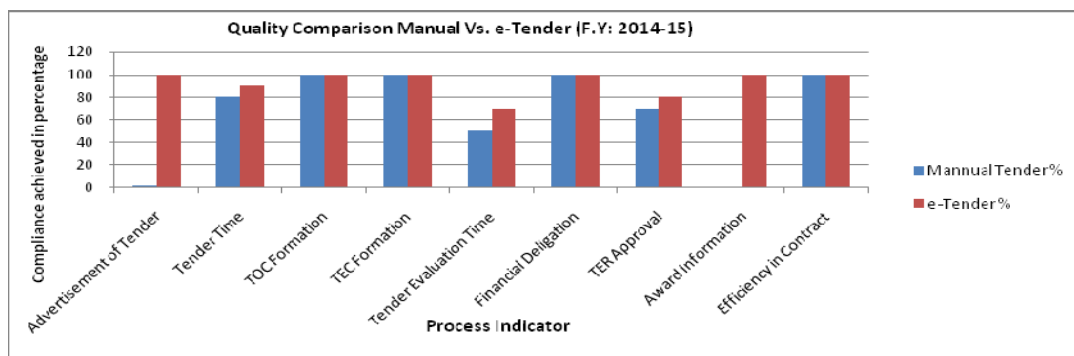


Fig 4.8: Compliance Achieved in Process Indicator for Drainage (O&M) Division-1 (in F.Y: 2014-15)

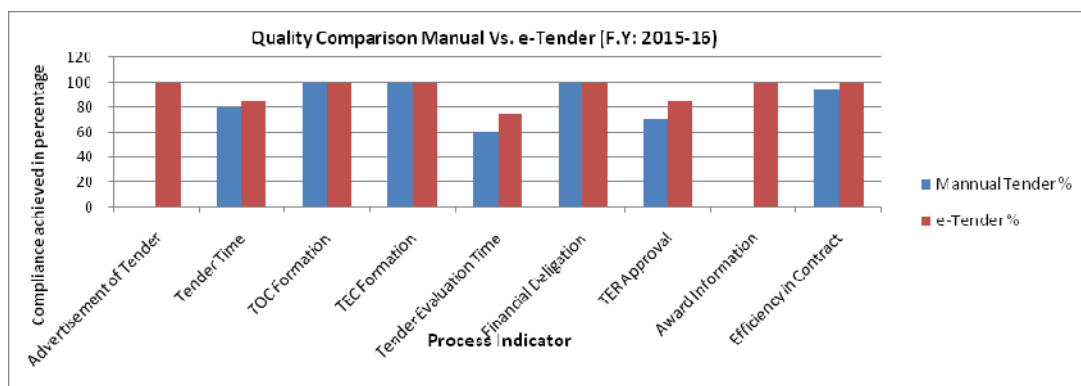


Fig 4.9: Compliance Achieved in Process Indicator for Drainage (O&M) Division-1 (in F.Y: 2015-16)

Upshot for Office of the Drainage (O&M) Division-2, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	95	5	80	20
2	Tender Submission	Tender Time Compliance	100	100	100	100
3	TOC and TEC	Tender Opening Committee Formation	100	100	100	100
		Tender Evaluation Committee Formation	100	100	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	68	100	90	95
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	100	100	100	100
		TER Approval Compliance	90	95	98	98
6	Contract Award	Publication of Award Information	0	100	0	100
		Efficiency in Contract Award	100	100	100	95

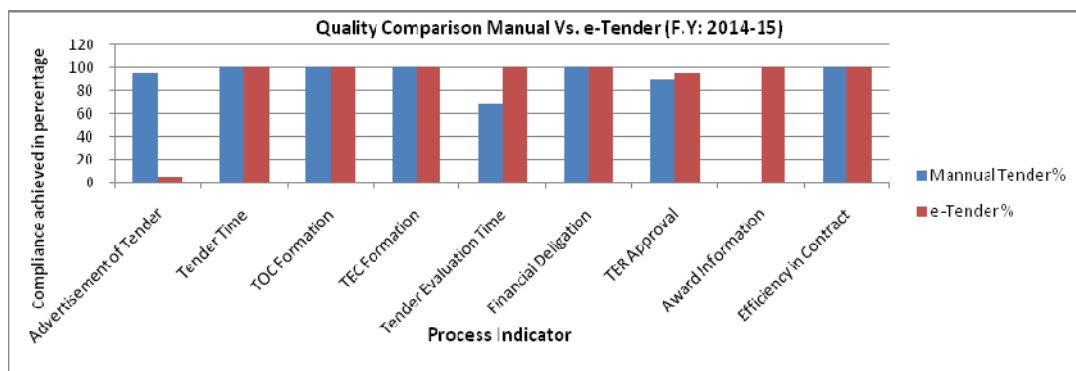


Fig 4.10: Compliance Achieved in Process Indicator for Drainage (O&M) Division-2 (in F.Y: 2014-15)

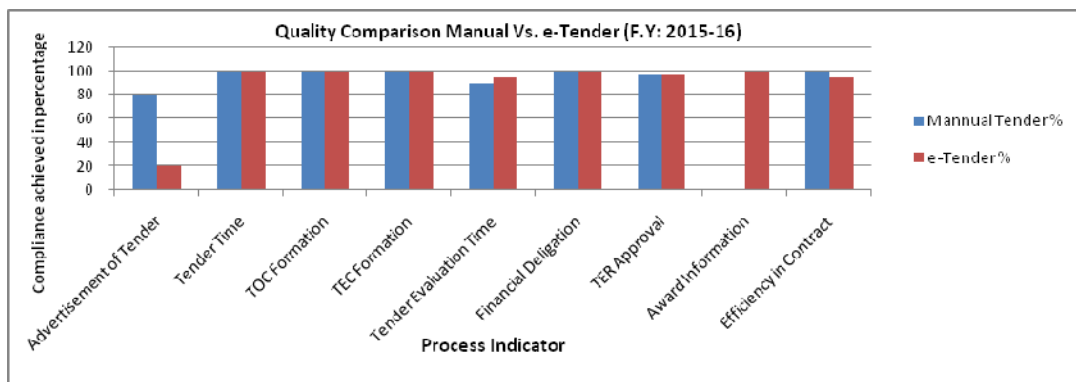


Fig 4.11: Compliance Achieved in Process Indicator for Drainage (O&M) Division-2 (in F.Y: 2015-16)

Upshot for Office of the Bottle Water Production Plant, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y: 2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Invitation for Tender	Advertisement of Tender Opportunities in CPTU's Website	0	100	10	100
2	Tender Submission	Tender Time Compliance	10	90	100	100
3	TOC and TEC	Tender Opening Committee Formation	10	90	100	100
		Tender Evaluation Committee Formation	10	90	100	100
4	Tender Evaluation	Compliance of Tender Evaluation Time	10	90	100	100
5	Tender Evaluation Report Approval	Compliance of Financial Delegation	10	90	100	100
		TER Approval Compliance	10	90	100	100
6	Contract Award	Publication of Award Information	10	90	0	100
		Efficiency in Contract Award	100	100	100	100

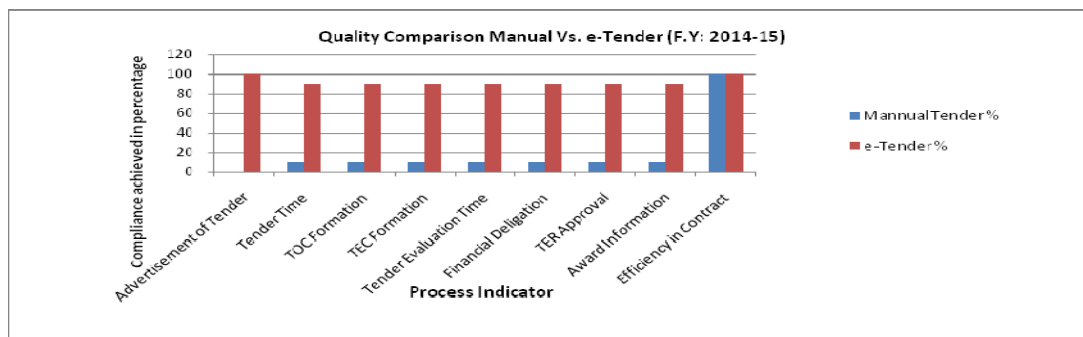


Fig 4.12: Compliance Achieved in Process Indicator for Bottle Water Production Plant Division (in F.Y: 2014-15)

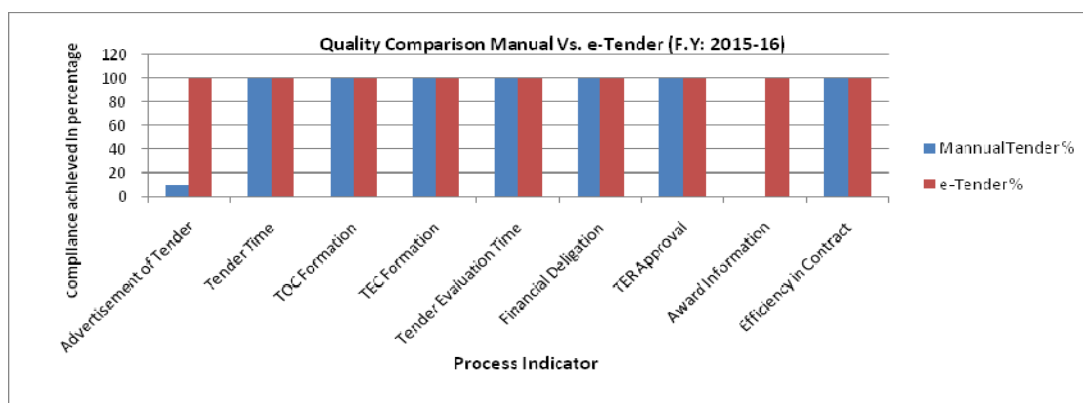


Fig 4.13: Compliance Achieved in Process Indicator for Bottle Water Production Plant Division (in F.Y: 2015-16)

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 Dhaka WASA 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 Procurement Division-1, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	23	22	22	21
2	Tender Evaluation	Tender Evaluation Time	27	30	25	24
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	6	4	6	5
4	Contract Award	Time for Issuance of NOA to Tenderer	5	3	3	3
		Tender Processing Lead Time	38	37	34	35
		Total Tender Processing Time	59	55	58	56

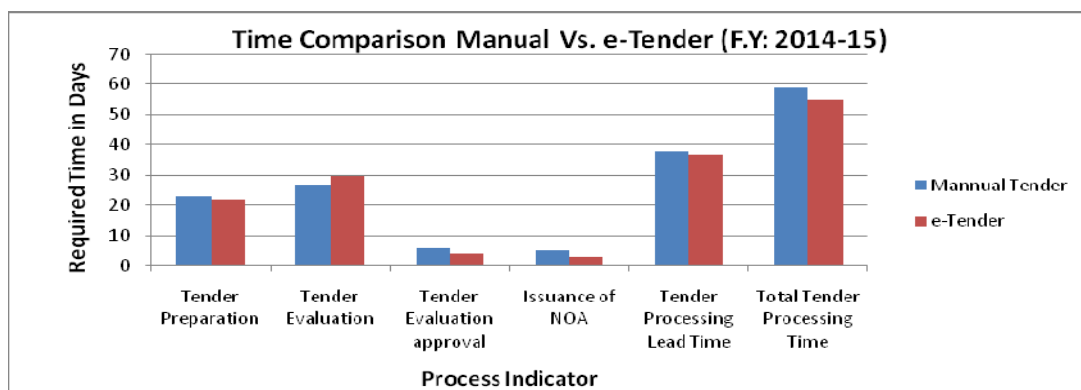


Fig 4.14: Required Time in Process Indicator for Procurement-1 Division (in F.Y: 2014-15)

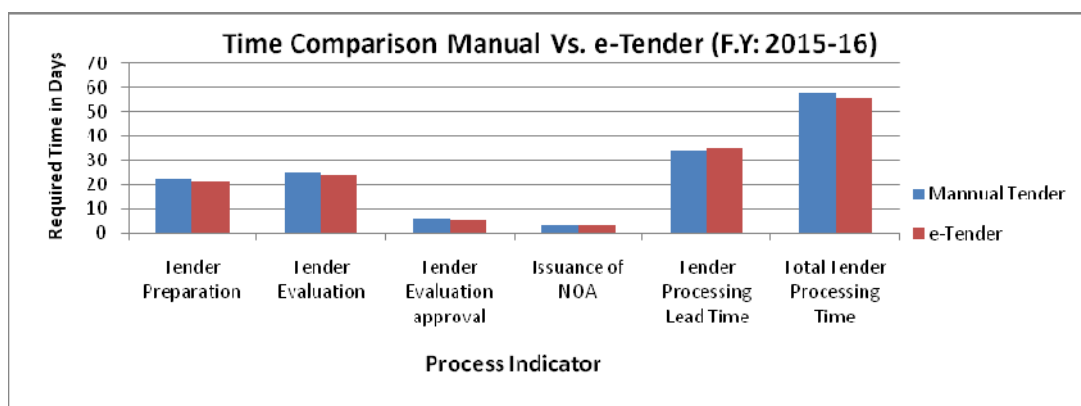


Fig 4.15: Required Time in Process Indicator for Procurement-1 Division (in F.Y: 2015-16)

Upshot for Office of the Procurement Division-2, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	25	22	25	23
2	Tender Evaluation	Tender Evaluation Time	20	15	20	15
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	3	2	3	2
4	Contract Award	Time for Issuance of NOA to Tenderer	2	0	2	0
		Tender Processing Lead Time	25	17	25	17
		Total Tender Processing Time	43	35	43	35

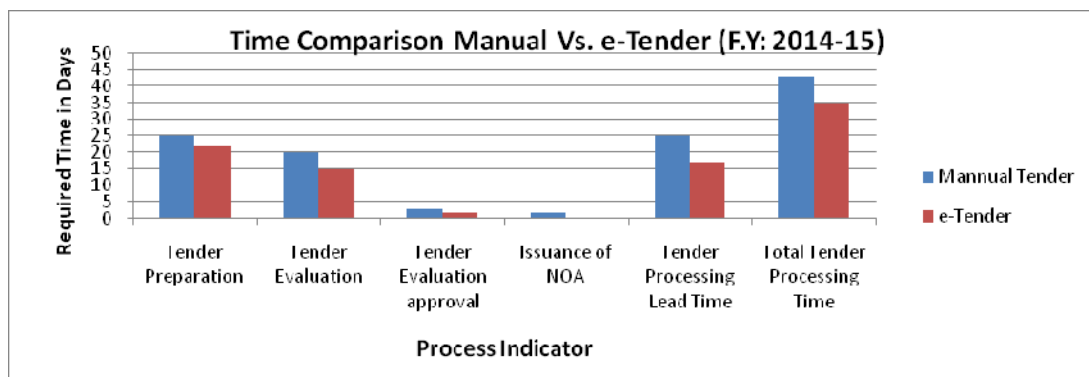


Fig 4.16: Required Time in Process Indicator for Procurement-2 Division (in F.Y: 2014-15)

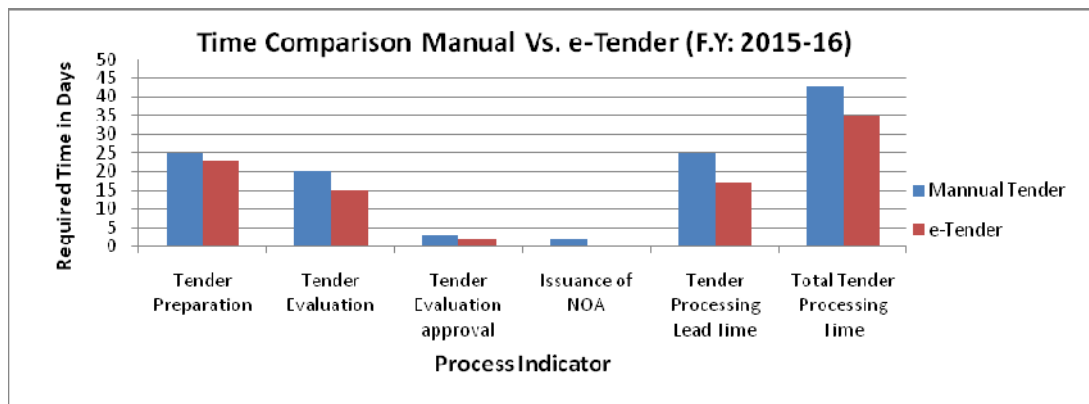


Fig 4.17: Required Time in Process Indicator for Procurement-2 Division (in F.Y: 2015-16)

Upshot for Office of the SOC Division, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	24	22	26	23
2	Tender Evaluation	Tender Evaluation Time	20	16	20	15
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	3	2	3	2
4	Contract Award	Time for Issuance of NOA to Tenderer	3	0	3	0
		Tender Processing Lead Time	25	18	26	17
		Total Tender Processing Time	44	34	44	34

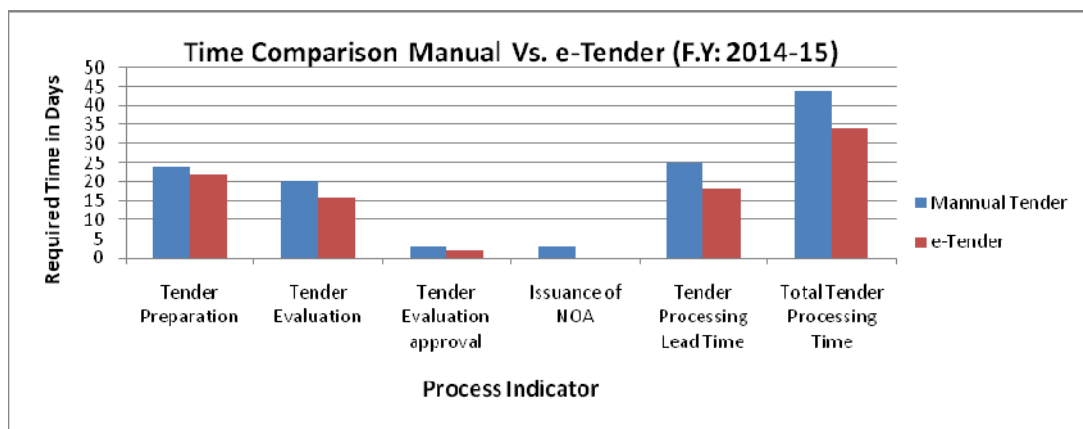


Fig 4.18: Required Time in Process Indicator for SOC Division (in F.Y: 2014-15)

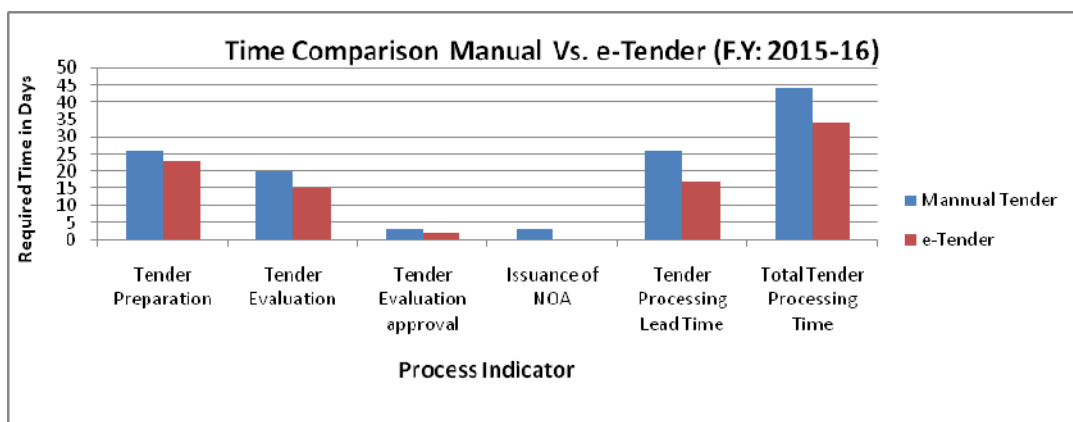


Fig 4.19: Required Time in Process Indicator for SOC Division (in F.Y: 2015-16)

Upshot for Office of the Drainage (O&M) Division-1, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	25	22	25	23
2	Tender Evaluation	Tender Evaluation Time	10	10	10	10
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	7	4	7	3
4	Contract Award	Time for Issuance of NOA to Tenderer	7	4	7	3
		Tender Processing Lead Time	25	20	25	20
		Total Tender Processing Time	50	45	50	40

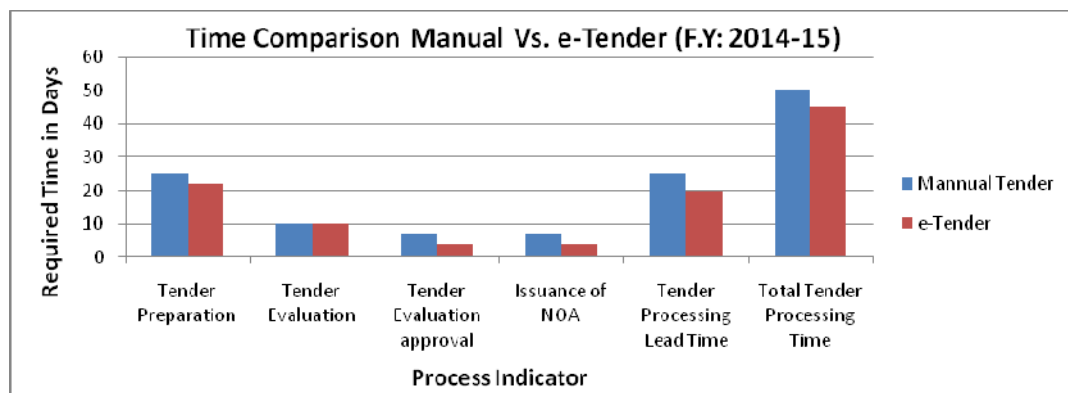


Fig 4.20: Required Time in Process Indicator for Drainage (O&M) Division1 (in F.Y: 2014-15)

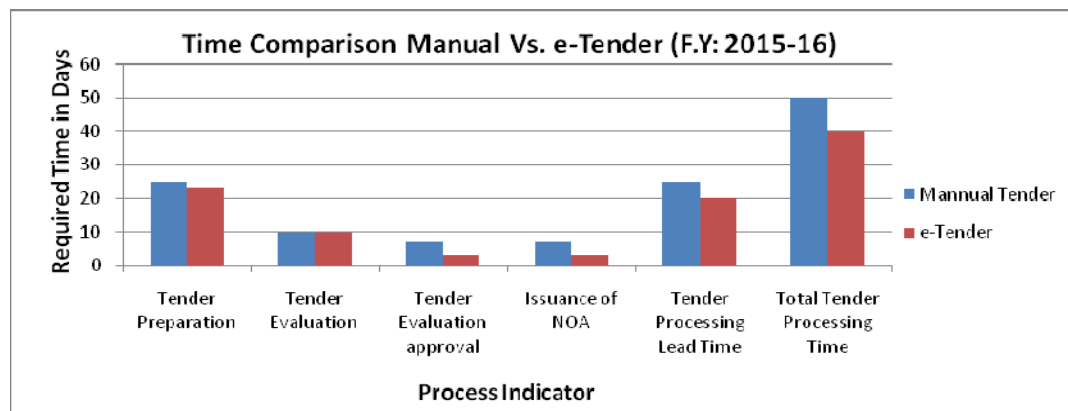


Fig 4.21: Required Time in Process Indicator for Drainage (O&M) Division1 (in F.Y: 2015-16)

Upshot for Office of the Drainage (O&M) Division-2, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	25	22	25	24
2	Tender Evaluation	Tender Evaluation Time	15	20	15	15
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	5	7	4	5
4	Contract Award	Time for Issuance of NOA to Tenderer	3	2	2	2
		Tender Processing Lead Time	23	29	21	22
		Total Tender Processing Time	37	50	35	36

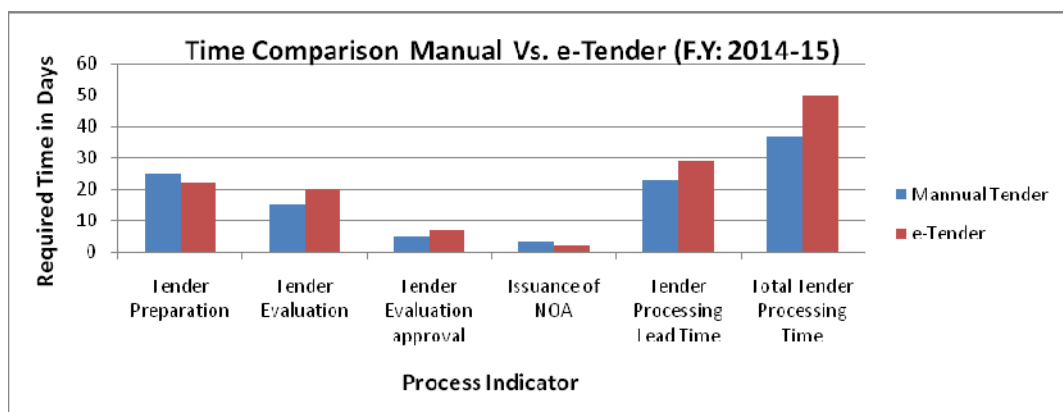


Fig 4.22: Required Time in Process Indicator for Drainage (O&M) Division-2 (in F.Y: 2014-15)

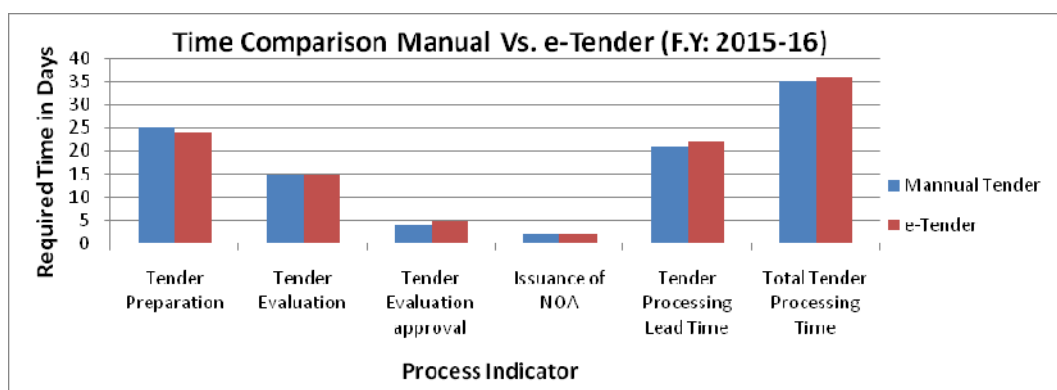


Fig 4.23: Required Time in Process Indicator for Drainage (O&M) Division-2 (in F.Y: 2015-16)

Upshot for Office of the Bottle Water Production Plant Division, Dhaka WASA

Sr. No.	Indicator Category	Process Indicator	F.Y:2014-15		F.Y:2015-16	
			Manual	e-Tender	Manual	e-Tender
1	Tender Submission	Tender Preparation Time in Open Tendering Method	25	23	22	21
2	Tender Evaluation	Tender Evaluation Time	28	14	28	14
3	Tender Evaluation Report Approval	Tender Evaluation Approval Time	10	7	8	7
4	Contract Award	Time for Issuance of NOA to Tenderer	7	7	9	7
		Tender Processing Lead Time	7	7	8	7
		Total Tender Processing Time	70	46	54	49

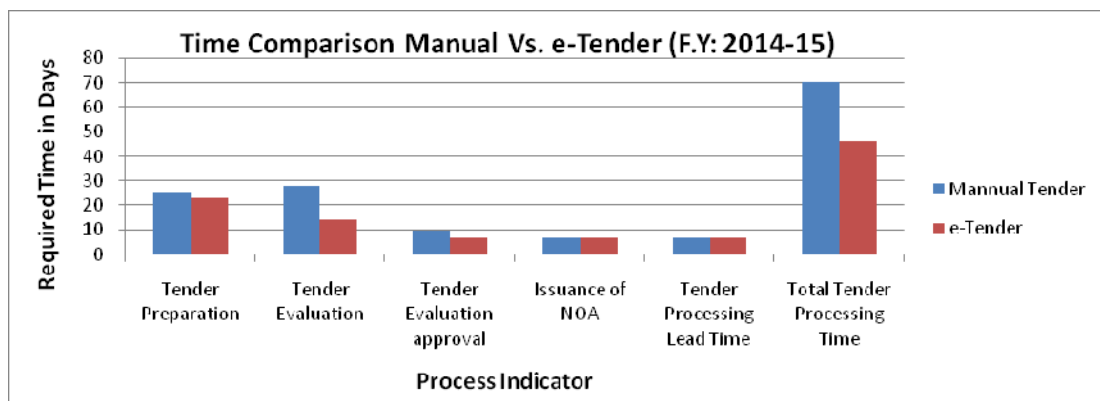


Fig 4.24: Required Time in Process Indicator for Bottle Water Production Plant Division (in F.Y: 2014-15)

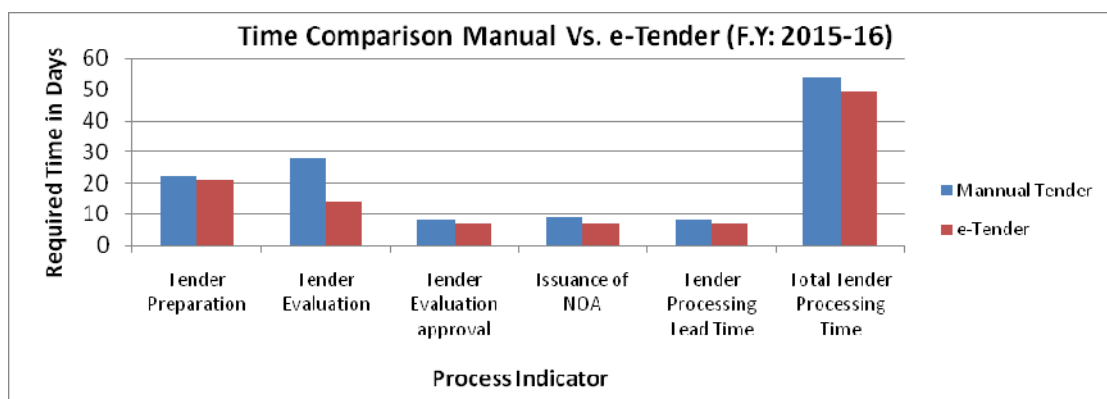


Fig 4.25: Required Time in Process Indicator for Bottle Water Production Plant Division (in F.Y: 2015-16)

4.3 Findings and Analysis

4.3.1 Findings and Analysis of the Survey to Dhaka WASA Officials

Questionnaire survey has been conducted with ten Executive Engineers. 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.

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 669 tenders' information (manual tender: 536 nos and e-Tender: 133 nos) for 6 different PE offices were selected for study. Beside this, an overall scenario of DWASA'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: 2014-15 and F.Y: 2015-16 are shown below:

Sr. No.	Name of the PE office	Number of Tender's Data count for Analysis			
		F.Y:2014-15		F.Y:2015-16	
		Manual	e-Tender	Manual	e-Tender
1	Office of the Procurement Division-1,DWASA	28	2	3	12
2	Office of the Procurement Division-2,DWASA	36	2	3	28
3	Office of the SOC Division, DWASA	25	4	4	26
4	Office of the Drainage(O&M) Division-1,DWASA	90	3	100	23
5	Office of the Drainage(O&M) Division-2,DWASA	130	1	107	22
6	Office of the Bottle Water Production Plant, DWASA	10	5	0	5
7	Dhaka WASA (Total of all the PE Office)	1464	252	848	956

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 Dhaka WASA. 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: 2014-15 and F.Y: 2015-16, 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: 2014-15 performance of all the PE offices and overall Dhaka WASA's performance on these indicators are very poor. Even some cases ((i), (ii) and (viii) no. indicators) the compliance is 0% for some PE offices (SOC, Drainage (O&M-1), Drainage (O&M-2) and Bottle Water Production Plant). In F.Y: 2015-16 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 six quality performance indicators are (iv) Compliance of Tender Evaluation Approval Time, (v) Compliance of Tender Evaluation Time, (vi) Compliance of Financial Delegation, (vii) TER Approval Compliance, (ix) Efficiency in Contract Award. These

six 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: 2014-15 and 2015-16 performance of all the PE offices and overall Dhaka WASA's performance on these indicators are poor. But in case of e-Tender, compliance is achieved from 60% 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 Dhaka WASA status, average tender preparation time in open tendering method (average number of days between publishing of advertisement and tender submission deadline) is 24 days for manual tender and 22 days for e-Tender. Average tender evaluation time (average number of days between tender opening and completion of evaluation) is 20 days for manual tender and 16.5 days for e-Tender. Average tender evaluation approval time (average number of days taken between submission of tender evaluation and approval contract) is 5 days for manual tender and 4 days for e-Tender. Average time for NOA issuance is 4.42 days for manual tender and 2.58 days for e-Tender. Average Total Tender Processing Time is 48.92 days for manual tender and 42.92 days for e-Tender. From the analysis, we can see that a considerable amount of time is saved through e-GP system except for Drainage (O&M-2) Division.

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

By making comparison between manual tender and e-Tender in Dhaka WASA 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 Dhaka WASA by implementing e-GP system. Only the number of e-Tender's figures represents that Dhaka WASA 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 Dhaka WASA by implementing e-GP, like monitoring the procurement process is now done by more easily, frequently, reliably and cheaply after introducing e-GP in Dhaka WASA. While performing this journey, the researcher who is also directly involved e-GP activities in Dhaka WASA, 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:

- 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.
- Improve monitoring of procurement performance within Dhaka WASA 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 Dhaka WASA.
- 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.
- 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 Dhaka WASA. 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.
- 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.

➤ 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

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

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Appendix-A

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QUESTIONNAIRE

Title of Dissertation: **Assessment of e-Tendering (e-GP) process in Dhaka WASA: a case study for selected offices.** Name of the Researcher: **Mohammad Sohel Khan, Accounts Officer, Dhaka WASA** [This is a survey questionnaire intended to perform an academic research on assessment of present performance efficiency issues by implementing e-Tendering process in Dhaka WASA. 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 Fulfilment 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: Dhaka WASA

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: 2014-15 & 2015-16):

[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	2014-15							
	2015-16							
e-Tendering	2014-15							
	2015-16							

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		Not Applicable
		Cost for Collection of Tenders from Multiple Locations		
		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.