Performance Evaluation and Challenges for Implementing e-GP: A case of Roads & Highways Department, Bangladesh

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Submitted by
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CERTIFICATE

This is my pleasure to certify that the dissertation entitled **"Performance Evaluation and Challenges for Implementing e-GP: A case of Roads & Highways Department, Bangladesh**" is the original work of Munmun Biswas that is completed under my direct guidance and supervision. So far I know, the dissertation is an individual achievement of the candidate's own efforts, and it is not a conjoint work.

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

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DECLARATION

I hereby declare that the dissertation entitled **"Performance Evaluation and Challenges for Implementing e-GP: A case of Roads & Highways Department**, **Bangladesh"** submitted to the BRAC Institute of Governance and Development, BRAC University for the degree of **Masters in Procurement and Supply Management** is exclusively my own and original work. No part of it in any form, has been submitted to any other University or Institute for any degree, diploma or for other similar purposes.

Dhaka: May 2015.   (**Munmun Biswas**)

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ABSTRACT

This public Procurement is an influential factor in the national economy and an important function of government. e-GP was implemented in RHD for ensuring transparency and accountability in procurement which in turns establish the good governance. A transformational change has been occurred in the field of public procurement of Bangladesh after the introduction of e-GP. This system make procurement activities more effective in terms of both time and cost. e-GP is changing the way of purchase goods, works and services. E-procurement has already been introduced in RHD for last 3 years. Now time has come to evaluate the performance of e-GP in RHD in last 3 years. This will help us to specify the difficulties regarding e-GP and finding the way of solve these. The objectives of this study is to identify the performance improvement in procurement activities after implementing e-GP system in RHD and to suggest recommendations for further improvements needed in e-GP system. The study mainly covered the functioning of e-GP in RHD, its performance and various challenges faced by RHD during e-GP operations. Questionnaire survey is done in this study to collect primary data. A structured questionnaire was used for this purpose. The questionnaire was developed to assess awareness, knowledge and available ICT infrastructure of RHD procuring entities. Secondary data such as e-GP works related data were collected from RHD website for the financial year of 2012-13, 2013-2014 and 2014-15. After implementation of e-GP, RHD processing total 4264 no. of tender by using e-GP procedure while the target was 3900 no. which indicates the overall success of RHD in e-GP implementation. Another type of secondary data collected from PROMIS Overall Report for these three years. This study covered total 15 (fifteen) KPI which are directly related to the e-GP system and represents Transparency, Efficiency, Competitiveness and Compliance in procurement activities of RHD. Out of these KPI's RHD shows improvement in achievement of 13 (thirteen) KPI, and 2 (two) of them shows poor results. e-GP implementation also raising the awareness among the RHD officials. Most of the RHD officials are used to operate this internet based system properly though few of them are not yet used to. Besides this, RHD faced some technical and operational challenges in its everyday e-GP operations. Based on the analysis of the collected information, some practical measures are recommended for better implementation of e-GP in RHD in this study.

Keywords: e-GP; Government Procurement; E-procurement; PPR; PPA

ABBREVIATIONS

APP	Annual Procurement Plan
B2B	Business-to-Business
BPR	Business Process re-Engineering
C&B	Construction and Building
CAG	Comptroller and Auditor General
GFR	General Financial Rules
CPTU	Central Procurement Technical Unit
DPs	Development Partners
e-CMS	Electronic Contract Management System
e-GP	Electronic Government Procurement
ERD	Economic Relations Division
ERP	Enterprise Resource Planning
e-TD	Electronic Tender Document
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communications Technology
KPI	Key Performance Indicators
NASPO	North American Security Products Organization
NOA	Notification of Award
OGC	Office of Government Procurement, UK
OMME	Operation Maintenance and Management Entity
PAs	Procuring Agencies
PEs	Procuring Entities
POs	Point of Sale
PPA	Public Procurement Act
PPR	Public Procurement Rule
PROMIS	Procurement Management Information System
RFP	Request for Proposal
RFQ	Request for Quotation
RHD	Roads & Highways Department
TEC	Tender Evaluation Committee
TOC	Tender Opening Committee
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
WB	World Bank
XML	Extensible Markup Language

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Chapter-1

Introduction

1.1 Background of the Study

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

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

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

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

E-Tendering has been introduced by the CPTU and 16 other Procuring Entities (PEs) under 4 (four) state-owned agencies; RHD is one of them. The system rolled out to 291 PEs of these 4 sectoral agencies is now expanding to all the PEs of the government up to Districts and sub-Districts level.

Roads and Highways Department (RHD) is responsible and accountable to the People of Bangladesh through the Ministry of Road Transport and Bridges for the maintenance and development of the National, Regional and Zilla Road Network within the limited funds allocated to them. At present it has 21,481 Km of roads and more than 20,000 bridges & culverts and the Annual Budget is in excess of Taka 3,000 Corer. RHD maintain and develop communication network by using public fund through procurement.

This public Procurement is an influential factor in the national economy and an important function of government. e-GP was implemented in RHD for ensuring transparency and accountability in procurement which in turns establish the good governance. The government has taken a move to ensure public procurement through the online system in a bid to check fraud and collusion in the tendering process for checking misappropriation of the public funds.

1.2 Problem Statement of this Study

e-GP was first introduced on pilot basis in the CPTU and 16 other Procuring Entities (PEs) under 4 (four) sectoral agencies, namely: Roads and Highways Department (RHD), Bangladesh Water Development Board (BWDB), Local Government Engineering Department (LGED), and Rural Electrification Board (REB). These agencies are also called as target agencies.

According to the project paper, by the year 2017 these target agencies which includes RHD will invite 100% of their annual bids/tenders through e-GP portal. Already theses agencies are inviting 60% of their annual bids through the e-GP portal.

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

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

1.3 Research Questions

➢ Does e-GP system is functioning well in RHD?
➢ Does e-GP is performing well after implementation in RHD?

1.4 Research objectives

The objective of this study is

- ❖ To identify the performance indicators for improving in procurement activities after implementing e-GP system in RHD.
- ❖ To identify the challenges for e-GP implementation in RHD and to suggest recommendations for further improvements.

1.5 Rationale of the Study

E-procurement reduces administrative costs and bureaucracy by helping the country avoids repeating tasks such as registration and certification of contractors, allowing for additional effective control mechanisms and reducing paperwork, improving transparency and reduce transaction cost and time for tendering.

Public procurement systems can help governments optimize resources to obtain better value for money. To ensure the good governance in public procurement, different parameters are introduced in different organisation such as e-GP, CMS etc.

e-GP system in Bangladesh was launched successfully on pilot basis and eventually being rolled out to all PEs of four sectoral Agencies, It is now expanding to all government procuring entity dealing with public procurement. All the stakeholders, including Bidders/ Tenderers / Applicants / Consultants (National and International), PEs, Procurement related committees, Payment service providers, Development Partners (DPs), Media, Operation Maintenance and Management Entity (OMME), e-GP system administrators, Auditors and General public are getting access to e-GP system and information as per the Terms and Conditions of Use and Disclaimer and Privacy Policy.

E-procurement has already been introduced in RHD for last 3 years. Now time has come to evaluate the performance of e-GP in RHD in last 3 years. This will help us to specify the difficulties regarding e-GP and solution of these difficulties.

E-GP is practiced in RHD with some explicit and hidden barriers. Cost of IT infrastructure development is huge. There is a scarcity of skilled manpower for running the procedure properly. Most of the contractors are not used to follow the system which create big problem for better implementation of e-GP. The research work will try to develop some recommendations to overcome the barriers in implementing e-GP and making able RHD to ensure transparency and accountability in procurement.

1.6 Scope and Limitation of the Study

This study will assess the present practices and performance of e-GP in Roads and Highways Department to ensure transparency and accountability in procurement activity. From the study, it will identify the effectiveness of e-GP and the ways of improvement of e-GP for making the system more effective and efficient with respect to RHD in future. This study will not cover the entire field Divisions of RHD; it will go for survey randomly from the Head office, Divisional offices and officials involved with e-GP activities. The nature of services RHD provides is different from other Government organizations so some of the findings may be organization specific.

1.7 Organization of the Study

The organization of this study is summarized below:

i. Chapter 1 discusses about the background, rationale, and objectives of this study. It highlights the problem statement why the writer opts for this study. It also describes the limitations of this study as desk review.

ii. Chapter 2 describes the literature review of this study. The chapter in a nutshell tries to give a good picture of how the electronic government procurement is conducted and administered.

iii. Chapter 3 describes the approach and methodology, sampling process and analysis of the sampling technique both in primary level and secondary level.

iv. Chapter 4 is a chapter outlining the sampling analysis, data analysis, forming observations on what categories, types of observations, segregation of observations from various angles to establish hypothesis. It also focuses the trend analysis of observations to form opinion.

v. Chapter 5 provides conclusion and recommendations of this study based on the information leading to conclusion.

vi. This study also contains bibliography and annexes to support reference of the study material.

Chapter 2

Literature Review

2.1 Roads & Highways Department (RHD)

The Roads and Highways Department (RHD) was created in 1962 when the old 'Construction & Building (C&B) organization was split into 2 separate bodies (the other being Public Works Department). RHD is responsible for the construction and the maintenance of the major road and bridge network in Bangladesh. The RHD is headed by a Chief Engineer who is supported by a number of Additional Chief Engineers. The total number of posts in the Department is 9,369 (Roads & Highways Department, 2014).

"To provide a safe, cost effective & well maintained road network" is the mission of RHD.

2.2 Procurement

Procurement is the acquisition of goods, services or works from an outside external source. It is favorable that the goods, services or works are appropriate and that they are procured at the best possible cost to meet the needs of the acquirer in terms of quality and quantity, time, and location. Corporations and public bodies often define processes intended to promote fair and open competition for their business while minimizing exposure to fraud and collusion.

Almost all purchasing decisions include factors such as delivery and handling, marginal benefit, and price fluctuations. Procurement generally involves making buying decisions under conditions of scarcity. If good data is available, it is good practice to make use of economic analysis methods such as cost-benefit analysis or cost-utility analysis.

An important distinction should be made between analyses without risk and those with risk. Where risk is involved, either in the costs or the benefits, the concept of expected value may be employed. Based on the consumption purposes of the acquired goods and services, procurement activities are often split into two distinct categories. The first category being direct, production-related procurement and the second being indirect, non-production-related procurement.

Direct procurement occurs in manufacturing settings only. It encompasses all items that are part of finished products, such as raw material, components and parts. Direct procurement, which is the focus in supply chain management, directly affects the production process of manufacturing firms. In contrast, indirect procurement activities concern "operating resources" that a company purchases to enable its operations. It comprises a wide variety of goods and services, from standardized low value items like office supplies and machine lubricants to complex and costly products and services, like heavy equipment and consulting services.

Procurement software (often labeled as RFQ software, purchasing management software or e-Procurement software) manages the purchasing processes within a supply chain. As an important element of supply chain management systems, these systems help organizations efficiently manage their purchasing cycle times and maximize profit on every purchase order.

Procurement life cycle in modern businesses usually consists of seven steps:

- **Identification of need**: This is an internal step for a company that involves understanding of the company needs by establishing a short term strategy (three to five years) followed by defining the technical direction and requirements.

- **Supplier Identification**: Once the company has answered important questions like: Make-buy, multiple vs. single suppliers, then it needs to identify who can provide the required product/service. There are many sources to search for supplier; more popular ones being Ariba, Alibaba, other suppliers and trade shows.

- **Supplier Communication**: When one or more suitable suppliers have been identified, requests for quotation, requests for proposals, requests for information or requests for tender may be advertised, or direct contact may be made with the suppliers. References for product/service quality are consulted, and any requirements for follow-up services including installation, maintenance, and warranty are investigated. Samples of the P/S being considered may be examined, or trials undertaken.

- **Negotiation**: Negotiations are undertaken, and price, availability, and customization possibilities are established. Delivery schedules are negotiated, and a contract to acquire the P/S is completed.

- **Supplier Liaison**: During this phase, the company evaluates the performance of the P/S and any accompanying service support, as they are consumed. Supplier scorecard is a popular

tool for this purpose. When the P/S has been consumed or disposed of, the contract expires, or the product or service is to be re-ordered, company experience with the P/S is reviewed. If the P/S is to be re-ordered, the company determines whether to consider other suppliers or to continue with the same supplier.

- **Logistics Management**: Supplier preparation, expediting, shipment, delivery, and payment for the P/S are completed, based on contract terms. Installation and training may also be included.

- **Additional Step - Tender Notification**: Some institutions choose to use a notification service in order to raise the competition for the chosen opportunity. These systems can either be direct from their e-tendering software, or as a re-packaged notification from an external notification company.

As an organization, procurement structures vary with the culture and structure of the host organization. Many organizations have a centre-led structure with a small central team setting policy and standards and coordinating activity, which is primarily undertaken in the spending departments. While there are no universally accepted standards, most people agree that vendor management applies to post-award processes (though some vendor managers do manage the end-to-end process apart from market engagement). Similarly, sourcing involves all those processes up to the award of the contract.

2.3 Trends in Procurement Process Development

Recently, a great deal of emphasis is being placed on procurement processes. The recent economic troubles, stiff competition and growing inflation are some factors which are thought to be responsible for this growing phenomenon. Unlike several years ago, when procurement was generally considered to be merely buying raw materials or machinery, the idea behind procurement has changed dramatically in recent times. Several new trends and developments have taken place in this regard. Among the most important trends in this regard is the widespread use of online procurement. The web is playing an increasingly important role not only for direct procurement, but for indirect procurement as well. B2B activities are forming a major chunk of e-commerce activities, instead of B2C, as was previously believed. B2B procurement activities are on the rise on internet by the smaller as well as larger companies. The internet has brought

about significant changes in the profit structure between the supply chains by reducing the number of intermediaries, which is an effective step in terms of lowering costs. Another major change that has been brought about is the level playing field for both large as well as small enterprises. With the amount of information available on the internet, even the smaller enterprises are able to procure at favorable rates, which also help them to lower their cost of production. With access to a larger number of buyers as well as sellers, absolute advantage and monopoly is out of question. This generally means that the best rates are available when procuring. Corporate procurement practices often rely on global sourcing these days. With the virtual world now emerging as the new workplace, it has become relatively easier to get in contact with suppliers all across the world and get the best rates. Although there might be several legal hurdles involved, global sourcing is nevertheless emerging as a clear favorite among a majority of the enterprises. Getting supplier information is incredibly easy, with details available in only a few clicks of the mouse. Just surf through the suppliers list, visit their websites, go through their product specialization lists and rates and get in contact with them. The costs can be reduced further by sharing supplier information. Enterprises can also opt for reverse auctions as well. This would help an enterprise in getting the best deals. Procurement is an evolutionary process. What might appear to be the next big thing may be rendered absolutely obsolete the next day with the emergence of newer trends. Nevertheless, one cannot ignore the trends if one wants to survive in this scenario of cut throat competition.

2.4 Public Procurement

Government procurement, also called public tendering or public procurement, is the procurement of goods and services on behalf of a public authority, such as a government agency. With 10 to 20% of GDP, government procurement accounts for a substantial part of the global economy.

To prevent fraud, waste, corruption or local protectionism, the law of most countries regulates government procurement more or less closely. It usually requires the procuring authority to issue public tenders if the value of the procurement exceeds a certain threshold.

Government procurement regulations normally cover all public works, services and supply contracts entered into by a public authority. However, there may be exceptions. These may

notably cover military acquisitions, which account for large parts of government expenditures. The GPA and EU procurement law do not apply where public tendering would violate a country's essential security interests. Additionally, certain politically or economically sensitive sectors is government spending, such as public health, energy supply or public transport, may also be treated differently (Wikipedia,2015).

Depending on local laws, the relevant government officials will have to follow a set system for procurement. This system could cover the way they advertise for suppliers, the grounds on which they choose a supplier, and the way in which they measure and enforce the requirements they put on the supplier. The usual aims of such a system will be to take advantage of competition between suppliers and to reduce the risk of corruption.

Office of the Government Commerce, UK has defined public procurement as the process whereby public sector organizations acquire goods, services and works from third parties. It includes much that supports the work of government and ranges from routine items (e.g. stationery, temporary office staff, furniture or printed forms), to complex spend areas (e.g. construction, Private Finance Initiative projects, aircraft carriers or support to major change initiatives).

2.5 Legal and Regulatory Framework in Bangladesh

Bangladesh is a unitary democratic republic with a written constitution. The president is the head of state. The government is modeled on the British parliamentary system. The national assembly comprises elected representatives who in turn elect a president. The majority party elects a leader who is invited by the president to form the government and the leader becomes the prime minister. The country follows the common law system, such as is found in Australia, Canada, India, and the United Kingdom. The judiciary is independent from the executive branch of government. The constitution had no direct provision bearing on public procurement. The public procurement procedures and practices had evolved over the years from the days of British and subsequently Pakistani rule. A Compilation of General Financial Rules (CGFR) originally issued under British rule was slightly revised in 1951 under Pakistani rule and was reissued in 1994 and again in June 1999 with very few changes. The CGFR outlines broad, general principles for

government contracts to follow, leaving it to the departments to frame detailed rules and procedures for their respective procurements. It also refers to the Manual of Office (Purchase) compiled by the Department of Supply and Inspection as the guide for the purchase of goods and the Public Works Department (PWD) code as the guide for works. Both date back to the 1930s and have not undergone any revision worthy of mention. The CGFR also refers to the Economic Relations Division (ERD) Guidelines issued in 1992, modeled on World Bank Procurement Guidelines at the time, for procurement in externally funded projects, with the provision that the loan conditions would prevail in case of conflict. Since independence in 1971, the public procurement practices have been influenced by the World Bank, the Asian Development Bank, and other donors since the bulk of public procurement is externally funded. Some departments, autonomous boards, and public undertakings have drafted their own set of procedures or a manual, and the rest follow the PWD code. The central ministries handle very little procurement. The departments under the ministries, such as the Public Works, Roads and Highways, and Local Government Engineering Departments, handle works in their respective sectors. The major share of public procurement is handled by the public sector corporations and semiautonomous bodies such as the Roads & Highways Department, Bangladesh Water Development Board, Rural Electrification Board, Bangladesh Power Development Board, Dhaka Water and Sewerage Authority (WASA), Port Authorities etc. The authority to award contracts delegated to them is very low. For all larger contracts, the proposal must go to the ministry. Cabinet committee approves very large contracts. A substantial amount of procurement is carried out by major Government Departments, such as, Roads and Highways Department, Bangladesh Railway, Local Government Engineering Department (LGED), Bangladesh Telecommunications Company Ltd., Directorate of Health Services, Directorate of Education etc. (Alam, 2012).

2.6 Problems of Previous Procedures and Practices

Each government agency and public sector corporation had its own set of procedures. They followed the open bid system-which includes public advertisement in the press, prequalification if appropriate, formal bidding and contract documents, bid and performance securities, public bid opening, evaluation of bids, and award to the lowest evaluated bidder. In the case of multiple lowest evaluated tender, the practice of selection of successful tender was lottery. And there was limitation to offer below estimated value, usually up to 5% below official estimation was

allowed. The actual implementation of the procurements was very uneven, however. Barring some exceptions, the process was far from satisfactory, and substantial delays occur in most of the procurements. Some of the unsatisfactory features were:

• poor advertisement
• a short bidding period
• poor specifications
• nondisclosure of selection criteria
• award of contract by lottery
• one-sided contract documents
• negotiation with all bidders
• rebidding without adequate grounds
• other miscellaneous irregularities
• corruption and outside influence

The institutional framework of internal financial control in Bangladesh is under the supervision of the Ministry of Finance and external audit under the independent Comptroller and Auditor General (CAG) who audits all government and public sector expenditures and submits annual and special reports to the Public Accounts Committee of the national assembly.

However, neither the internal control nor the CAG's audit is very effective. The Country Financial Accountability Report prepared by the Central Bank, Bangladesh Bank, includes specific recommendations in the area of financial management and audit.

From the procurement point of view, the usual audit reports have only reported minor procedural lapses and unauthorized expenditures and not major irregularities, malpractice, or corruption in procurement. The audit staffs are not trained in public procurement concepts and procedures, and the requirements of development partners such as the World Bank whose guidelines apply to a large part of the procurement. Hence training of audit staff is emergent.

Corruption is a worldwide phenomenon, but it is especially widespread and destructive in developing countries. Bangladesh is no exception. As in many other developing countries,

corruption pervades all walks of public activity in the country. In the words of the Country Profile of Financial Accountability (draft) report of June 12, 1998, "Corruption is an endemic problem." It is common knowledge that procurement is a prime area for corruption. The report on Government

Malpractices in the early 1990s confirms extensive corruption in public procurement. Since then, the extent of corruption has, by all accounts, increased and spread to all levels of bureaucracy and politics. It is the universal view that unless corruption is addressed, other reforms can have only a marginal impact. This is not an easy or quick task, however. The effort to eliminate corruption must be coordinated across the board, in all sectors and branches of government.

The reforms suggested in this report in the public procurement management area-such as a public procurement law and/or rules and procedures including an effective review/challenge procedure, national mandatory bidding and contract documents, reduction in the layering in the review and approval process, training at all levels, timely audit, enforcement of accountability, and establishment of a code of conduct for procurement staff-will substantially deter corrupt practices, although this will not be enough.

2.7 Definitions of e-Procurement

In simplest terms, electronic procurement defines the automation of an organization's procurement processes using web-based applications. Unlike enterprise resource planning (ERP) systems that enable businesses to automate their internal processes, e-procurement enables widely dispersed buyers and suppliers to come together, interact, and execute purchase transactions directly over the Internet.

In a fully web-enabled e-procurement system, each step in the procurement process occurs electronically. From creating and submitting POs to receiving and paying for goods—all transactional data is automatically routed through workflow processors, reducing the time and cost of procurement activities, and boosting operational efficiency of the e-enabled organization. E-procurement applications consolidate the paper-based catalogs of multiple vendors by digitizing

product information into a single, one-stop shopping source for direct and indirect goods and services.

In most cases, e-procurement applications are transparent to end-users. Embedded in the business processes and IT systems of buyers and suppliers, e-procurement applications lower process and inventory costs, extend supplier reach, and improve customer access to suppliers.

EU literature defines e-Commerce as follows:
"Electronic commerce is about doing business electronically. It is based on the electronic processing and transmission of data, including text, sound and video. It encompasses many diverse activities including electronic trading of goods and services, on-line delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, collaborative design and engineering, on-line sourcing, public procurement, direct consumer marketing and after-sales service. It involves both products (e.g. consumer goods, specialized medical equipment) and services (e.g. information services, financial and legal services); traditional activities (e.g. healthcare, education) and new activities (e.g. virtual malls)" (EU, 1997, p.2).

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. e-Procurement is about transforming the processes associated with public procurement and refers to automating corresponding processes of public institutions (IPPR, 2003). In other words, e-Procurement is more than simply buying online and it is changing the traditional way in which public institutions do business (Coulthard, 2000). 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. It is also possible to characterize e-Procurement as a comprehensive process in which the

government establishes agreements with vendors for purchasing goods and services. This process is achieved by either tendering or acquiring directly through e-Marketplaces in exchange for the payment that can be made by the purchasing cards (Coulthard, 2000).

Shortly, e-Procurement is "the electronic management of all the procurement activities. It is the use of web communications to e-Enable purchasing processes and strategy, and is part of the wider e-Commerce revolution" (Buy IT (a), 2002). As a system, e-Procurement is a Web-based purchasing system that offers the functionality of electronic ordering, electronic payment and enhanced administrative utilities to the public institutions.

In general, e-Procurement systems are developed by using the internet to streamline, manage and analyze the government procurement activities. These systems range from basic ordering tools to complex systems that cover the entire tendering process (Buy IT (b), 2002). In each case, setting up an e-Procurement system involves implementing a software application that is customized based on the public procurement processes and rules. The resulting system should be accessible by each public institution through a Web browser that enables a secure and open purchasing environment.

2.8 Main Components of e-Procurement

Procurement transactions fall into two categories, namely Tendering and Purchasing, according to volume, value, complexity, frequency, number of suppliers, etc.
In the context of these two categories, e-Procurement system covers the following components.
• e-Tendering
• e-Purchasing
• Auditing

2.8.1 e-Tendering
e-Tendering component is developed to support competitive tendering process that is regulated by law (in Turkey, Public Procurement Law). This component is suitable for acquisition of complex goods and services associated with the ICT such as embedded systems and obtaining of goods like construction and capital investment. These transactions are among the most

challenging procurement activities because their technical content is diverse and difficult to define and they are subject to rapid technological change over the project life cycle. In addition, they involve combination of professional engineering services and supply of diverse hard and soft technologies (WB, 2003). The important point is to identify functionality to be performed online. Theoretically, all the functionality related to tendering can be performed online. The decision should be based on criteria such as culture, electronic readiness and human resources of public institutions.

2.8.2 e-Purchasing

The e-Purchasing component is developed to address mainly low complexity, precisely defined transactions such as purchasing of off-the shelf products, routine system maintenance and back up. These transactions are mostly related with the price-performance of the vendors. Therefore, it requires for the public institutions to reach as many vendors as possible. There are two types of e-Purchasing according to the price setting mechanism namely e-Shopping and e-Auction.

2.8.2.1 e-Shopping

In this method, prices of goods and services are fixed (Talero, 2001). The authorized procurement officers buy goods and services by using e- Catalogs of vendors. In e-Catalog of each vendor, they can find required information for comparing prices and features of various goods and services.

2.8.2.2 e-Auction

In this method, prices are determined through the electronic negotiations among several public institutions (Talero, 2001). e-Auction is appropriate for large purchases of off-the-shelf products. Also, public institutions may aggregate their purchases to get a price advantage. It is important to recognize that e-Purchasing component is mostly equivalent to the e-Commerce systems in the private sector. However, since it is developed for the government usage, the terms and conditions for the qualification of vendors who can make registration are determined by the government. In addition, technical and quality standards, warranty requirements, maintenance services and ceiling prices are pre-established. Procurement Cards to be implemented as well.

2.8.3 Auditing

The large scope, high level of risk, and software intensity of e-Procurement requires specialized oversight and auditing organization. This organization should balance the interests of the stakeholders of the e-Procurement system and promote cooperation among them to gain rapid adoption of e-Procurement system. The main functions of this organization are as follows:

- Coordinate adoption of e-Procurement system.
- Provide strategic advice on procurement and contract management.
- Establish operational standards for e-Marketplaces.
- Coordinate the re-engineering of public procurement processes.
- Advice public institutions on human resource education, training and incentive systems.
- Operate the financial and operational auditing system for both e- Tendering and e-Purchasing components.
- Monitor outcomes of the e-Procurement system.

2.9 Other Components of e-Procurement

2.9.1 e-Market Places

The e-Procurement component involves an electronic equivalent of physical market place called e-Market place where goods and services are demonstrated figuratively. It is possible to make several definitions for e-Market place ranged from emphasizing the web-based characteristics to describing the functionality and value-added features (My Supply Chain, Nishimura, 2002). However, all definitions share in common the statement that e-Marketplace is a web-based application and offers opportunities for online trading. In the context of e-Procurement, e-Market place is defined as virtual trading environments that bring public institutions and vendors together for e-Procurement by enabling public institutions to reach more vendors and vice versa. Many buyers and many sellers coming together in marketplaces where they can obtain sufficient information to make decisions about whether to buy or sell a product, even though payment and delivery may not necessarily be arranged online (UNCTAD, 2000). It requires that public institutions and vendors meet under the predefined rules. e-Market place enables online trading by offering several advanced purchasing techniques such as catalog-based purchasing, electronic auctions, etc. In other words, mechanisms implemented in e-Market place combine several business processes to save time and cost for both the public institutions and the vendors

(UNCTAD, 2001). In addition, e-Marketplaces provide value-added services such as electronic payment, content management, comparison facilities, advanced techniques for finding best prices, etc. (Nishimura, 2002). These tools and services provided by the e-Market place changes depending on the type of the sector.

The benefits of e-Market places to the public institutions are:

- Information gaps are removed and as a result better selections can be made.
- Costs are reduced by improvement of the procurement related processes (Garicano, 2000).
- Competitive environment is enhanced by enabling the public institutions to access more vendors (ERI, 1998).
- Various goods and services can be screened and price advantage is achieved.
- Market search will become easier through the e-Catalogs of vendors.

The benefits of e-Market places to the vendors are:
- Sales related processes of vendors are simplified.
- Costs are reduced by modernization of the processes (Garicano, 2000).
- Geographical distance is eliminated.
- Trading opportunities are expanded.

It is important to realize that the solutions for e-Market place that offers the functions mentioned above are available in the IT Market as commercial software. These solutions can be acquired, tailored according to the needs and can be operated by either the government or the vendors. Also, it is preferred that the existing private sector e-Marketplaces can be utilized.

2.9.2. e-Catalogs

e-Catalog is an important concept for e-Marketplaces. In definition, e-Catalog is an organized descriptive list of goods or services made available by vendors to potential buyers via the Internet. This online database of goods and services from multiple vendors facilitates the sale of goods and services by providing information about them. This information should both include

technical specifications, price, picture, etc. and allow comparison with similar goods and services.

There are three functions in e-Catalog:

• Creating the e-Catalog

• Managing the content of e-Catalog

• Searching and finding goods and services

Successful e-procurement depends on highly organized and searchable catalogues and the real-time management of content. However creating and maintaining searchable and usable e-Catalog is an intensive and time consuming task. Therefore, management of the content of e-Catalog should not be underestimated.

In the context of e-Procurement, e-Catalog management is generally performed by using the approaches:

• Hosted by Third Party: A third party serve as a service provider.

• Hosted by Vendors: Each vendor maintains its own e-Catalog, which is accessed by the public institutions via e-Market places. The other important issue for e-Catalog Management is the quality of the content. For public institutions to find the relevant information easily through effective search techniques, data should be normalized and categorized. But, significant difficulty is encountered especially in deciding on the correct standards of product identification and classification. In this respect, utilizing open standards is preferable to achieve interoperability among public institutions and vendors.

As a summary, the e-Catalog should have the following properties:

• Easy to search

• Allow comparing data

• Detailed information on goods and services

• Standard classification scheme for goods and services

2.9.3. Public Procurement Cards

An electronic payment system is defined as "a financial exchange that takes place online between buyers and sellers" (Kalakota & Whinston, 1997, p.153). In fact, e- Payment is the critical part of e-Procurement, especially of e-Purchasing component, that enables online financial transactions. In this context, public procurement cards are becoming more common

online payment method because of savings in processing time and cost. By utilizing the public procurement cards, it is possible for the government to link the purchasing information and the accounting information (Robinson, 2001). In the electronic public procurement process, public procurement cards can be used for small but frequent purchases that are made directly through vendors.

The benefits that public procurement cards bring to the procurement management of the government are (NASPO, 2001):

- Administrative cost reductions
- Productivity increases
- Flexibility of authorized procurement officers
- Reporting improvement

2.10 History of e-Procurement in Public sector

As an institution, the public sector has a very distinct character from that of the private sector; its sheer size, its alienation from the threat of bankruptcy, the relation between policy-making and administration, its inherent visibility to the public, and the monopoly it holds over some of its functions clearly mark the public sector's individuality. Public sector is guided by rules. Government of Bangladesh spent most of its public fund through different government agencies. Agencies follow Public Procurement Act 2006 and Public Procurement Rules 2008.

A number of public sector agencies worldwide have identified Electronic Procurement (e-Procurement) as a priority e-Government agenda and have implemented or are in the process of implementing buy side e-Procurement systems.

The earliest literature on e-procurement is that relating to electronic data interchange – a technology that has been in use in organizations since the 1960s (Millman, 1998). One of the earliest articles on this subject was a 1967 paper extolling the benefits of electronic data interchange for buyers and sellers in the hospital environment (Meyer, 1967). Most discussions about electronic inter-organizational systems in the academic literature up until the mid 1990s involved electronic data interchange. It is only from the mid 1990s onward that there is a shift

towards the discussion of the use of the internet for electronic commerce. In fact electronic data interchange continues to be the primary medium of electronic commerce.

There is little history of extensive e-procurement use in the public sector except in certain entities in the military and public health sectors. As would therefore be expected, the academic literature covering public sector e-procurement is very limited.

Information about public procurement initiatives is most commonly elicited through relevant conferences. Much of the commentary on public sector e-procurement arises from the popular press announcing forthcoming projects or the awarding of related contracts to supply "solutions". In addition, various government agencies advise public sector entities on the uptake of e-procurement. There is also evidence of networks supporting the development of electronic commerce in procurement. (Australian Procurement and Construction Council, 2012).

Whatever the information source, there is insufficient systematic research of the adoption of e-procurement in the public sector to answer some important questions. For instance, what is the extent of its uptake? Although there are headline initiatives in place, to what extent are these significant in the management of procurement effort within public sector entities? Also very importantly, what drives the adoption of e-procurement in the public sector? The lack of evidence of its extensive use throughout a period when it was widely used in certain industries may indicate that the existing technologies were not appropriate to the public sector and that the adoption of e-procurement only became feasible with the advent of the internet and more cost effective solutions. It could also be that, notwithstanding the more readily available supporting technologies, the procurement profiles of typical public sector entities have not warranted significant investments in e-procurement. Another proposition is that its adoption is being driven by wider policy considerations rather than the business related benefits. Whatever the case, the significant investment of public resources in e-procurement and its consequences for public procurement outcomes deserves careful investigation.

2.11 e-Procurement policy

An e-procurement policy could provide valuable instruction to all levels of an authority and across all departments. A clear policy document provides readers with a statement of commitment to e-procurement but will also identify why the authority is choosing to modernize its procurement functions and to invest in e-procurement. Subsequently, the e-Procurement policy can be used for the following purposes: Guidance, education, motivation, and assistance in the process of change management in a number of ways. Firstly, the process of writing an e-procurement policy forces the organization to clearly state its aspirations for the e-procurement system. Secondly, the authority can use the policy as a communication mechanism in respect of the vision of e-procurement within it, thereby beginning to prepare staff for the changes that they will face. An e-procurement policy can detail how an authority's e-procurement strategy will be implemented, and should detail the authority's corporate hopes for the outcomes of the initiative. The policy should identify how these hopes are to be achieved and the requirements for project success. Additionally, the document must be informative and instructional, since it serves as an opportunity to extend a valuable message to all concern parties within the organization. It is important to note that an e-procurement policy does not replace a business case for e-procurement, nor does it replace project management plans for it. Rather, it is a steering document which is used to help guide the authority and communicate with its employees (Hampshire County Council and Makgill, 2004). Therefore, for an e-GP policy to be effective, it must be updated as appropriate. Managing and planning a distinctive policy and strategic framework can provide clear rules and guidelines to stakeholders that can help transform the socio-technical and socio-political environments. The efficiency of e-GP implementation is positively related to the availability of clear e-GP policies.

2.12 e-GP Change Management Program

Another important organizational issue is the change management which is essential in anticipating and dealing with the psychological, cultural and technological obstacles that can arise. Without a carefully planned and managed change process, there can be a significant waste of time, resources, and an accompanying loss of employee morale. Hence, a carefully designed change management process can produce significant benefits.

Change management and training is the most important implementation issue and most other issues are also related to change management. In fact, change management in an e-GP project implementation process could be a major task and could take longer than expected. It may be argued that the full benefits resulting from e-GP will only be realized through significant changes in the organization of public procurement operations and as such, will require effective change management.

The issue of organizational and institutional changes is hard to conceptualize for public sector organizations (UNDP, 2006). Organizational leaders with managing change tasks are engaged in "a great venture of exploration, risk, discovery, and change, without any comprehensive maps for guidance" (Senge, 1999, p.3). Therefore, many of the change management exercises are highly unpredictable in terms of what they achieve. Pascale (1999) suggests that failure of change projects is seen in 80% of all programs.

The UNDP (2006) stated that change management shifts the roles and capacities of different actors, which in turn shifts the existing bases of power. Building in risk assessments and accounting for such initial instability, while managing its boundaries through managing people's expectations and concerns, is a necessary part of organizational change strategy.

Hence, it is essential to deliver clear and consistent messages regarding the change process, have regular and open stakeholder consultations, allow for the airing of grievances, and provide feedback and learning mechanisms to enable adaptation during the course of the change process, if this is to be managed effectively. It also stated that developing leadership skills, clarifying roles and getting stakeholders on board are all necessary for successful change interventions. However, paying attention to the soft aspects of organizations, such as culture, is also very much needed as these factors are often paramount determinants of the real direction and pace of change. The efficiency of e-GP implementation is positively related to the e-GP change management program.

2.13 The e-GP System development in BD

The e-GP system is a single web portal from where and through which PAs and PEs will be able to perform their procurement related activities using a dedicated secured web based dashboard. It is hosted in the e-GP Data Center at CPTU. The web portal is accessible by the PAs and PEs through internet for their use.

This complete e-GP solution introduced under the Public Procurement Reform (PPR) Program is being supported by the World Bank and gradually used by all government organizations. This online platform also help them ensuring equal access to the Bidders/Tenderers and also ensuring efficiency, transparency and accountability in the public procurement process in Bangladesh.

The e-GP System has been implemented in two phases:

e-Tendering System: Covering complete e-Tendering processes such as centralized user registration, preparation of Annual Procurement Plan (APP), preparation of Bid\Tender document, preparation of Bids/Tenders, invitation of Tenders, sale of Tender Documents (e-TD), conducting online pre-bid meeting, collection of bid\Tender security, on-line Bid\Tender submission, Bid opening & evaluation, negotiations (where applicable), and contract awards.

e-Contract Management System (e-CMS): Covering complete e-Contract Management processes, such as preparation of work plan and its submission, defining milestone, tracking and monitoring progress, generating reports, performing quality checks, generating running bills, vendor rating and generating completion certificate.

All the stakeholders, including Bidders / Tenderers / Applicants / Consultants (National and International), PEs, procurement related Committees, payment service providers, Development Partners (DPs), media, Operation, Maintenance and Management Entity (OMME), e-GP system administrators, auditors and general public are getting access to e-GP system and information as per the Terms and Conditions of Use and Disclaimer and Privacy Policy. The e-GP system is used by all concerned, for procurement of goods, works and services using public fund,

following the 'Government Procurement (e-GP) Guidelines' prepared under the provision of Section 67 of the **PPA -2006** and Rule 128 of **PPR-2008.**

2.14 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 etc.).

• Approval authorities

• General public for information related public procurement

• Media community for updates, announcements, news releases etc.

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. As per approved guidelines, e-GP system is being introduced in two phases.

In the first phase, e-Tendering will primarily be introduced on pilot basis, in the CPTU and 16 (sixteen) Procuring Entities (PEs) under 4 (four) sectoral 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 sectoral agencies up to district level and ultimately it will be expanded to all the PEs of the government. 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.

2.15 Working procedure of e-GP system in BD

The e-GP System Comprises of following key Modules/Functionalities:

2.15.1 Centralized Registration System

All users (stakeholders/actors) must be registered in the e-GP System under an appropriate user category of procurement process in order to have appropriate access points and to get working dashboards with authorized functions in e-GP System.

Registration should be done through the online registration page of the e-GP system followed by due diligent post verification if CPTU considers it finds it necessary. The intended user must provide all required information, digital documents, and accept the terms and conditions of e-GP system use. If any misinformation is identified or any document submitted found false, and the user does not correct that false, the user account shall be cancelled or suspended according to the specified law.

There is a option for registration in the online system for Tenderer/ Applicant/ Consultant, Procuring Entity (PE)/ Procuring Agency (PA), Scheduled Bank, Development Partners, Opening Committee/Evaluation Committee and Approval Authority, System Adminstrators and Auditors, Operation Maitenence and Management Entity, Media.

2.15.2 Annual Procurement Planning (APP) Preparation and Publication

Procuring agencies / entities should prepare their annual procurement plan in the format prepared by the CPTU through the e-GP dashboard as required by the PPA 2006 and PPR-2008 along with the subsequent amendments in Act and Rules. The APP must be prepared and published in the e-GP system to carry out any procurement activities by procuring agencies/entities through e-GP system. The e-GP system will guide the agencies/entities with online support tools and forms for providing draft, update of APP and publishing facilities. The e-GP system provides facility to

procuring agencies and entities to revise and update the Annual Procurement Plan through appropriate approval from the authority.

2.15.3   Electronic Tender Document Preparation

Dynamic Forms for preparing electronic tender documents and for other activities of the procurement process shall be prepared and updated only by the CPTU or the entity authorized by the CPTU. Procuring entities may change and update only the specific sections of the template and its contents.   Procuring entities get access to all the available standard procurement document templates for preparing Invitation to Tender, Proposal and documents for procurement of goods, works and services.

The Tenderes/ Applicants / Consultants must prepare their Tenders/ Proposals online, and documents required to be uploaded within the time specified in the Invitation for Tenders / Proposals after signing of the same with the e-Signature or Digital Signature, whichever applicable, by their authorized representative.

2.15.4 e-Tendering
2.15.4.1 e-Advertisement

Procuring entities should prepare Invitation of Tenders/ Proposals using online template available from their secured dashboard. The detailed description of the Goods/ Works/ Services, time schedule. Condition etc. including the tender documents/ RFPs for e-Tendering shall be made available on the procurement opportunities section of the e-GP system and shall be available to all interested users to search and read the e-advertisement.

2.15.4.2 Online Entry/Uploading Tender Document

Tenderers /Applicants / Consultants must submit their Tenders/Proposals with documentation online, to be uploaded by the time specified in the Invitation for Tenders/Proposals after signing of the same with the e-Signature or Digital Signature, whichever is applicable, by their authorized representatives.

2.15.4.3 Pre-Tender/Application/Proposal Meeting

e-GP system carries out online Pre-Tender/Application/Proposal meeting on the date, time and venue, if required, as stipulated in the tender notice/documents.

Responses/clarification of the queries relating to the Tender or RFP document should be posted by Tenderers/Applicants/Consultants online before or during Pre-Tender/Application/Proposal meeting.

2.15.4.4 Tender/Application/Proposal Amendment

To the extent permissible under the procurement rules the Procurement Agencies may amend the tender documents at any time prior to the deadline for receipt of tenders.

Procuring entities shall issue an addendum and publish in the related section of the e-GP system and also send via an automated electronic means (i.e. email, sms) and make available online in the e-GP system for the information of the public and the prospective Tenderers /Applicants/Consultants who have received the Tender/Application document or RFP.

2.15.4.5 e-Lodgment

A tender/ application /proposal lodged electronically is deemed for all purposes to be the true and legal version, duly authorized and duly executed by the Tenderer/Applicant/Consultant and intended to have binding legal effect. E-Signature/Digital signatures are necessary due to the security system for identity and authentication purposes. Identity of the Tenderer/Applicant/Consultant may be verified with a follow-up due diligence process.

2.15.4.6 Tender/ Application/ Prorosal Opening

The Procuring Entities receiving the tenders/proposals should form a Tender Opening Committee (POC). Formation of TOC/POC is described in Business Process Re-engineering (BPR) document.

Access to the dashboard for the TOC/POC shall be available only after the specified Tender/ Application/ Proposal opening date/time. The Committee should fill out the Tender/ Application/ Proposal Opening Sheet generated by the system as PPR-2008 requirements.

2.15.5 e-Evaluation

2.15.5.1 Formation of Evaluation Committees

The Procuring Entities receiving the Tenders /Applications / Proposals should form a Tender Evaluation Committee (TEC)/ Proposal Evaluation Committee (PEC). Formation of TEC/PEC is described in Business Process Re-engineering (BPR) document. Procuring Entities should ensure that the so formed Committees have sufficient knowledge and are conversant with the available tools offered by the e-GP system, i.e. the way to enter, view, update scoring criteria and weightings, automated analysis of Tenders/ Proposals, audit trails and reporting etc.

2.15.5.2 Use of e-GP system by evaluators

Access to the Dashboard for the Evaluation Committee shall be available only after the specified date/time and the e-GP system has been configured by the procuring Entities. At the outset, the Committee members should fill out and sign the declaration individually before evaluation and joint certification after evaluation provided online by the system as per PPR-2008 requirements. Access to the technical and/or financial proposals to TEC/PEC shall be available only at the specified date and time configured in the e-GP system by the Procuring entities.

2.15.6 Approval, Notificaton of Award (NOA) and Contract Signing

Approval of the evalution report will be routed in e-GP system through the workflow to appropriate Approving Authority as stipulated in PPR-2008 along with subsequent amendments.

Procuring entity will issue NOA to successful evaluated tenderer/ applicant/consultant online (i.e. via tenderer/ applicant/consultant dashboard, email, SMS as configured in preference settings).

e-GP system provides the facility to sign the contract online between Procuring Entity and the tenderer/ applicant/consultant, but may also choose to sign offline in compliance with the PPR-2008 along with the subsequent amendments. In case of offline contract signing, PE must enter the contract details, contract documents, and schedules of deliveries, contrac execution plan in e-GP system.

2.15.7 e-Contract Management

2.15.7.1   Contract progress monitoring and control

The Procuring Entities should nominate individuals for managing contracts, shall have the required knowledge, skills and abilities to effectively carry out their responsibilities by using the dashboard provided in the e-GP system.

e-GP system provides the standard forms and entry spaces to record the different activities and events of the Contract execution under e-Contract Management System. Procuring entities should keep updated contract with the project schedules, deliverables, Service Level Agreements if any, specifications, amendments and other information in the e-GP system.

Procuring Entity (PE) or a person nominated by PE must measure time and cost against the budget and contract specifications. The projected time required to complete the contract will also be assessed to detect deviations from the plan through the e-GP system dashboard. The performance of the work must be checked to ensure that the targets are being met and accordingly update the data in the e-GP system to reflect the actual status of the contract.

2.15.7.2   Certification and Payment Processing

The e-GP system provides the standard forms for issuing different types of certifications such as acceptance certificates, etc. The designated officers responsible for evaluating performance of the contract must carefully review the contractor's requests submitted online for payments to varify the accuracy of all charges and work performed, as e-GP system does not have automated tools to verify the physical performance in the field.

2.15.7.3   Contract agreement administration

The e-GP system also provides a tracking mechanism for all contract agreements. The designated officer should check contract status, contracted parties, contract period, goods, works and services covered and contract point to make any decision during contract agreement administration. If any contract needs to be amended the e-GP system brings up the auto alerts for required actions. The designated officials must record appropriate reason before any such extensions.

2.16 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. (Ontology.Org)

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.

2.16.1 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. But before defining the gains and efficiencies that e-Procurement offers, it is essential to indicate the importance of strategic purchasing for the government. Strategic purchasing refers to "the process of determining which goods and services to procure, from which vendor and for what price." (Meta Group). 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 (Buy IT (a), 2002).

The increased efficiency and effectiveness of public procurement process will provide potential to reduce the cost of public procurement. For example, in the United States it was reported that

e-Procurement reduced the cost of transactions from $120 to $20 and delay from 40 days to 5 days (Gunyou and Leonard, 1998). Australian Government estimates that the ratio of the processing cost for check versus electronic payments ranges between 10:1 and 5:1 (DCITA, 2000).

2.16.1.1 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 (Buy IT (a), 2002).

• Purchasing activities can be monitored better and statistical data for reporting on public procurement data and vendor activity will be provided. (Avery, 2000; Leipold, 2003)

• Market search will become easier through the e-Catalogs of vendors (Nishimura, 2002).

• Public institutions will access various goods and services of multiple vendors in a competitive environment (OGC, 2002).

2.16.1.2 Decrease in procurement transaction costs

• Public procurement services like market search, ordering, tendering, etc will become more efficient and effective (Buy IT (b), 2002).

• Public resources will be used more efficiently and effectively (Robinson, 2001).

  ✓ 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 (Leipold, 2003).

• Bureaucratic inertia will be reduced (Leipold, 2003).

2.16.1.3 Increase competition

• The public sector business opportunities will be accessible by all vendors, which in turn will enhance the competitive environment (ERI, 1998).

• The purchasing power of the government can be better coordinated and costs of goods and services will be reduced through this aggregating purchasing volume (Avery, 2000). 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 (Talero, 2001).

Considering the government expenditures on goods and services in Turkey, approximately $22-24 Billion - 12% of GNP (Emek, 2001), the efficiency and effectiveness in public procurement process will bring significant cost savings. There is also a consensus that government's efficiency and effectiveness in doing business will benefit all stakeholders: public administrations, vendors and taxpayers (The Economists, 2000).

Among the benefits of e-Procurement comes promotion of e-Commerce. As a major purchaser, the government can encourage the e-Commerce activities of the private sector (NSW, 1998). Basically, through the development of e-Marketplaces the fastest and easiest access to the public sector business opportunities can be enabled. Also, for securing competitive advantage, e-Procurement offers a powerful tool for ensuring that more businesses operate online. It is also believed that, "e-Procurement can be a driving force for reform of legal and regulatory framework, technology investments and training that developing countries face as a result of the information revolution" (Talero and Carp, 2002, p.9). Improvements in connectivity, adoption of common standards, and legislation on electronic transactions are indispensable not only for e-Procurement, but also for development strategies of most countries today (Talero and Gaudette, 2001).

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. Comparing to the economic benefits, transparency gains are more apparent from the first stages of e-Procurement (Leipold, 2003). As disclosure of information associated with the public procurement is an obligation under the law, the Internet makes this disclosure easier and also makes procurement related information more accessible. In other words, the Internet offers the easiest way to publish this information on time. As consequence of transparency, e-Procurement improves public administration further by fighting against corruption. Through the improved accessibility of all parties to the public procurement information and electronic logging

of all transactions, equal treatment in the public sector business opportunities can be achieved and the likelihood of detection of illegal transactions can be increased (Talero, 2001).

As a summary, an effective and efficient procurement process provides public institutions to gain more comprehensive picture of their overall procurement activities, initiate aggregate purchasing with others and improve relationships with the vendors. In addition, public institutions can reduce the maverick buying which is defined as the purchasing of goods and services that do not meet the specified standards or are not supplied from the approved vendors.

2.16.2. 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 (Leipold, 2003).

• Vendors will have a chance to present the technical and nontechnical descriptions, prices and promotions related with their goods and services (OGC, 2002).

• 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 (Leipold, 2003).

• New opportunities for SMEs will be formed such as increased participation in supply chain (ERI, 1998).

2.16.3 Benefits and Improvements to Buyers

Although there may be overlap between the categories the benefits and improvements to the buyers generally fall into one of these areas:

2.16.3.1 Cashable

• The Tender organization can use e-tender sites to advertise tenders which can result in considerable cost saving from advertising tenders in more traditional forms, i.e. national press

• The dependency on, and cost of, sending proposals via post or courier is eliminated

• Document storage - no physical storage constraints

• Document distribution - saves administration time and cost.

2.16.3.2 Process Saving

• Process improvements

• Receiving documentation electronically means circulating tenders internally across multiple locations is simplified greatly

• If 200 people have registered to receive details of the tender and if one of these people asks a question, then it is necessary to make everybody who has registered aware of the query and the answer – this is simple to do with an e-Government Procurement system/portal

• Saves time handling large numbers of expressions of interest and quickly reduce them to a manageable number

• Supplier can update pre-qualification and insurance details held on e-Government Procurement portal

• e-Government Procurement portal may be able to make use of such technologies such as XML questionnaires – the questions may or may not have mandatory options, which the tenderer must fill in before they can return the questionnaire

• Secure communications with suppliers can be data encrypted and time locked to protect all sensitive information

• Improved continuity when staffs are absent – information is easily shared via the e-Government Procurement portal.

• Automatically generates and dispatches common correspondence

• Encouraging suppliers to respond electronically saves time recording vital information and allows the automatic score of responses

• Formal opening procedures - speeds up recording of bids

• Dramatic time savings allow more time to make professional, accurate buying decisions

• e-Government Procurement system scan help compile year end reports,

• Tender organization can also use system for quotes, i.e. RFQ.

2.16.3.3 Reduction in Overhead Cost

• The administration overhead of producing multiple bound copies of large paper-based proposal documents is eliminated.

2.16.3.4 Non-Cashable improvements/benefits

• Electronic submission can support environmental policies

• Total visibility of all tenders – greater management/audit control

• Project Management - project access for remote users

• Privacy, authenticity, integrity and non-repudiation

• Document control - Freedom of Information

• Improved history function of procurements, all emails between the tender administrator and the tenderers are automatically recorded by the system.

2.16.4 Benefits and Improvements to Suppliers

Although there may be overlap between the categories the benefits and improvements to the suppliers generally fall into one of these areas:

2.16.4.1 Cashable Improvements and Benefits

• Visibility of all current and future business opportunities

• No cost to view opportunities and to register an interest - free access to the secure area of the portal (there may be a charge from the contracting authority for issuing the relevant documents).

2.16.4.2 Process Savings

• Tender documents are easily accessed and downloaded from the e-Government Procurement site

• The online submission process is simple to use, the upload is quick and a confirmation of receipt is usually issued

• Once a tenderer has gone through the pre-qualification process with the organization issuing the tender, it is likely that the tenderer will be asked only to update their own details and may be asked for further information which is not stored on the system resulting in fewer forms for the supplier to fill in.

• History log - keeps supplier up to date with the process

• No need to rely on third party delivery of documents

• More time to prepare their response, if a tender system is on a managed server and web-based, the minute the supplier sends their response the buyer should be able to view it - the supplier can therefore submit responses minutes before the deadline

• Project Management - all communications and documentation held on portal

• Suppliers can generally make changes to their submission, including adding or deleting documents, at any time up to the tender opening date.

2.16.4.3 Non-Cashable

• Various ways to return documents

• Ease of use

• Data security - secure communications with suppliers can be data encrypted and time locked to protect all sensitive information

• Supplier can update pre-qualification and insurance details held on e-Government Procurement portal

2.17 General Features to look for in Procurement Portals/Systems

• Fully CPTU compliant

• Manage expression of interest online

• 'One Click' publishing to websites and CPTU

• Complete tenderer management

• Different levels of access to the tender project can be assigned for different users

• Automatic generation and recording of common correspondence

• Easy to use questionnaire and score sheet creation

• Workflow management

• Transparent auditable process control

• Little or no internet knowledge required – should be intuitive help in the system

• Tenderers can receive everything they require via an e-Government Procurement portal; there is no need for software to be downloaded.

• Competing tenders are unaware of each other

• Pre-qualifying tenders

• Submissions not visible until opening date

• Messaging and feedback discussion area

• Can support all file types including PDF

• Involvement in procurement gives no rights of access to project data, other than to those documents included in the tender package

• The opening date for the tender can be extended if necessary, but cannot be brought forward.

2.18 The Risks

If the system fails there should make provisions for putting into a place a back up in the form of email, disk or even reverting to hard copy. It is probably advisable to put a disclaimer on the e-Government Procurement portal viewed by suppliers for any misinterpretation of instructions or downloads they receive by the e-Government Procurement portal. Ensure suppliers are aware of what they are signing up to, for example by making them read a summary of important points before they register. A good example is that if, when they register, they are asked for an email address and it only gives the opportunity to add one, then they should be aware that if they give theirs and they are away they should give access rights to somebody else. If they give a generic email address, i.e. info@sales then there is a chance that emails could be deleted or redirected to the wrong person. In this situation it might be advisable to get more than one person to register from the supplier's company. It is advisable to hyperlink anything that is generic but important that the buyer wants the supplier to sign up to, ie terms and conditions to the tender documents.

Include legislative points which might affect the award of the tender such as the Right to Information Act into the T&C's. It is advisable on a web based procurement portal to give the buyers access to a view-only account for each supplier. So if a supplier is having problems with inputting information the buyer will be able to see exactly what the supplier can see and talk him/her through the process. Make sure that all parties are aware that the server clock gives the

time that everybody should adhere to. A supplier may claim they could not access the e-Government Procurement portal because their network was down, before making a decision to accept the late tender.

Chapter 3

Methodology

3.1 General

This Chapter outlines the different steps followed for the evaluation of the e-GP system and challenges faced by RHD in last 3 (three) years after implementation. It discusses about the collection of primary and secondary data related to e-GP performance and total activities.

3.2 Sample procedure:

Two types of data were collected. These are as follows:

- Primary data
- Secondary data

Primary data were collected from the answers of questionnaires, where a set of 23 questions were prepared to get information regarding ongoing e-GP of RHD. First 6 questions are related to respondent personal information, question 7 to 23 are related to e-GP activities practicing in RHD, adequacy of knowledge and infrastructure of the respondent. To identify practical condition of e procurement in RHD, questionnaire was sent to 20 engineers of RHD, who are directly related to e-procurement.

In case of secondary data, I used official website of RHD to collect the information of e-GP related works of last 3 financial years. Beside this, data connected to Key Performance Indicators (KPI) of procurement in RHD, also known as PROMIS Report for last 3 financial years were collected from System Analyst of RHD.

3.3 Collection of Primary data

Questionnaire survey is one of the main sources of the study to collect primary data. A structured questionnaire was used for this purpose. It was distributed to the respondent for their voluntary filling up and answers were tested before adoption. The questionnaire was developed to assess

awareness, knowledge and available ICT infrastructure of RHD procuring entities. RHD expends most of the development budget through executive engineers at field level. They are the main procuring entities of RHD.

The primary research methodology of this study also includes interviews among selected officials of RHD who are directly related to e-GP operations.

Respondents are selected randomly, and they were requested for their response. Though it is better to collect data by face to face interview, but for time and resource constraint it was not possible to visit all over Bangladesh to collect data.

Some data collected by post, but communicated via telephone and email for clarification of questionnaire. Survey invitation letters were first sent to 20 Engineers of Roads and Highways Department. All of them accepted the invitation, and participated in this survey. Among these 20 participants, 11 of them are Sub-divisional Engineer, 8 of them are Executive Engineer and 1 of them are Superintending Engineer. All of the Executive and Superintending Engineers have at least 15 years experience in public procurement. Data was collected in April 2015.

 The final questionnaire is listed in Appendix 1.

3.4 Collection of Secondary Data

Secondary data include printed materials, data which are collected from website of RHD and e-Procurement website of Bangladesh.

3.4.1 e-Tendering Data Collection

e-GP works related data were collected from RHD website. RHD implement e-GP system in its procurement activities in the financial year of 2012-13 for the first time. Data fully collected for the financial year 2012-13 and 2013-2014. As the financial year 2014-15 yet not completed so e-GP works related data were collected for this year till 31st March 2015.

e-Tendering data were collected mainly in 8 (eight) categories which are explained below.

Live Tender: From publishing date to closing date (Last Submission date) the tender is termed as the Live tender.

Archived Tender: After the Closing date, most of the tenders are gone to the archived folder, and then its termed by Archived tender.

Cancelled Tender: If a Procuring Entity cancel the tender before the Closing date due to any unavoidable situation, then this type of tender named as Cancelled tender.

Being Processed Tender: From tender opening to contract award process, any tender can call Being processed tender.

Re-tender: When no feasible tender is dropped or when Evaluation Committee failed to find any responsive tenderer , then the tender would be gone to the process of Re-tendering.

Rejected Tender: When any Approving Authority rejects any tender after evaluation, then the tender is called Rejected tender.

e-Contracts/ Award: When contract signing happens between the Procuring Entity and Tenderer after providing NOA to the most responsive tenderer to serve the contract purpose, then the contracts are said to be awarded.

No Status: The tenders which have no progress according to the above terms are named as No status tender.

3.4.2 KPI (Key Performance Indicator) Data Collection

Another type of secondary data collected from PROMIS Overall Report. Overall Procurement Performance Report of the financial year 2012-13 and 2013-14 were collected. As the financial year 2014-15 yet not completed so Overall Procurement Performance related data collected for this year till 16th April, 2015.

PROMIS report contains data related to the achievement of KPI's (Key Performance Indicator) in overall procurement activities of RHD for these above 3 (three) years. There are mainly 42 KPI in the PROMIS Report.

This study not covered all of the 42 KPI. Performance Indicators which are directly related to the e-Tendering activities would be analyzed here. Mainly Transparency, Effectiveness, Efficiency,

Competitiveness and Compliance Indicators were taken into account as these terms are mostly matches with the e-GP system.

The KPI's which are covered in this study were:

Transparency Indicators: These indicate the availability of information of the tendering process.

- ♦ KPI 1: % of IFT published in newspaper
- ♦ KPI 2: % of IFT advertised in e-GP portal
- ♦ KPI 28: % of Contract awards published in e-GP portal

Efficiency Indicators: These indicate the reduction of the effort and time required for the tendering process.

- ♦ KPI 15: % of tender evaluation has been completed within timeline
- ♦ KPI 22: % of contract award decision made within timeline by the Approving Authority
- ♦ KPI 29: % of contract awarded within initial tender validity period

Competitiveness Indicators: These indicate the increased suppliers' participation

- ♦ KPI 8: Average number of tenderers purchased tender documents
- ♦ KPI 9: Average number of Tenderers submitted tenders
- ♦ KPI 16: Average number of responsive tenders

Compliance Indicators: These indicate the increased number of tenders that adhere to the procurement laws

(In average number of days/ average number of tenders)

- ♦ KPI 6: Average number of days between publishing of advertisement and tender submission deadline
- ♦ KPI 14: Average number of days between tender opening and completion of evaluation
- ♦ KPI 20: Average number of tenders approved by proper financial delegated authority

- ◆ KPI 25: Average number of days between final approval and Notification of Award (NOA)

(In percentage of cases)

- ◆ KPI 11: Percentage of cases TOC included at least ONE member from TEC
- ◆ KPI 21: Percentage of cases TEC submitted report directly to the contract approving authority

By using above KPI's data, comparison would be done between the financial year the financial year 2012-13, 2013-14 and 2014-15 (after e-GP implementation).

By the details analysis of all above primary and secondary data which will fully described in Chapter-4, the conclusion and recommendation of this study will be made.

Chapter 4

Data Analysis & Discussion

4.1 General

This Chapter describes the details analysis of both the primary and secondary data. Discussion with this details analysis also outlined in this chapter.

4.2 Analysis and Discussion on the Primary Data

4.2.1. Part A:

Designation of the Respondent

In the following table respondent designation is presented. Result reveals that among the respondents Sub-divisional Engineer is highest 55%, the second highest represented from Executive Engineer (40%) and rest is represented from Superintending Engineer (5%).

Table 1: Designation of the Respondent

Designation	%
Sub-divisional Engineer	55
Executive Engineer	40
Superintending Engineer	5
Total	100

Years of experience in procurement activities of the Respondent.

RHD is a public sector engineering organization and all the engineers are involved with procurement at different level. Superintending Engineers have more than 15 years experience in job, Executive Engineers have at least 11-15 years of experience. In this survey, 55% responders have more than 3 years experience in procurement.

Table 2: Years of experience in procurement activities of the Respondent.

Years of Experience	%
>15 years	5
10-15 years	40
5-10 years	0
2-5 years	55
Total	100

Educational Qualification of the respondents (Last degree obtained)

Respondent's educational distribution is divided into two groups. It is found that, highest number of respondent have B.Sc in Engineering degree (55%). Among the groups, the second highest number is in M.Sc in Engineering/ Masters in other field is 45%.

Table 3: Educational Qualification of the respondents

Level of Education (last degree obtained)	%
B.Sc in Engineering	55
M.Sc in Engineering/ Masters in other field	45
Total	100

Respondents have training on PPA and PPR 2008

Knowledge of PPA and PPR helps to perform procurement related activities in a better way. In this context, RHD seems to be very strong .Following table shows that all the respondents have the training of PPA and PPR.

Table 4: Respondents have training on PPA and PPR 2008

Training on PPA and PPR 2008	%
Participate in the training on PPA and PPR 2008	100
Not participate in the training on PPA and PPR 2008	0
Total	100

Annual volume of procurement respondents are responsible for

Annual volume of procurement for which respondents are responsible is presented in the following table. Result reveals that, highest number of respondents (35%) handle 0-10 crores of taka annually in procurement purpose. The second highest portion (25%) is responsible for 30-50 crores of taka. 20% of respondents are handling 11-30 crores annually and another 20% are responsible for more than 50 crores.

Table 5: Annual volume of procurement respondents are responsible for

Annual volume of procurement	%
>50 crores	20
30-50 crores	25
11-30 crores	20
0-10 crores	35
Total	100

Types of procurement respondents are involved

In this option only 5-10% responders are involved in goods and service procurement along with works procurement. 100% of them are directly involved in works procurement as RHD is mainly responsible for development and maintenance works so most of budget spends for works. The goods and services they procure are directly related to work or planning, designing or feasibility study to perform the work.

Table 6: Types of procurement respondents are involved

Types of Procurement	%
Works Procurement	100
Goods and Service Procurement	-
Works, Goods and Service Procurement	5-10

4.2.2 Part B:

Respondents have training on e-GP

The following table shows that whether the responders have training on e-GP or not. Result reveals that, 70% respondent participate in e-GP training organized by CPTU or RHD's own facility. But rests 30% have no training in this ground and still continuing their works without training on e-GP.

Table 7: Respondents have training on e-GP

Training on e-GP	%
Participate in the training on e-GP	70
Not Participate in the training on e-GP	30
Total	100

Respondents habit to visit CPTU website to CHECK their tender notice

The highest numbers (90%) of respondents are habituated to visit CPTU website to check the tender notice published by them. But 10% of them are not always checking their tender notice in CPTU website.

Table 8: Respondents habit to visit CPTU website to CHECK their tender notice

Habit to visit CPTU website	%
Always visit CPTU website	90
Always not visit CPTU website	10
Not visit CPTU website	0
Total	100

Respondents are used to send/receive e-mail by themselves when operating e-tendering

From the following table it can be said that, most of the respondents (95%) are used to send or receive e-mail by themselves when operating e-tendering. But 5% of them are yet not used to do this.

Table 9: Respondents are used to send/receive e-mail by themselves when operating e-tendering

Capacity to send/receive e-mail	%
Used to send/receive e-mail by themselves	95
Not used to send/receive e-mail by themselves	5
Total	100

Respondent's knowledge about tender document selling procedure in e-GP system

The following table shows that whether the responders have knowledge on tender document selling procedure in e-GP system or not. Result reveals that, all the 100% respondents have clear understanding about this issue.

Table 10: Respondent's knowledge about tender document selling procedure in e-GP system

Knowledge about tender document selling procedure in e-GP	%
Clear idea about tender selling in e-GP	100
No Clear idea about tender selling in e-GP	0
No idea	0
Total	100

Respondent's knowledge about receiving Tender Security /Performance Security in e-GP system

The following table shows that whether the responders have knowledge on receiving Tender Security /Performance Security in e-GP system or not. Result reveals that, all the 100% respondents have clear understanding about this issue.

Table 11: Respondents knowledge about receiving Tender Security /Performance Security in e-GP system

Knowledge about receiving Tender Security /Performance Security in e-GP system	%
Have clear idea	100
Have no clear idea	0
No idea	0
Total	100

The main incentives / benefits for incorporating electronic system in procurement decision

This is an open ended question. Respondents have opportunity to give tick mark in one or more than one options. All of the participants of the survey questionnaire discussed it different ways, but their main points are common. 100% of the respondents are agreed that the e-GP process is a transparent one. 85% of them also said that the system is able to reduce improper procurement, eliminate undue pressure on procuring entities. They described the system as modern and effective to stop tender box snatching. 65% respondents agreed that online payment is secure & fast and unwanted bidder's participation is reduced gradually after implementing e-GP. 50% of the respondents also said that time for procurement will reduce and the process looks step towards Digital Bangladesh as incentives. 35% agreed that in e-GP procedure fair selection of bidder occur and the process is economic & corruption free.

Table 12: The main incentives / benefits for incorporating electronic system in procurement decision

Benefits of e-GP	%
e-GP will reduce improper procurement	85
Transparent process	100
Time for procurement will reduce	50
Eliminate undue pressure	85
Tender box snatch will stop	85
Online payment is secure and fast	65
Step towards Digital Bangladesh	50
Modern and effective process	85
Fair selection of bidder	35
Economic	35
Corruption free	35
Unwanted bidder's participation will be reduced	65

e-GP process security.

The following table shows the participants view about the e-GP process security. 83% respondents agreed that e-GP process is always secured. 17% of them said that the process is not always secured.

Table 13: e-GP process security

e-GP process security	%
Process always secured	83
Process always not secured	17
Not secure	0
Total	100

e-GP process helps respondents to complete tender related works when they are not in their office.

The following table shows the participants view about the helpfulness of e-GP process to complete tender related works when they are not present in their office. All the 100% respondents agreed that e-GP process is always helps them to complete tender related works when they are not present in their office.

Table 14: e-GP process helps respondents to complete tender related works when they are not in their office

e-GP process helps to work outside of the office	%
Process always helps	100
Process not always helps	0
Never helps	0
Total	100

Evaluation of the process of informing e-Tendering updates through SMS to the concern persons

The following table shows the participants view about the helpfulness of providing e-Tendering updates through SMS to the concern persons. 67% of respondents said that this option is helpful to them and another 33% responds that the option is very helpful to them.

Table 15: Evaluation of the process of informing e-Tendering updates through SMS to the concern persons

Helpfulness of providing updates through SMS	%
Very Helpful	33
Helpful	67
Not Helpful	0
Total	100

Sharing of respondent's password which is used for log-in into e-GP system

The following table shows that whether the respondents sharing their password which is used for log-in into e-GP system with others or not. Result reveals that, 90% respondents never share their password but 10% of them sometimes shared password with others which would be dangerous for procurement activities.

Table 16: Sharing of respondent's password which is used for log-in into e-GP system

Sharing of e-GP password	%
Shared e-GP password with others	10
Never shared e-GP password with others	90
Total	100

Adequate internet access/speed for performing e-GP activities in respondent's office

The following table shows the participants having opportunity to use adequate internet access/speed for performing e-GP activities in their office. 50% of respondents said that they have adequate internet access/speed always but another 50% said the opposite.

Table 17: Adequate internet access/speed for performing e-GP activities in respondent's office

Opportunity to use adequate internet access/speed	%
Have adequate internet access/speed always	50
Have no adequate internet access/speed always	50
No Internet access/speed	0
Total	100

Better training needed for contractors to cope with e-GP system properly

The following table shows the participants view about the training needed for contractors to cope with e-GP system properly. All the 100% respondents believe that our contractors need better training as most of the contractors are not used to operate computer and internet yet. So, better training will be more fruitful to them.

Table 18: Better training needed for contractors to cope with e-GP system properly

Training needed for contractors	%
Required better training	100
Required no training	0
Total	100

Respondent's opinion regarding adaptation of contractors into e-GP system

Responder's answers are described below in a summarized format.

Contractors responded promptly but they are gradually adapting. For RHD's procurement, their participation is satisfactory. All of them couldn't adapt easily e-GP System because maximum

are half literate, illiterate, also they didn't get any training facility. It will be required some time for them to adapt this system. Contractors should know that e-GP system is far better than traditional system. They might believe that e-GP system is more reliable. The complexity of e-GP system shall be reduced and the software should be made user friendly. Regular training should be available for contractors.

Improvement of total tendering process after implementation of e-GP

The following table shows the participants view about the improvement of total tendering process after implementation of e-GP. Most of the respondents (83%) believe that, improvements of total tendering process after e-GP implementation is satisfactory. Another 17% said that the improvement is excellent.

Table 19: Improvement of total tendering process after implementation of e-GP

Improvements of total tendering process after e-GP implementation	%
Excellent	17
Satisfactory	83
Average	0
Not up to the Mark	0
Total	100

Respondents like e-GP system or not

The following table represents the likeliness of e-GP system by the respondents. Result reveals that, all the 100% responders like the system. This is a very good sign for RHD.

Table 20: Respondents like e-GP system or not

Likeliness of the e-GP system	%
Like	100
Dislike	0
Total	100

Reasons for like e-GP system by Respondents

The main points are:

1. Irrespective of transparency, time savings, free and fair selection.
2. Chances of snatching of tender box and factional crush among the bidder has been greatly reduced.
3. e-GP system reduces undue pressure.
4. e-GP system reduces tender process time.
5. e-GP system is paper less system.
6. The system is more reliable, transaction is easy.

Challenges for proper /full implementation of e-GP system

This is an open ended question. Respondents have opportunity to give tick mark in one or more than one options. All of the participants of this survey questionnaire discussed it different ways, but their main points are common. 100% of the respondents are agreed that lack of knowledge of bidder is the main challenge of e-GP system implementation. 85% of them agreed that inadequate internet connectivity is also a challenge for e-GP operation. 65% respondents believe that lack of computer competency of officials and e-GP software problem is creating problem. 50% said that hacker, virus etc. related problems and inadequate logistic support, electricity problem and lack of skill manpower, inadequate network & computer infrastructure may hamper the full e-GP implementation. Acceptability of new system is also a challenge for e-GP viewed by 35% of respondents. 15% respondents also agreed that lack of awareness and as most of the tenderer employ operator or agent to fill-up tender data sheet online, so it is difficult to keep confidentiality

Table 21: Challenges for proper /full implementation of e-GP system

Challenges for e-GP implementation	%
Inadequate internet connectivity	85
Network, computer infrastructure	50
Lack of computer competency of officials	65

Lack of knowledge of bidder	100
Financial transaction system is complicated	-
Lack of skill manpower	50
e-GP software problem	65
Difficulties in Post qualification	-
As most of tenderer will employ operator or agent to fill-up tender data sheet online, it will be difficult to keep confidentiality.	15
Electricity	50
Acceptability of new system	35
Powerful person may create obstacle	-
Lack of awareness	15
Logistic support	50
Hacker, virus etc	50

4.3 Analysis and Discussion on the Secondary Data

4.3.1 Analysis of e-Tendering Data

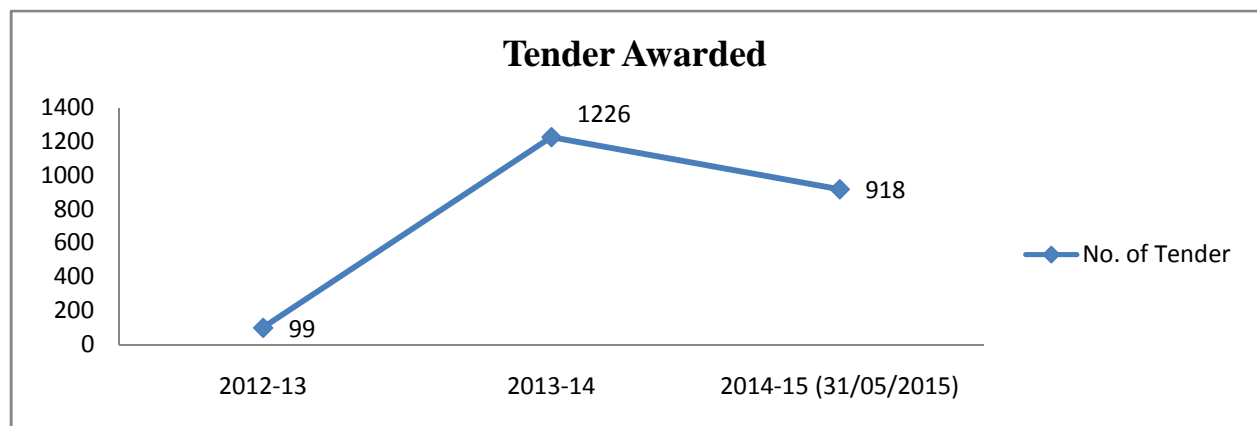### 4.3.1.1 Tender Awarded in the Different Years

Fig 1: No of tender awarded

The graph shows, how many tenders are awarded in the year of 2012-13, 2013-14 and 2014-15 by the e-tendering procedure. From above figure it can be said that, the number of contract

signing happen between the Procuring Entity and Tenderer after providing NOA to the most responsive tenderer for serve the contract purpose increases day by day. Though the number of contract awarded in 2014-15 till the data collection date is less than that of in the year 2013-14 it will be increase by June 2015. This is a very positive sign in RHD perspectives.

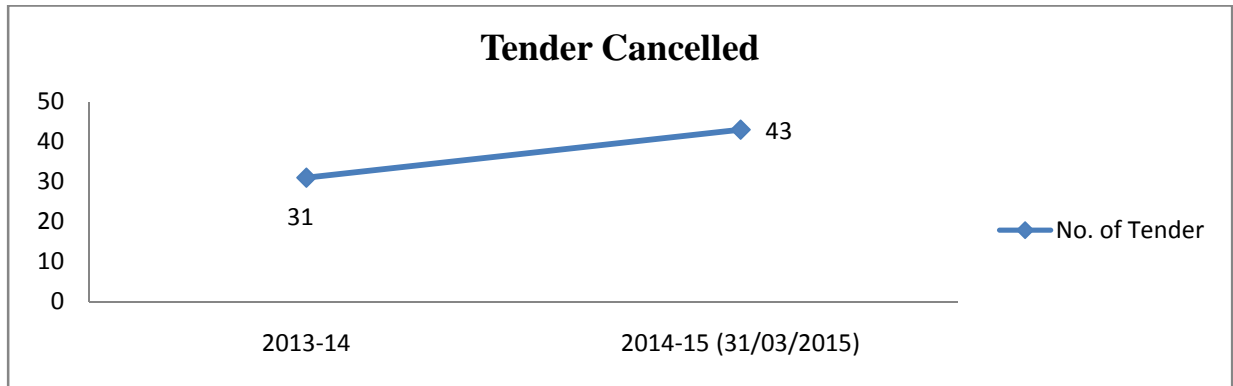**4.3.1.2 Tender Cancelled in Different Years**

Fig 2: No of tender cancelled

The graph shows, how many tenders are cancelled in the year of 2013-14 and 2014-15 by the e-tendering procedure. From above figure it can be said that, the number of tender cancelled by the Procuring Entity before the Closing date due to any unavoidable situation is increases in the year of 2014-15, which in turns shows a negative impression of the system.

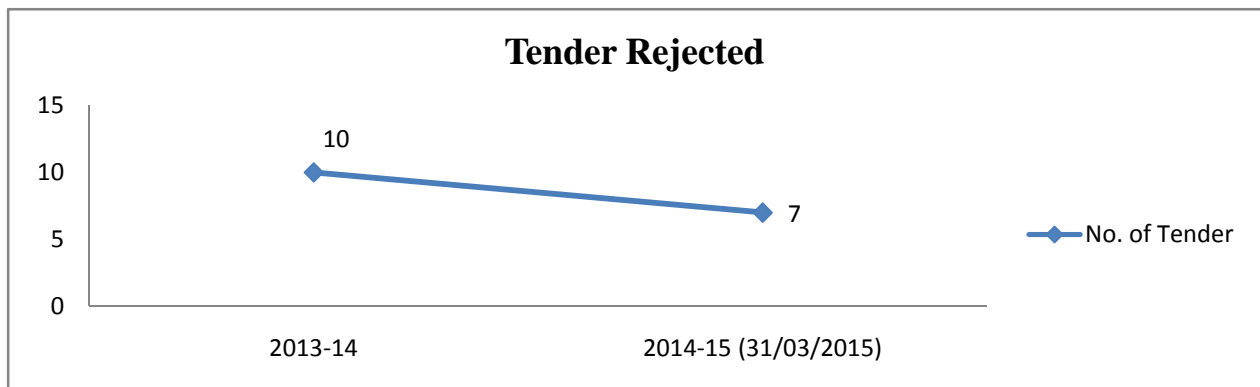**4.3.1.3 Tender Rejected in Different Years**

Fig 3: No of tender rejected

The graph shows, how many tenders are rejected in the year of 2013-14 and 2014-15 by the e-tendering procedure. From above figure it can be said that, the number of tender rejected by the

Approving Authority after evaluation is decreases in the year of 2014-15, which in turns indicates the responsiveness of the contractors are increases and shows a positive impression for RHD.

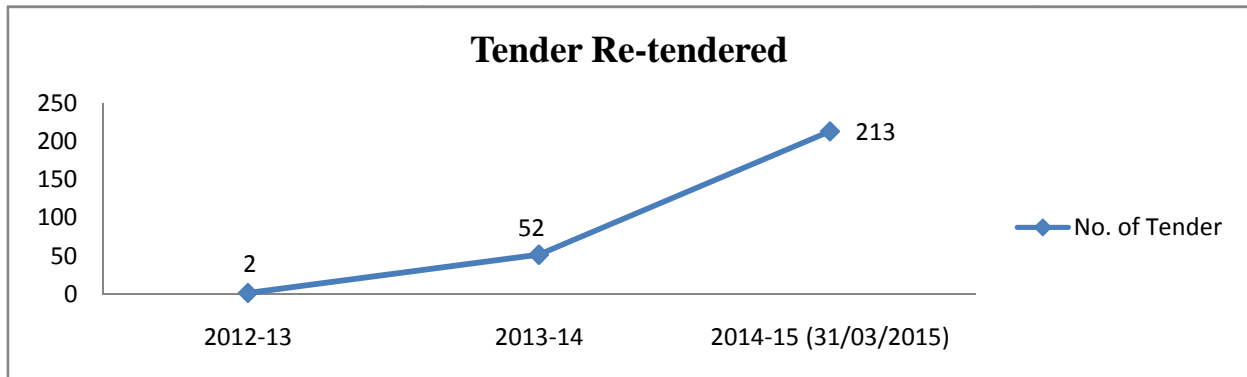**4.3.1.4 Re-tendered in Different Years**

Fig 4: No of tender re-tendered

The graph shows, how many tenders are gone to the re-tendering procedure in the year of 2012-13, 2013-14 and 2014-15 by the e-tendering procedure. The number is increase which indicates that non feasible tender dropping is increase as well as the Evaluation Committee fails to find any responsive tenderer. This indicates the poor functioning of the evaluation procedures and also the dropping techniques.

4.3.1.5 Comparison between Target and Achievement in Different Years

Fig 5: Target Vs Achievement

This figure shows the comparison between target and achievement of e-tendering process. From the above chart, it can be said that, in all the year after e-GP implementation, RHD achieve its target more than 100% which in turns indicates the great success of e-GP in RHD.

4.3.1.6 Total Features of e-GP in 2012-13

Fig 6: Features of 2012-13

The above pie chat shows the total features of e-GP procedure in the year of 2012-13. In that year no tenders are left after closing date, 9% of total tender gone to the archived folder, 56% tender were awarded within the fiscal year and 34% of tender were under processing at the end of the year. Only 1% tender required to be re-tendered in that year.
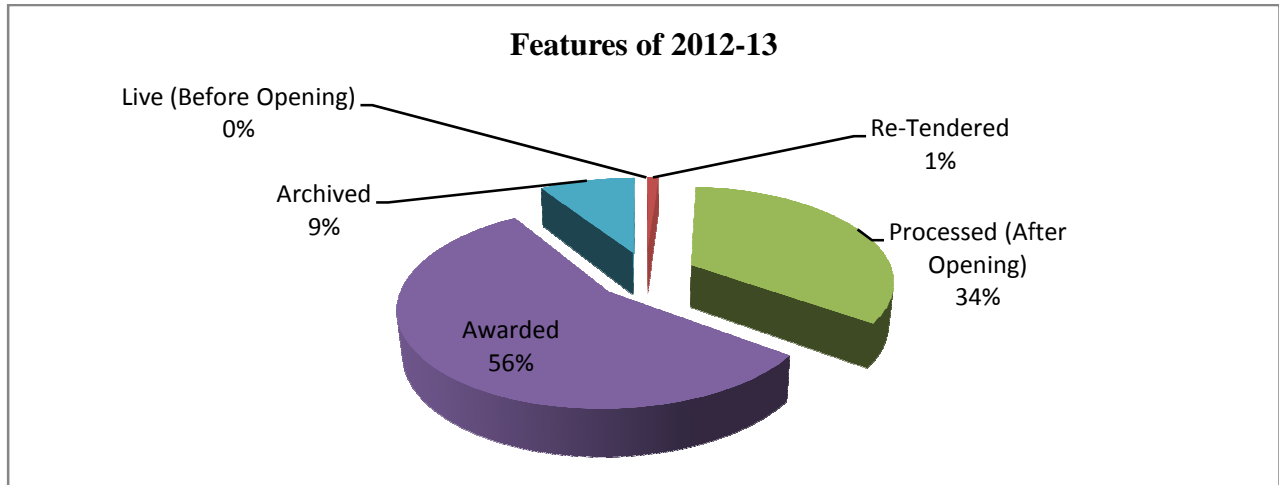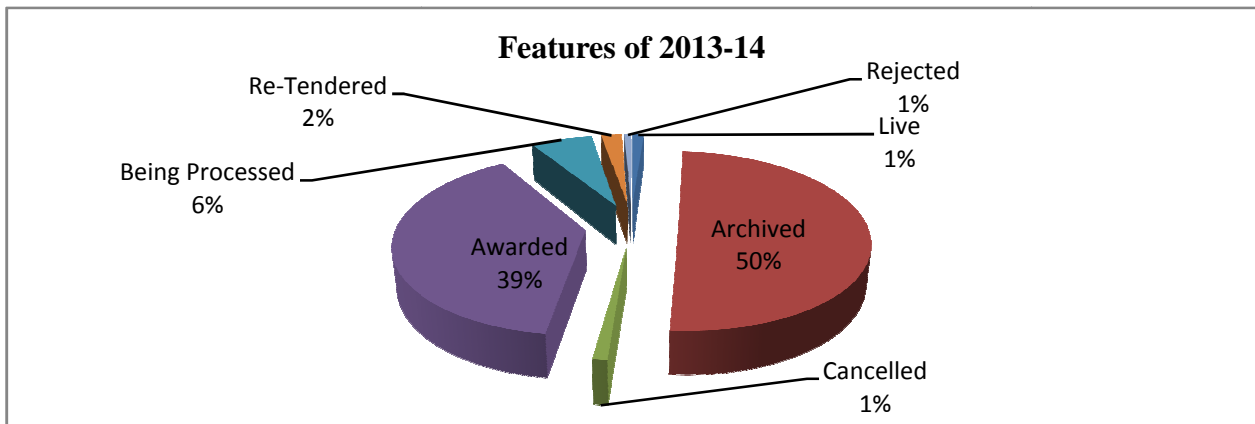
4.3.1.7 Total Features of e-GP in 2013-14

Fig 7: Features of 2013-14

The above pie chat shows the total features of e-GP procedure in the year of 2013-14. In that year 1% tender were left before closing date as live tender at the end of the year, 50% of total tender gone to the archived folder, 39% tender were awarded within the fiscal year and 6% of tender were under processing at the end of the year. Only 2% tender required to be re-tendered in that year. The percentage of rejected and cancelled tender was only 1% in each.

4.3.1.8 Total Features of e-GP in 2014-15
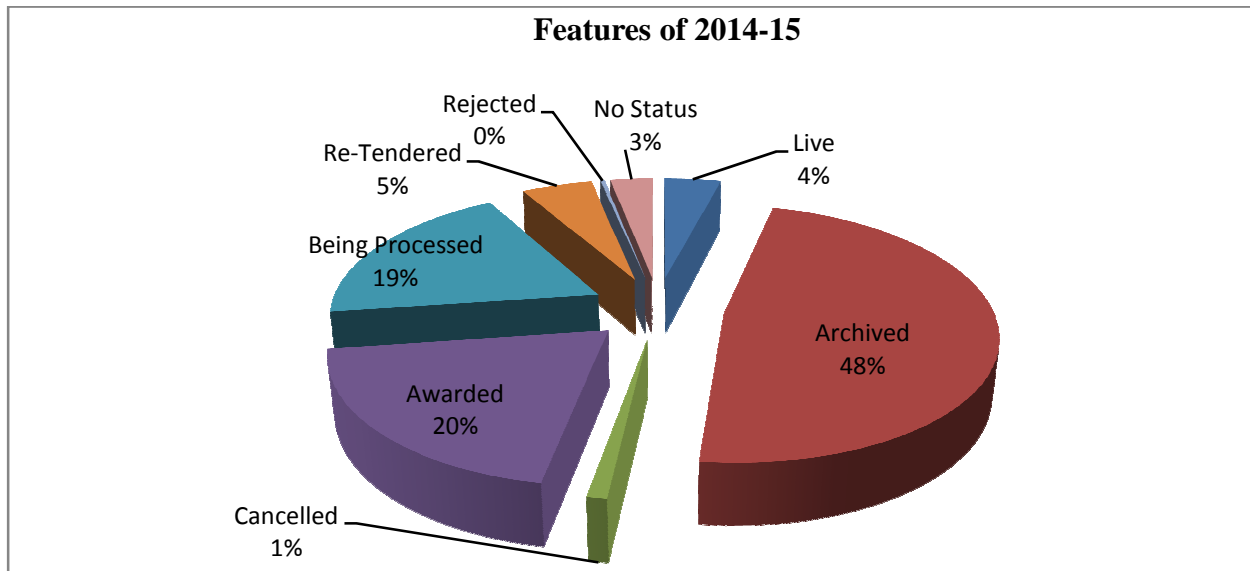
Fig 8: Features of 2014-15

The above pie chat shows the total features of e-GP procedure in the year of 2014-15 till to date 31st March, 2015. In this year 4% tender are left in e-GP website in publication module as the closing date not over yet, 48% of total tender gone to the archived folder, 20% tenders are already awarded within the data collection date and 19% of tenders are under processing. Only 5% tender required to be re-tendered till the date. Tender rejection is almost zero in this year. The percentage of cancelled tender is only 1%. 3% of tender have also in no status category.

4.3.2 Analysis of the KPI's Data

4.3.2.1 Achievement of Transparency Related Indicators

Transperancy Indicators Achievement

	KPI 1	KPI 2	KPI 28
2012-13	10.8	100	72.16
2013-14	5.18	100	83.26
2014-15	25.91	100	53.55

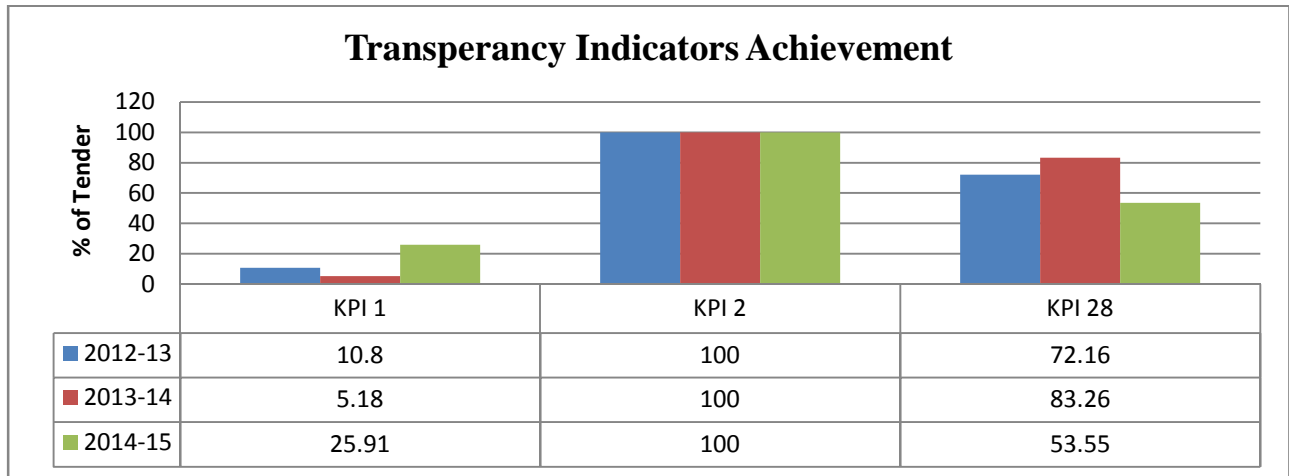Fig 9: Transperancy Indicators Achievement

❖ **For KPI 1,** the percentage of invitation for tender published in newspaper in the year of 2012-13 was 10.8%, the value was decreased in around half value in the year of 2012-13. But in the 2014-15, the % shows the more upgraded value than previous 2 years which is a very positive sign.

❖ **For KPI 2,** the percentage of invitation for tender published in CPTU's website/ e-GP portal in the year of 2012-13 was 100% and is continued impressively in both the year of 2013-14 and 2014-15.

❖ **For KPI 28,** the percentage of contract award published in CPTU's website/ e-GP portal in the year of 2012-13 was 72.16%, the value was increased the year of 2013-14 (83.26%) as many of the contracts were going through the e-tendering procedure. Though this % for the year 2014-15 shows less amount than the previous 2 years, it will be increased rapidly within June 2015, as April to June is high time to work in field divisions of RHD before starting of the rainy season.

4.3.2.2 Achievement of Efficiency Related Indicators

Efficiency Indicators Achievement

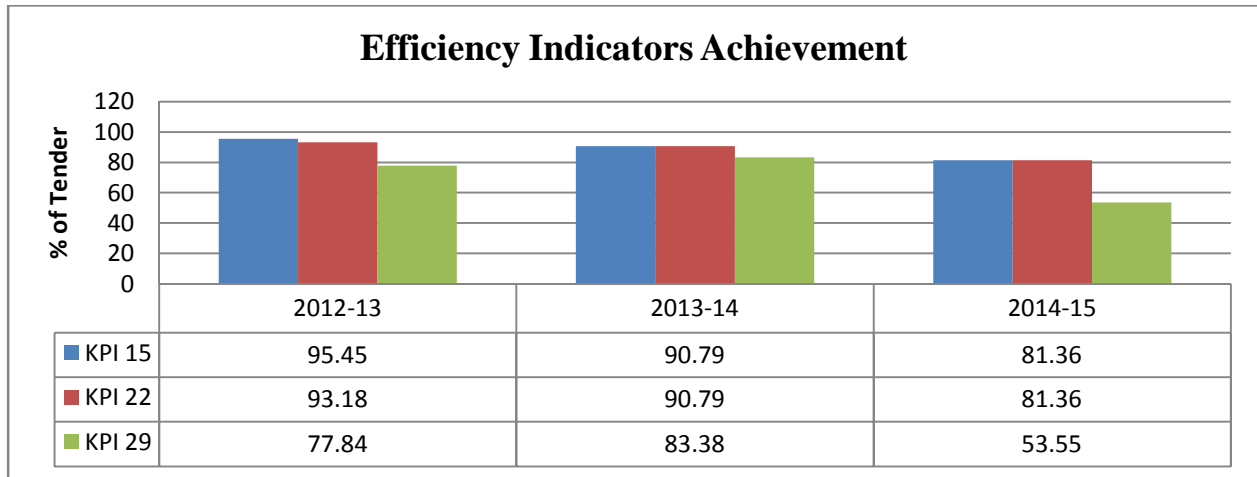|	2012-13	2013-14	2014-15
■ KPI 15	95.45	90.79	81.36
■ KPI 22	93.18	90.79	81.36
■ KPI 29	77.84	83.38	53.55

Fig 10: Efficiency Indicators Achievement

❖ **For KPI 15,** the percentage of cases tender evaluation has been completed within timeline, in the year of 2012-13 was showed a very high value (95.45%) as tender evaluation in e-GP system requires less time than the traditional one. The value was slightly decreased in the year of 2013-14 (90.79%). Though this % for the year 2014-15 shows fewer amounts than the previous 2 years, it will be increased rapidly by the June 2015.

❖ **For KPI 22,** the percentage of cases contract award decision made within timeline by contract approving authority, in the year of 2012-13 was showed a very high value (93.18%) as tender approval procedure in e-GP system requires less time than the traditional one. But the value was slightly decreased in the year of 2013-14 (90.79%) and in the year of 2014-15 (81.36%) which may be alarming for RHD.

❖ **For KPI 29,** the percentage of contract awarded within initial tender validity period, in the year of 2012-13 was 77.84%. The value was showed increased pattern in the year of 2013-14 (83.38%) which indicates the increasing efficiency of the tendering procedure after e-GP implementation. Though this % for the year 2014-15 shows fewer amounts than the previous 2 years, it will be increased rapidly by the June 2015.

4.3.2.3 Achievement of Competitiveness Related Indicators

Competitiveness Indicators Achievement

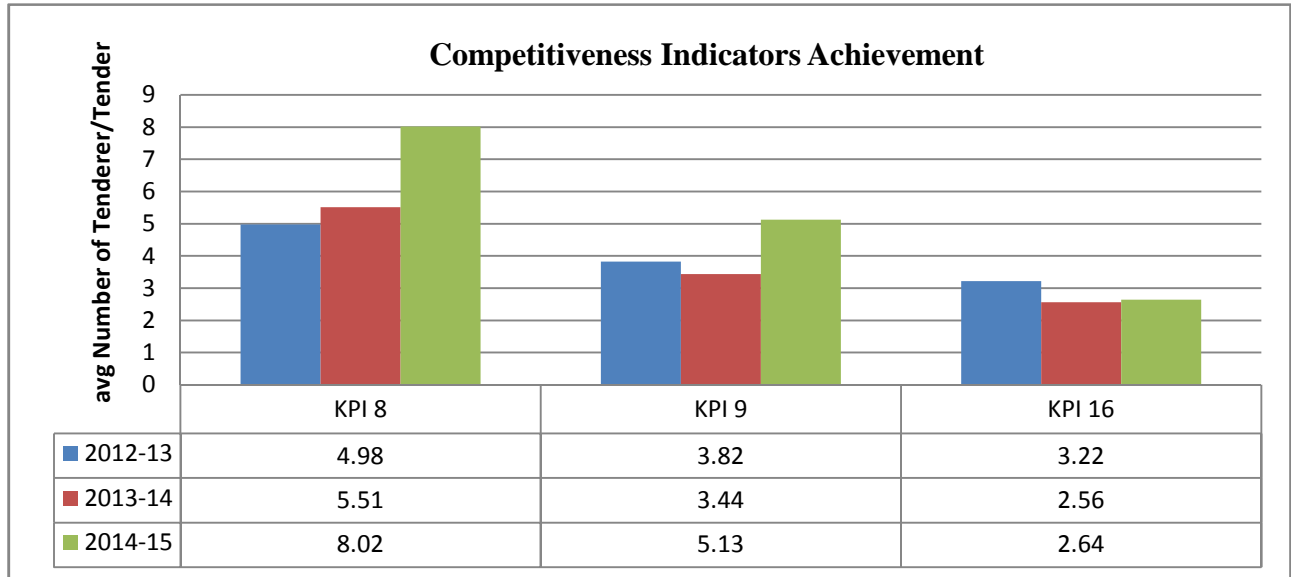|	KPI 8	KPI 9	KPI 16
2012-13	4.98	3.82	3.22
2013-14	5.51	3.44	2.56
2014-15	8.02	5.13	2.64

Fig 11: Competitiveness Indicators Achievement

❖ **For KPI 8,** average number of tenderers purchased tender document, in the year of 2012-13 was 4.98. The value showed upgrade pattern in the last 2 years, which indicates the improving competitions among the contractors in e-GP procedure.

❖ **For KPI 9,** average number of tenderers submitted tender, in the year of 2012-13 was 3.82. The value was slightly decreased in the year of 2013-14. But 2014-15 shows more increased value (5.13), which indicates the improving competitions and awareness among the contractors in e-GP procedure.

❖ **For KPI 16,** average number of responsive tenders, in the year of 2012-13 was 3.22. The value showed slightly decreasing pattern in the year of 2013-14 and 2014-15.Which indicates the inefficiency among the tenderers in responsiveness. RHD should take proper steps to overcome this problem.

4.3.2.4 Achievement of Compliance Related Indicators

Compliance Indicators Achievement

	KPI 6	KPI 14	KPI 20	KPI 25
2012-13	20.13	31.95	93.18	6.64
2013-14	20.93	33.12	90.79	4.44
2014-15	19.72	28.29	81.36	2.42

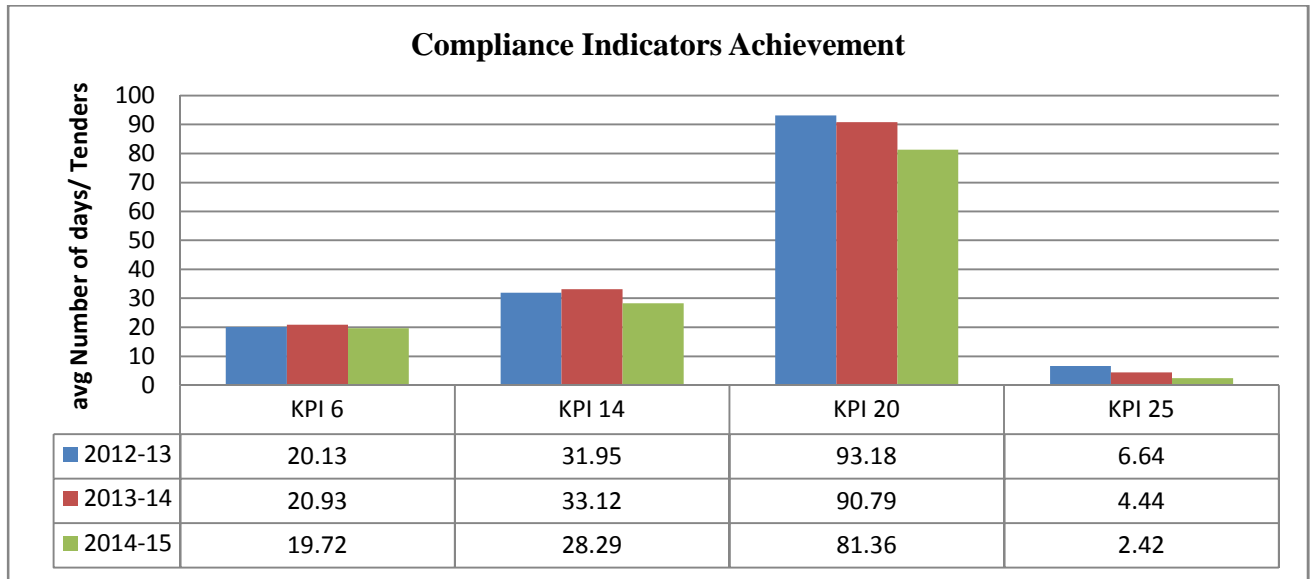Fig 12: Compliance Indicators Achievement

❖ **For KPI 6,** average number of days between publishing of advertisement and tender submission deadline, in the year of 2012-13 was 20.13. The value showed downgrade pattern in the year of 2014-15, which indicates the improving compliance as tender dropping requires less time in e-GP procedure.

❖ **For KPI 14,** average number of days between tender opening and completion of evaluation, in the year of 2012-13 was 31.95. The value showed much more downgrade pattern in the year of 2014-15, which indicates the improving compliance as tender evaluation requires less time in e-GP procedure.

❖ **For KPI 20,** average number of tenders approved by proper financial delegated authority, in the year of 2012-13 was 93.18. But the value showed slightly decreasing pattern in the year of 2013-14 and 2014-15.Which indicates the incompliance in the e-GP procedure as some of the tenders are not approved by the proper authority. RHD should take proper steps to overcome this problem.

❖ **For KPI 25,** average number of days between final approval and NOA, in the year of 2012-13 was 6.64. But the value showed highly decreasing pattern in the year of 2013-14 and 2014-15.Which indicates the e-GP procedures requires less time between final approval and NOA, and also indicates great success of RHD in this issue.
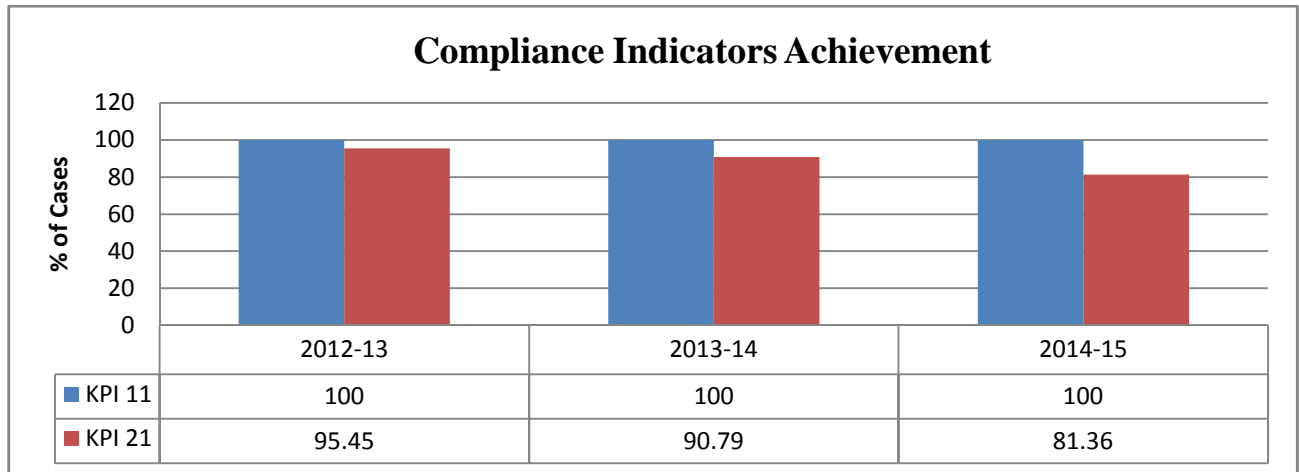
Compliance Indicators Achievement

	2012-13	2013-14	2014-15
KPI 11	100	100	100
KPI 21	95.45	90.79	81.36

Fig 13: Compliance Indicators Achievement

❖ **For KPI 11,** the percentage of cases TOC included at least one member from TEC, in the year of 2012-13 was showed a very high value (100%) and it continued in both the year 2013-14 and 2014-15. These values indicate the maintaining of compliance of laws in RHD's procurement activities through e-GP procedure.

❖ **For KPI 21,** the percentage of cases TEC submitted report directly to the contract approving authority, in the year of 2012-13 was 95.45%. But the value is slightly decreasing in both the year 2013-14 and 2014-15. This is not good for RHD and should take proper steps immediately.

Chapter 5

Conclusion & Recommendation

5.1 Conclusion

e-GP has the potential to strengthen the transparency, efficiency, competitiveness and compliance of the sensitive high value government procurement functions. For most jurisdictions of RHD, it represents both an opportunity for procurement reform and changing the way of procurement. But this system also faces various types of challenges.

5.1.1 Overall Evaluation of e-GP in RHD

After implementation of e-GP, RHD processing total 4264 no. of tender by using e-GP procedure while the target is 3900 no. of tender for these three year 2012-13, 2013-14 and 2014-15. Out of these tenders total 2243 no. are awarded to the responsive tenderer and contract works has been completed for many contract and some works is going on.

From the detailed data analysis it can be said that, transparency indicators related to the availability of information of the tendering process such as KPI 1 and KPI 28 shows increasing trend in the last three years after implementation of e-GP. Another transparency indicator KPI 2 already achieve 100% success in RHD. Efficiency indicators which are related to the reduction of the effort and time required for the tendering process such as KPI 15 & KPI 22 already achieve 90% success and KPI 29 shows upgrading pattern day by day. Competitiveness indicators related to the proper competition among the contractors represents by the KPI 8 and KPI 9 both shows increasing values in the PROMIS Report for RHD as average number of tenderer who buy the tender document in e-GP system and average number of tenderer who submitted the tender before closing date in e-GP system increases and enhance the competition. In case of compliance related indicators, average number of days between publishing of advertisement and tender submission deadline represents by KPI 16, average days required between tender opening and evaluation represents by KPI 14, average number of days between final approval and NOA represents by KPI 25, all are decreasing after implementation of e-GP

which in turns indicates the great success for RHD in e-GP implementation and tendering procedures. Another compliance indicator such as KPI 11 and KPI 21 earns 100% and more than 90% achievement respectively.

e-GP implementation also raising the awareness among the RHD officials. More than 90% responders of questionnaire survey used to visit CPTU website to check their tender notice and also used to send/receive email by themselves. 100% of them are knows how to sell tender document and how to receive tender security/performance security in e-GP system. All the respondents agreed that e-GP procedures helps them by giving notification through mobile SMS and also helps them to complete their tendering related works even when they are outside of their office if internet connection is available. 100% responders like e-GP system because this process reduces misprocurement and increase transparency in public procurement as well steps forward to the modern organization. E-procurement reduces administrative costs and bureaucracy by helping the country avoiding repeating tasks such as registration and certification of contractors, allowing for additional effective control mechanisms and reducing paperwork and reduces transaction cost and time for tendering. This system eliminates the undue pressures and totally stopped the culture of snatching tender box which was the common phenomenon before e-GP starts. Fair selection of bidders can be possible in e-GP system as the process is corruption free. Unwanted bidders who are mainly non-performing are usually afraid of to bid in e-tendering hence reducing their participation increase the total contractual work responsibility.

5.1.2 Overall Challenges Faced by RHD in e-GP implementation

Inadequate internet connectivity in the field offices is one of the major challenges in e-GP procedure operations for RHD. The networks and computer infrastructures are not well equipped yet now. Most of the officials have computer competency but lack of knowledge of bidder is prevailing. There are may be lack of skilled manpower and e-GP software shows problem somewhat. Electricity related problem is also remaining in all over the Bangladesh and hence also disturbed the e-tendering operations in RHD. Logistic support is another prevailing problem in RHD in case of e-GP implementation fully. Some senior officers and old contractors who are not used to operate computer and internet facilities reluctant to adopt this internet based new

system. Some officials of RHD share their password with others though these persons are below 10% among the all officials, corruption related problem associated in some extent due to this activity. Some corruption also occurred in bank as the bank is responsible for selling tender document in e-GP procedure if the bank managers share the tender selling related information of one tenderer with others.

From the data analysis, it can be said that, average no. of responsive tenders decreases day by day, which is represents by the KPI 16. Average number of tenders approved by proper financial delegated authority, represents by KPI 20, in the year of 2012-13 was 93.18. But the value showed slightly decreasing pattern in the year of 2013-14 and 2014-15.Which indicates the incompliance in the e-GP procedure as some of the tenders are not approved by the proper authority. The number of re-Tendering also increases in the year of 2014-15. This is not a good sign. RHD should take proper steps to overcome this problem.

RHD faced some technical problem also during its e-GP operation. e-GP system incompatible with latest version web browser. This system only support specific version of Internet Explorer and Mozilla Fire Fox. The system has incapacity to handle negative values required for salvage work. The e-GP server is very much slow. Provision of re-evaluation of tender by the approving authority is missing in the system though it is allowed in under PPR. ATM card option for purchasing bid document is not functioning properly and creates big problem for the tenderer. Password lock is very easy. One can easily lock the ID of someone else. It may hamper the tender submission. Corrigendum, i.e PE cannot edit or modify Tender Document. CPTU should take proper steps to overcome these serious problems.

5.2 Recommendations

Based on the analysis of the collected information and on international practice, some practical measures are recommended for better implementation of e-GP in Bangladesh:

➢ The complexity of e-GP system should be reduced and the software should be made user friendly.

➢ Regular training should be arranged for the contractors.

- Regular meetings should be initiated between CPTU and RHD officials can be helpful for resolve many unwanted software related problems.
- e-Government Procurement initiative needs to be monitored regularly to identify opportunities for ongoing improvements. This includes periodic and planned reviews. After specific period and based on collected information the Strategy should be updated and new objectives should be set forth.
- Various fees needed in e-GP operation should be kept on a reasonable level in order not to run the risk of reducing supplier's participation.
- Internet connectivity throughout the country should be improved and logistics support should be increased in the field divisions of RHD.
- Password Lock and Verification of mail system should be made more comprehensive.
- As evaluation module is more complicated in e-GP system, it should be made more technical and computer based.
- Options for Corrigendum should be incorporated.

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Appendix 1: Survey Questionnaire

BRAC Institute of Governance and Development (BIGD)
BRAC University
Survey Questionnaire

Research Topic: Performance Evaluation and Challenges for Implementing e-GP: A case of Roads & Highways Department, Bangladesh.

[This is a survey questionnaire for conducting a study to find out the performance of e-GP in last 3 (three) years and challenges faced by this new system in Roads & Highways Department. It is a part of academic necessity for the Masters in Procurement and Supply Management in the BRAC Institute of Governance and Development (BIGD), BRAC University. Your response is valuable for the researcher. The researcher assures you that the information given by you will be kept confidential & will be used only for the academic purpose.]

Part A: Respondent's Profile [Please encircle ( ) where appropriate]

1. Designation of the respondent:

2. Years of experience in procurement activities :

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

3. Educational qualification:
    (Last degree obtained)

4. Do you have training on PPA and PPR 2008? : Yes / No.

5. Mention annual volume of procurement you are responsible for:

6. Please mention type of procurement you are involved?

Works (%)	Goods (%)	Services (%)

Part B: Please provide information that you are practicing in RHD, when you deal with e-GP related procurement activities.

7. Do you have any training on e-GP?   Yes / No

8. Do you visit CPTU website to CHECK your tender notice?   Yes / Not Always / No

9. Are you used to send/receive e-mail by yourself when operating e-tendering?   Yes / No

10. Do you know how to sell tender document in e-GP system?   Yes / No / Not Sure

11. Do you know how to receive Tender Security /Performance Security in e-GP system?

Yes / No / Not Sure

12. What are the main incentives / benefits for incorporating electronic system in procurement decision?

Options	Please Specify one / more than one
e-GP will reduce misprocurement	
Transparent process	
Time for procurement will reduce	
Eliminate undue pressure	
Tender box snatch will stop	
Online payment is secure and fast	
Step towards Digital Bangladesh	
Modern and effective process	
Fair selection of bidder	
Economic	
Corruption free	
Unwanted bidder's participation will be reduced	

13. Is the e-GP process secure? Yes / Not Always / No

14. Do you think e-GP process helps you to complete tender related works when you are not in your office?   Yes / Not Always / No

15. How will you evaluate the process of informing e-Tendering updates through SMS to the concern persons? Very Helpful / Helpful / Not Helpful

16. Does anybody know your password which used for log-in into e-GP system? Yes / No

17. Do you have adequate internet access/speed for performing e-GP activities in your office? Yes / Not Always / No

18. Do you think our contractors need better training about e-GP system?

Yes / No / Not Sure

19. What is your opinion regarding adaptation of contractors into e-GP system?

…………………………………………………………………………………………

…………………………………………………………………………………………

20. How will you define the improvement of total tendering process after implementation of e-GP? Excellent / Satisfactory / Average / Not up to the Mark

21. Do you like e-GP system?   Yes / No

22. If yes, then please mention why?

…………………………………………………………………………………………

…………………………………………………………………………………………

23. In your opinion, what are the challenges for proper /full implementation of e-GP system?

Options	Please Specify one / more than one
Inadequate internet connectivity	
Network, computer infrastructure	
Lack of computer competency of officials	
Lack of knowledge of bidder	
Financial transaction system is complicated	
Lack of skill manpower	
e-GP software problem	
Difficulties in Post qualification	
As most of tenderer will employ operator or agent to fill-up tender data sheet online, it will be difficult to keep confidentiality.	
Electricity	
Acceptability of new system	
Powerful person may create obstacle	
Lack of awareness	
Logistic support	
Hacker, virus etc	

Thanks for Your Valuable Concern