

**ASSESSMENT OF PRESENT PROCUREMENT PROCESS OF PRIVATE
OWNED RURAL PIPED WATER SUPPLY IMPLEMENTED BY
DEPARTMENT OF PUBLIC HEALTH ENGINEERING (DPHE) BASED ON
KEY PERFORMANCE INDICATORS (KPI)**

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

Submitted by

Firoza Akhter

MPSM ID-15282015

Batch-X

Masters in Procurement and Supply Management



Masters in Procurement and Supply Management (MPSM)

BRAC UNIVERSITY

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CERTIFICATE

This is my pleasure to certify that the dissertation entitled “Assessment of present procurement process of private owned rural piped water supply implemented by Department of Public Health Engineering (DPHE) based on key performance indicators (KPI)” is the original work of Firoza Akhter 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 “Assessment of present procurement process of private owned rural piped water supply implemented by Department of Public Health Engineering (DPHE) based on key performance indicators (KPI)” 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.

06th February, 2016

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ABBREVIATIONS

BOT	Build Own Transfer
BOOT	Build Own Operate Transfer
BRWSSP	Bangladesh Rural Water Supply and Sanitation Project
BWSPP	Bangladesh Water Supply Program Project
CAG	Comptroller and Auditor General
GFR	General Financial Rules
CPTU	Central Procurement Technical Unit
DPHE	Department of Public Health Engineering
ERD	Economic Relations Division
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IFT	Invitation for Tender
KPI	Key Performance Indicators
NOA	Notification of Award
OGC	Office of Government Procurement, UK
OMME	Operation Maintenance and Management Entity
PAs	Procuring Agencies
PEs	Procuring Entities
PPA	Public Procurement Act
PPP	Public Private Partnership
PPR	Public Procurement Rule
RPWS	Rural Piped Water Supply
TEC	Tender Evaluation Committee
TOC	Tender Opening Committee
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
WB	World Bank

Abstract

Rural piped water supply system is a new concept for providing safe water to the rural people. Water supply system of Bangladesh is quite challenging due to presence of arsenic and salinity in ground water, low water level and highly varied availability of surface water throughout the year. Operation and management of the system is the most challenging factor among all. The government organization does not have sufficient financial and administrative support to operate and manage water supply systems. A Build, Own, Operate, Transfer (BOOT) model was developed and introduced under a project of DPHE namely Bangladesh Water Supply Program Project (BWSPP). However, the water supply systems developed under this project are not running successfully. Only 4 out of 21 schemes are expecting to get back their investment within 18 years. All other schemes are running without having any profit. The procurement process for rural piped water supply under this project was different than usual procedure. The sponsors who were supposed to build supply systems select the location. There were no competitions for a particular scheme. From the lesson learned from BWSPP, the later project Bangladesh Rural Water Supply and Sanitation Project (BRWSSP) took initiative to ensure competitiveness in the procurement process. Out of 45 KPIs that were used by CPTU to evaluate the procurement process, 25 KPI were used to evaluate the efficiency, competitiveness, compliance and transparency of the procurement process considered for the study. The result shown that still people working in water supply sector not aware about the importance of procurement process in implementing PPP model. The transparency and competitiveness was ensured in the procurement process. However, there are still improvements required in ensuring compliance and efficiency in the procurement processes of rural piped water supply system.

Chapter One

Introduction

Background

Public procurement in Bangladesh has been identified as one of the most important arena that significantly affects public sector performance. As demonstrated slow performance in different development projects in Bangladesh which hindered the targeted achievement, a Country Procurement Assessment (CPA) was undertaken by the World Bank (WB) in 2001 to explore the prevailing Public Procurement Policy, Framework, Institutions and Competence level of the personnel involved in the procurement process. The report of that assessment which is known as CPAR highlighted many discrepancies in the procurement systems followed by the different departments using public fund. The discrepancies includes absence of legal framework governing public sector procurement, Complex bureaucratic procedure causing delay in procurement which leads to time overrun of the development projects, multiple tiers in the approval and review process, Lack of competent personnel to manage public procurement, Generally poor quality bid/tender document and its evaluation process and finally absence of adequate mechanism for ensuring transparency and accountability (Kamruzzaman, 2015).

Water supply sector in Bangladesh is one of the crucial sectors because of its nature and importance. Water is a scarce resource and supplying safe drinking water is quite a challenge especially in difficult areas e.g. arsenic contaminated area, saline prone area, low water level area etc. Bangladesh had achieved remarkable success in increasing rural access to 'safe' water for domestic use by early 1990s, in ways that involved various forms of private sector participation. Over 90% of the rural population in Bangladesh was accessing the country's vast shallow water table using privately-owned hand pumps on shallow tube wells, 30-50 meters deep. The government had worked effectively with donors like UNICEF to build the capacity of the private sector to carry out the inexpensive drilling of such wells and the manufacture and distribution of suction pumps. Use of affordable products and services became widespread, and millions of rural households accessed water via house or yard connections that they installed and maintained. In all, over 75% of all tube wells have been privately constructed, making the Bangladesh program one of the world's largest most successful in small-scale private provision of household water (World Bank, 2015).

However, the country's apparent success with rural access to safe water ended abruptly in late 1993 with the findings by the Department of Public Health Engineering (DPHE) that vast stretches of the shallow aquifer were in fact heavily contaminated by naturally-occurring arsenic. Since then, the nature and extent of the contamination has been mapped in various ways. A number of studies have been undertaken to determine the extent of the contamination and the population impacted. For

example, a 2010 epidemiological study found that as many as 77 million people, roughly half the country's total population at the time, had been exposed to toxic levels of arsenic, and that for the population sample studied over a ten-year period, more than 20% of the deaths were caused by arsenic (Argos et al., 2010). The World Health Organization has notably called this arsenic contamination "the largest mass poisoning of a population in history" (World Bank, 2015).

Even before the extent of the pollution was fully understood, the government began working with development partners to address the challenges associated with arsenic. Among many technologies that were provided to ensure safe water, deep wells, connected to piped water supply networks and sometimes combined with treatment facilities, offered a relatively safe and convenient option, although still at higher costs than shallow wells. (World Bank, 2015).

The traditional model shallow tube wells offered no protection from arsenic, deep tube wells were seen as prohibitively expensive for many rural households, and rural piped schemes development by NGOs and the public sector were not yet delivering at scale. These factors combined with public sector capacity constraints and limited financing, indicated that PPPs were a viable option to deliver arsenic free water relatively quickly and at scale in rural communities in Bangladesh (World Bank, 2015).

A study was conducted by WSP (Water and Sanitation Program) for finding out the implementation of PPPs and willingness to pay of the local people for the service. This indicated that the rural people were willing to pay for piped water supplies of arsenic – free water. They were also agreed to pay tariff for operation and maintenance of the system (World Bank, 2003).

Based on the above mentioned study and experiences from other agencies like RDA or BMDA, Government of Bangladesh had undertaken a number of development projects in collaboration with the World Bank. These projects had objectives to pilot and develop BOT financing and implementation modalities for the delivery of arsenic – free water in rural areas of Bangladesh. Among those the Bangladesh Water Supply Program Project (BWSPP) is the first attempt to scale up the designed BOT model. The duration of the project was 2005 to 2009. However, a monitoring report of WSP during 2015 reveals that, among the implemented 21 schemes of BWSPP, 10 schemes were non-functional or badly mismanaged and only four of the functioning schemes have any likelihood of recovering private investment by the end of their contract terms (World Bank, 2015).

For the last 13 years, the Government of Bangladesh and The World Bank have worked together to roll out a BOT model for rural piped water supply in the country. But the results of collaboration have been disappointing. While the rationale for the PPP model was appropriate and warranted, except for

a handful of schemes the model has generally not worked as expected, and efforts to scale up its use across large regions of the country have not been successful.

Two larger World Bank funded projects of DPHE (Bangladesh Water Supply Program Project (BWSPP) and Bangladesh rural water supply and sanitation project (BRWSSP)) attempt to use the model in setting up of private operator schemes. These projects were carried out a variety of activities in the water sector beyond piped water supply which did deliver improve services. It has been found that the procurement procedure for BWSPP was completed before implementation of PPR 2008 and BRWSSP's procurement procedure followed the rules of PPR 2008. However, the efforts to roll out the BOT model in support piped water supply were less successful that leads to target reduction after midterm project reviews (MTRs). BWSPP reduced its MOT target from 300 schemes to 21, while BRWSSP reduced its BOT target from 125 schemes to 35.

Objectives

In this backdrop, this thesis research is proposed from the perspective of effective contract management and business model of private owned rural piped water supply. The central research question has been framed as: "How effectively the existing procurement process of BRWSSP followed PPR 2008 in implementing rural piped water supply?"

1. To analyze the procurement and contract management of Bangladesh Water Supply program Project (BWSPP) for rural piped water supply that used build, own and transfer (BOT) model.
2. To investigate and analyze the efficiency of procurement process of rural piped water supply under Bangladesh Rural Water Supply and Sanitation Project (BRWSSP) using the Key Performance Indicator (KPI) set by Central Procurement and Technical Unit (CPTU) in the light of Public Procurement Rules 2008 (PPR 2008).
3. To compare between procurement process of Bangladesh Water Supply program Project (BWSPP) and Bangladesh Rural Water Supply and Sanitation Project (BRWSSP) and to find out the improvement achieved in by following PPR 2008 in Bangladesh Rural Water Supply and Sanitation Project (BRWSSP).

The answer to the question above were expected to provide information on improvement of procurement process for rural piped water supply that implemented by GOB and World Bank which will help to formulate strategies for improved management of rural piped water supply and improved service from those.

Scope and Limitation of the study

The study will assess the procurement process of pipe water supply schemes implemented by Bangladesh Water Supply Program Project (BWSPP) and Bangladesh Rural Water Supply and

Sanitation Project (BRWSSP) of Department of Public Health Engineering. The assessment will help to evaluate the situation of procurement process for rural piped water supply the above mentioned projects. The study does not consider the overall procurement processes of the organization or of the whole project. It is just confined in assessing the procurement process of rural piped water supply schemes. The primary information mainly collected to find out the perception of the donors and implementing agencies idea about the factors that affecting the service delivery of piped water supply schemes. The information collected by questionnaire survey and the respondents selected randomly from three (3) categories of stakeholders i.e. donor i.e. World Bank, DPHE PMU personnel and other agencies implementing piped water supply in rural areas e.g. RDA, BMDA etc. The major assessment on the procurement done based on secondary data available. The procurement information was collected from office records and files. It was not possible to find out every small detail of the procurement process. Therefore, the analysis was confined to the KPIs for which sufficient information found from the office files. Also, the activities under the contract awarded for packages of BRWSSP are not completed yet. That's why, it was not possible to analyze the indicators related to payment and contract management. Time is the major constraint in the research activities. Due to this limitation this research work is limited in analyzing information available to represent the result. Therefore, the result found from the study may not represent the overall scenario of the effectiveness of the procurement process of private sponsored rural piped water supply.

Organization of the thesis

Chapter 1 discusses about the background, rationale, and objectives of this study. It highlights the problem statement with the central research question. It also describes the limitations of this study as desk review. Chapter 2 describes the literature review of this study. The chapter in a nutshell tries to give explicit information of public private partnership in piped water supply sector of Bangladesh and public procurement process with related matters. Chapter 3 describes the approach and methodology, sampling process both in primary level and in secondary level. Chapter 4 provides with analysis of the primary and secondary data and establishes the hypothesis based on observation from data analysis and finally, Chapter 7 presents the conclusion and recommendation derived from analysis and observation.

Chapter Two

Literature Review

Procurement

The act of obtaining or buying goods and services is known as procurement. The process includes preparation and processing of a demand as well as the end receipt and approval of payment. It often involves - purchase planning, standards determination, specifications development, supplier research and selection, value analysis, financing, price negotiation, making the purchase, supply contract administration, inventory control and stores, and disposals and other related functions (Business Dictionary).

The process of procurement is often part of a company's strategy because the ability to purchase certain materials will determine if operations will continue. A business will not be able to survive if its price of procurement is more than the profit it makes on selling the actual product (Business Dictionary).

As per Public Procurement Rules 2008, Bangladesh "Procurement" means the purchasing or hiring of Goods, or acquisition of Goods through purchasing and hiring, and the execution of Works and performance of Services by any contractual means (CPTU, 2008).

Public Procurement

Public Procurement means the buying of goods and services by government organizations (Cambridge Online Dictionary). As per Public Procurement Rules 2008, Bangladesh "Public Procurement" means Procurement using public funds (CPTU, 2008). As said earlier, procurement can be goods, works or services. When it is done by any government organization using public funds it is termed as public procurement.

Procurement Planning

Procurement planning involves adopting a coherent approach to the acquisition of a category, the sequencing of events, the engagement of stakeholders and the governance of the project. Typical tasks include initial opportunity analysis of the category spend, identification of stakeholders and their engagement, identification of the organization's needs from the category, analysis of the supply market, the development of a strategy for the category, execution of that strategic plan, including engagement of the supply market through a request for proposal [RFP] and/or negotiation, and award of the contract. These sourcing phases will usually be supplemented by plans for mobilization of the new arrangement, management of the new contract and the provider(s), and periodic review and evaluation of the benefits realized. Procurement projects often result in change, and need to be planned as any other 90 -180 day change program might be, with roles and responsibilities allocated, clear milestones, clear governance and executive sponsorship, and alignment of the project with corporate goals (Procurement Glossary, CIPS).

Impact of strategic procurement procedure in effective service delivery

Service is a system or arrangement that supplies public needs, whereas delivery is periodic performance of a service. Therefore service delivery is a system or arrangement of periodical performance of supplying public needs. Helmsing (1995) in his study defines service delivery as a deliberate obligatory decision by the elected or appointed officials to serve or deliver goods and services to the recipients (Davis, 2014).

Procurement related activities played an important role in effective service delivery. A study by Mugenda et al. (2003) shows that there are three influencing factor for effective service delivery. These are – Procurement policy, Procurement planning and sustainable procurement practice (Davis, 2014). The importance of procurement policy and procurement planning describe in this section.

Nichols (2002) argues that procurement policy is one of the primary functions of procurement with a potential to contribute to the success of government operations and improved service delivery. It is a function that sets in motion the entire acquisition or procurement process of acquiring services in governments (Lambsdorff, 2007). Schooner and Whiteman, (2000) assert that the contribution of procurement policy in facilitating an efficient and effective service delivery in public sector organizations is generally undisputed in both developed and developing countries. Its contribution can be at both central and local government levels of public sector management (Rogers et al., 2007).

Thai (2009) started that a sound public procurement system needs to have good procurement laws and regulations. In practice and theory, public procurement laws and regulations have been considered as one of the most important pillars of a sound procurement system. Procurement laws and regulations lead to procurement efficiency or inefficiency (Davis, 2014). This actually leads to the performance of service delivery.

Basheka (2004) argues that procurement planning is one of the primary functions of procurement with a potential to contribute to the success of government operations and improved service delivery. It is a function that sets in motion the entire acquisition/procurement process of acquiring services in local governments. Mullins (2003) asserts that the contribution of procurement planning in facilitating an efficient and effective service delivery in public sector organizations is generally undisputed in both developed and developing countries. Mawhood (1983) further adds that effective procurement planning is an important route towards securing the right service to be delivered to the public, and also maximizing the level of service provision which can be achieved within the local Supporting People. A procurement plan helps Procuring Entities to achieve maximum value for expenditures on services to be delivered and enables the entities to identify and address all relevant issues pertaining to a particular procurement before they publicize their procurement notices to potential suppliers of goods, works and services (Davis, 2014).

Public Private Partnership (PPP)

The PPP Knowledge Lab defines a PPP as "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance". PPPs typically do not include service contracts or turnkey construction contracts, which are categorized as public procurement projects or the privatization of utilities where there is a limited ongoing role for the public sector (World Bank 2015).

PPP is a contractual agreement formed between public agency and private sector entity to meet public demand for goods and services, where public sector maintains an oversight and quality assessment role and private sector is involved in delivery of service or project. In PPP Risks, Rewards and Responsibilities (the 3Rs) are shared judiciously, according to their competence, by both public and private sectors (PSU, 2009).

Types of Private Public Partnership

PPP recognizes the role of private sector along with the government to respond to the variety of social needs and obligation. The different types of PPP, with increasing order of private involvement, are the following:

1. Service Contracts
2. Management Contracts
3. Lease Contracts
4. BOT Type Contracts with Concession Agreements
5. Concession Contracts for BOO Type projects (full utility or a section of it)
6. Divestiture / Full privatization (entire utility or a section of it)

Service contracts include supply and civil work contracts, technical assistance contracts, plus sub-contracting or contracting out aspects of the water supply service. These sub-contracts can address a wide range of activities, ranging from meter reading, billing and invoicing and customer service management, to design activities, O&M support and construction activities. In cases of political and/or social opposition against PSP in the water sector, service contracts can be a good means to introduce the efficiency of the private sector to the public sector. At the same time it can be a first careful step towards further private sector involvement (PSU, 2009). The rural piped water supply introduced BOT type contract model. Therefore, the detail description of BOT type contracts only provided here.

BOT Type Contracts

BOT, build-own-operate-transfer (BOOT), and Rehabilitate-own-Transfer (ROT) schemes come in a wide variety, and are similar to lease contracts. However, BOT contracts are particularly aimed at bulk supply, rather than at retail services. BOT and alike contracts are typically used for new

infrastructure to be built (or: 'green field' projects). In the water sector this type of contract is used particularly for water and wastewater treatment infrastructure. BOT contracts are usually concluded for duration between 10 and 30 years. In a BOT scheme the contractor typically invests in the infrastructure that is developed. The ownership of the infrastructure is transferred to the host government when the contract expires, typically at no cost, since the infrastructure has been depreciated in full (PSU, 2009).

Build Own Operate Transfer is a public-private partnership (PPP) project model in which a private organization conducts a large development project under contract to a public-sector partner, such as a government agency. A BOOT project is often seen as a way to develop a large public infrastructure project with private funding (Law Dictionary).

On the other hand, BOT is build, operate and transfer - a company builds a facility, an infrastructure project, gets to operate it for a while and is paid for that, and finally transfers it back to the public sector at the end of sometime - determined by when the construction company is believed to have been paid a satisfactory amount (John Quiggan, 1998).

The difference between BOT and BOOT is the constructor builds the project, they then get to own and operate it for some period of time (like 20 or 25 years) during which they collect revenues. At the end of the day, the project is handed back over to the government (John Quiggan, 1998).

Rationale for Private Public Partnership

The rationales for undertaking development project on PPP mode and the advantages of undertaking social and development project on PPP mode are the following:

- Increased access to (private) capital investments, and effective use of capital;
- Access to increased technical and managerial capabilities in the sector;
- Increasing operating efficiency;
- Increasing customer focus;
- Reducing the need for subsidies. (PSU, 2009)

Risks of Private Public Partnership

General restraints on PPP in the water sector, from a private sector point of view, are the following and these are to be addressed by the government for its success:

- Country risk, particularly credit risk and political risks;
- Lack of appropriate legal framework;
- Commercial risk (Inability to pay by the customers, people or the government);
- Social opposition and resistance to private sector involvement;

- Lack of track record of PSP of the country. (PSU, 2009)

Changing Skills needed in PPP project handling

The skill of implementing agency needed in a public sector is more of technical nature than of commercial nature. Because of the commercial part of the project is looked after by the selected contractor. But since PPP is a partnership project, in this case the implantation agency needs more commercial and negotiation skill. The technical aspect of the project is looked after by the private sector. This fact is equally applicable for the government implementing agency as well as for the consultants and the donors. Therefore the importance of effective procurement process is crucial in implementing PPP modalities. (PSU, 2009)

Implementation of PPP model in Rural Piped water supply by DPHE

Public Private Partnership (PPP) model is used in rural piped water supply schemes of DPHE. During the period from 2005-10, the Bangladesh Water and Sanitation Program Project (BWSPP) of DPHE implemented a total 21 rural piped water schemes under a Public Private Partnership arrangement. Private sponsors were responsible to design – build – operate drinking water supply schemes for a period of 18 years under a capital investment sharing ratio of 70:20:10 (70% Project: 20% Sponsor: 10% Community). Among various reasons for introducing PPP model, arsenic contamination in ground water was the major cause.

Background

By the early 1990s, over 90% of the rural population in Bangladesh had access to safe water for domestic use, thanks largely to privately owned handpumps on shallow tubewells. A shallow water table extends across most of the country. The government and donors, notably UNICEF, developed and promoted the technology for tapping this source, first through drilling programs and subsequently through activities to build capacity in the private sector for inexpensive drilling and low-cost hand pump production. The story changed in 1993, when the government became aware that thousands of tubewells in more than half the country's 64 districts were contaminated by arsenic. The world had never seen arsenic contamination on such a wide scale before. While the extent of the problem and its impact were not known, it was estimated that millions of people using shallow wells were at risk of death or serious illness. The government and donors perceived a national crisis demanding urgent action.

The DPHE is officially responsible for planning, designing, and implementing water supply and sanitation services throughout Bangladesh except in the cities of Dhaka, Chittagong and Khulna. With a total staff of 7,052, the DPHE has a decentralized administrative structure covering each of the different tiers of government, that is, divisions, districts, subdistricts/ Upazilas, and village

clusters/UPs. The current institutional arrangements for water supply and sanitation services at the national level are not sufficiently coordinated to face the challenges of the sector.

Planning and service delivery are often supply driven, and government agencies have overlapping functions and pay insufficient attention to operation and maintenance issues, and user involvement. NGO involvement in the rural water sector leads to a further fragmentation of service approaches. The local authorities lack capacity to play their legally mandated role in rural water supply and service delivery. Hygiene promotion also is inadequate. This has led to weak service delivery mechanisms and a lack of ownership by users leading to reduced sustainability of the water and sanitary services. The longer term outlook is likely to involve a partnership between the lead agency at the local-level (that is, UPs) and the technical expertise at the center (that is, DPHE). More immediately, there is a need to clarify the roles between the DPHE at the central, and local government institutions on the ground (World Bank, 2012).

Different projects

Compared to the single point water systems commonly used in Bangladesh, rural piped water systems require higher investment costs, and alternative institutional management, and operations and maintenance models that are relatively new in Bangladesh. A limited number of pilot piped water schemes have been introduced, mainly through government agencies. While most pilot rural piped water supply schemes are developed by government agencies and operated by communities, that is, water and sanitation committees, a few of the schemes are developed and operated by private sponsors/operators. Such models draw largely on the success of small scale private operators in mobilizing resources. They promote private sponsors to plan, implement, and manage rural piped water schemes with a capital grant to ensure access to the poor households (World Bank, 2012).

Two projects were initiated in DPHE with grant assistance of World Bank for implementing rural piped water supply using PPP concept. Before that, one project was implemented named “Bangladesh Arsenic Mitigation Water Supply Project (BAMWAP)”. This project was for identifying the situation of arsenic contamination in Bangladesh. After this project PPP model was formulated and tested in “Bangladesh Water Supply Program Project (BWSPP)” and this piloting continued in “Bangladesh Rural Water Supply and Sanitation Project (BRWSSP)” with some modifications, mainly in the procurement process.

Procurement process in Bangladesh Water Supply Program Project (BWSPP)

BWSPP implemented 21 pilot rural piped water supply schemes. Initially the targeted numbers of schemes considered to be implemented were 300 which were later reduced to 21 schemes. This 21 schemes also included 6 schemes that were supposed to be constructed under BAMWSP. The project duration was from 2005 to 2011. There was one expression of interest (EOI) was called for selecting

sponsors for rural piped water supply. The procurement process in this matter was slightly different from conventional procedure. Here request for expression of interest (REOI) was called for institutions/ private sponsors with sufficient qualifications in water supply sector related activities. The other financial and legal criteria provided for evaluation was sufficient. However, for all schemes the sponsors were invited to submit proposals under one REOI. Total 104 sponsors who submitted the EOI were responsible to select the scheme implementation location. They conduct the pre – feasibility study for their selected area. Based on those report 33 sponsors submitted their feasibility report (which was termed as Project Proposal – I) and out of this 33 sponsors 18 submitted their final project proposal (which was termed as Project Proposal – II). Among these proposals only 15 schemes selected for implementation.

From the above discussion it is evident that the procurement process considered all necessary criteria for selecting sponsors. However, there was no competition for any specific scheme as no two sponsor submitted proposal for a single location. This lack of competition might cause further disruption and lack of willingness among sponsors to generate the profit and operate schemes effectively. It is also necessary to mention that the procurement process of BWSPP was completed before 2007 when PPR 2008 not initiated. The regulation for procurement PPA 2006 was followed however, there were not much specific details or enough KPI, based on which the procurement process can be analyzed.

Procurement process of BRWSSP

BRWSSP was initiated in 2012. The total number of schemes considered to be implemented under the project is 35. The project is still ongoing. However, most of the procurement for rural piped water schemes under this project already completed. From the lessons learned from BWSPP, BRWSSP modified the procurement procedure. They considered the procedure that comply with the PPR 2008 and also the World Bank procurement procedure. Therefore, in this project the schemes were divided into number of packages. This time, the scheme locations were preselected by the project office based on arsenic contamination and other difficulty scenario. The invitation for tenders was called packages. The bidder selected based on low tariff basis i.e. those who offer low tariff for supplied water in a particular scheme was selected.

Public Procurement Rules (PPR 2008): An overview

Public Procurement Rules (PPR) 2008 was framed by the Government of People's Bangladesh under the Public Procurement Act (PPA) 2006 which came into effective on January 31, 2008. The main objective of enacting PPA 2006 & introducing PPR 2008 was, generally, of achieving value for money, ensuring transparency, accountability, fair treatment in all public procurement throughout the public sector organizations of our country. There are 130 Rules in PPR 2008 under nine chapters. Most of the Rules have several Sub- Rules. In chapter one, there are 3 Rules

(Rule 1 to Rule 3) where preliminary issues like definition of key terms, scope and application of the Rules are given. There are 9 Rules (Rule 4 to Rule 12) in chapter two. Guideline for preparation of Tender or Proposal document, constitution of different committees for disposal of Tender or Proposal are given in this chapter. In chapter three, principles of public procurement is given. This is a very big chapter divided into twelve parts. There are total 48 Rules (Rule 13 to Rule 60) under chapter three where, among others, procedure for preparation of technical specification, preparation of terms of reference, procedure for rejection of Tender, Approval procedure of Tender, Contract administration and management are described. Rule 61 to Rule 89 constitutes chapter four where methods of procurement for goods and related services, works, physical services and their use are given. Processing of procurement including advertisement, pre-qualifications, processing of Tenders etc. are given in chapter five where there are 13 Rules (Rule 90 to Rule 102). In chapter six, guideline for procurement of intellectual and professional services is given where there are 24 Rules (Rule 103 to Rule 126). Rule 127 and Rule 128 constitute chapter seven and chapter eight respectively. Professional misconduct is described in chapter seven and E-government procurement is described in chapter eight. In chapter nine, miscellaneous issues are described where there are 2 Rules (Rule 129 and Rule 130). [9]

As a part of literature review, the PPA 2006 and PPR 2008² with all amendments have been studied thoroughly. The rules which seemed as the basis of compliance KPIs were reviewed keenly (Kamruzzaman, 2015).

Key Performance Indicator (KPI): Meaning and importance

Key Performance Indicators, also known as KPI or Key Success Indicators (KSI), help an organization to define and measure progress toward organizational goals. These KPIs are quantifiable measurements, agreed to beforehand, that reflect the critical success factors of an organization. Once an organization has analyzed its mission and objectives, identified all its stakeholders, and defined its goals, it needs a way to measure progress toward those goals.

KPIs allow an organization to adequate measures of performances from the standardized activities. Importance of performance measuring is very significant, which also can be found in a proverb: *“If you want to improve something, you have to measure it”*, and another proverb: *“What get measured gets corrected”*-according to CIPS course guide book.

Continual measuring is a base for continual improvements of organization performances which is one of the most important management principles.

SRGB grouped the 45 KPIs into four categories such as Compliance, Efficiency, Effectiveness, and Transparency. The Performance of the activities related to Procurement of the procuring entities of the four target agencies is assessed against each of the KPIs separately for (i) tenders/contracts each

valued up to Tk. 20 million, (ii) tenders/contracts each valued above Tk. 20 million each at division level as well as at country level.

Moreover, CPTU has classified these 45 KPIs into 13 broad categories. These are (i) Invitation for Tender (IFT), (ii) Tender Submission, (iii) Tender Opening Committee (TOC) and Tender Evaluation Committee (TEC), (iv) Tender Evaluation, (v) Approval of Tender Evaluation Report (TER), (vi) Contract Award, (vii) Delivery/ Completion, (viii) Payments, (ix) Complaints, (x) Contract Amendments, (xi) Contract Dispute Resolution, (xii) Fraud and Corruption and (xiii) Procurement Management Capacity.

Compliance

Compliance means the act adhering to, and demonstrating adherence to, a standard or regulation. In the context of procurement, compliance is the state of being in accordance with the relevant policies, rules and regulations. Compliance indicates to what extent the procuring entities adhere to the procurement rules and procedures specified in the PPA 2006 and PPR 2008. (Kamruzzaman, 2015)

Efficiency

Here efficiency means the procurement efficiency. The maximum time allowable for completion of different Procurement activities are specified under the respective provisions of PPR 2008. The level of procurement efficiency attained by an agency is, therefore, measured by the average time an agency takes to complete a particular procurement activity in comparison to the time limit specified in PPRP-2008 for that activity. The four key performance indicators (KPIs) related to the procurement efficiency are: (i) percentage of cases tender evaluation completed within timeline (KPI-15), (ii) percentage of contract award decisions made within timeline (KPI-22), (iii) percentage of contract award decisions made within initial tender validity period (KPI-29), and (iv) percentage of contract completed within the scheduled time (KPI-30) (Kamruzzaman, 2015).

Competitiveness

Competitiveness in public procurement is manifested by the degree of interest and willingness of the tenderers to participate in tenders. Competition is the most important factor to bring down the procurement cost. Competition has, therefore, a very positive role in the public tenders of Bangladesh. Wider dissemination of tender information increases competition, transparency and accountability. To attract the prospective tenderers, the tender notices should be distributed widely and the cost of tender documents should be kept low, so that the cost of entry for the potential tenderers may be the minimum. The notices of public tenders should be published in the national newspapers rather than in local ones. E-tendering of e-procurement can cause wider, effective as well as quicker dissemination of tender information [11], Allowing longer periods of preparation of tenders encourages the potential tenderers to participate in the tenders. According to the procurement guidelines (PPR 2008 and Development partner's Procurement Guidelines), it is important to allow sufficient time to the tenderers for preparing the tenders. Packaging of tenders is also an important element to influence the tenderers entry and tendering decision. Capacity of the tenderers in terms of possessing appropriate

equipment, capital, management skills, etc. restricts the tenderers to compete in big size tenders. The number of tenderers competing for a work is inversely proportional to the value and sophistication of the work for which tender is invited. Also, the number of tenderers competing in a tender valued less than Tk. 20 million is normally larger than the number of tenderers competing in a tender valued above Tk. 20 million. Competition also measures the level of determination and seriousness of the tenderers in winning the tender. Stronger willingness leads the tenderers to purchase the tender documents, while firmer determination leads the tenderers to participate and submit tender and seriousness encourages them to comply with and fulfill all the prerequisites of the tender.

The number of participants in a tender, demonstrate the degree of competitiveness. The four KPIs that measure competitiveness in procurement are: (i) average number of days allowed preparing tender for submission (KPI-6) (ii) average number of tenderers who purchased tender document (iii) average number of tenderers who submission tender (KPI-9) and (iv) average number of responsive tenders (KPI-16) (Kamruzzaman, 2015).

Transparency

Transparency in the public procurement is a vital and very sensitive issue. The government is the largest purchaser of goods, works and services. There are national as well as international rules for procurement by the government agencies which sets the standards of Transparency and non-discriminatory treatment of contractors engaged for procurement of goods, works and services under the financial arrangement of GOB and the development partners. Lack of Transparency in government procurement favours inefficient companies by discriminating the good companies. A closed and/ or opaque procurement system can create opportunities for corruption and wastage. The government agencies should, therefore, ensure (i) publication of tender notice in well circulated national and local newspapers allowing a minimum number of days for submission of tender from the date of publication of the IFT as per the rules of PPR 2008 and/or of the funding agencies (KPI-1), (ii) publication of IFTs [12] each having an official estimated cost of Tk. 10 million and above in CPTU's website (KPI-28) (Kamruzzaman, 2015).

KPIs used in Public Procurement

IFTs Publication in widely circulated national/ local newspapers (KPI-1)

It demonstrates whether the procuring entities published all of their IFTs under the Open Tendering Method (OTM) in a minimum of two widely circulated national newspapers. The analysis of data collected from the procuring entities found by SRGB for a particular period demonstrates whether they published 100% of their IFTs in widely circulated national/local dailies to encourage the potential and interested tenderers to participate in the tenders (Kamruzzaman, 2015).

Publication of IFTs each valued Tk. 10 million and above in CPTU's website (KPI-2)

According to the provisions of PPR 2008, the government procuring entities are required to publish all of their IFTs valued Tk. 10 million and above in CPTU's website. So, the analysis of data collected

from the procuring entities demonstrates to what extent they abided by this mandatory rules of the government (Kamruzzaman, 2015).

Tenders following GoB Procurement Rules (KPI-3)

According to the provisions of PPR 2008, the government procuring entities are required to follow the rule of the government. Sometimes the procuring entity had to follow the development partner's procurement rule if mentioned in the project document (Kamruzzaman, 2015).

Tender following Development Partner Rules (KPI-4)

PPR 2008 also allows to follow the development partner's procurement rules if mentioned in the project document. Usually it does not necessarily above any threshold limit. The respondents were asked to provide information both in LGED and RHD from their perception about the Percentage of Tenders following Development Partner Rules (Kamruzzaman, 2015).

Multiple locations submission of tenders (KPI-5)

Initially both for GoB and Development Partners funded procurement has the option to ensure the more participation in tender to avoid cartels. Its implementation was also proved difficult. And now for the Development Partners funded procurement they used to follow the single point dropping of tenders (Kamruzzaman, 2015).

Average number of days allowed preparing tender for submission (KPI-6)

According to PPR 2008 and Development Partners' Procurement Guidelines, it is very important to allow sufficient time to the prospective tenderers to prepare their tenders against an IFT. Allowing a longer period for preparation of tenders encourages the potential tenderers to participate in the tender creating a congenial environment for higher competition.

Therefore, the number of days allowed by a procuring entity from the date of publication of an IFT for preparation and submission of tenders by the potential tenderers indicates the expected level of competition. This has been clearly explained in Schedule II of PPR 2008.

According to the provisions of PPR 2008, the allowable maximum time between publishing of an Invitation for Tender (IFT) and tender submission deadline depends upon the estimated value of the IFT. In general, it is minimum 14 days and maximum 28 days. However, for an emergency, time can be reduced to 10 days (in case of OTM) to 7 days (in case of LTM) (Kamruzzaman, 2015).

Percentage of tenders having sufficient tender submission time (KPI-7)

This indicator is for assessing transparency and complains in public procurement. The tenderers should be given sufficient time to prepare the tender by the tenderers. PPR 2008 specified different times for different types of procurement. The effectiveness of this KPI can be guessed from the application for increasing the tender submission deadline by the prospective tenderers (Kamruzzaman, 2015).

Average number of tenderers who purchased tender document (KPI-8)

The number often refers purchasing a tender document in the primary indication of the degree of competition expected in tender. So, the higher is the number of tenderers that purchased [14] tender document against an IFT, the higher is the expected degree of competition in the tender. More participation ensures value for money of public funds (Kamruzzaman, 2015).

Average number of tenderers who submitted tender (KPI-9)

The level of determination and seriousness of the tenderers for winning a tender is considered as a measure of competition. Stronger willingness of the tenderers motivates them to purchase the tender documents; while firmer determination leads them to participate and submit tenders complying and fulfilling all the prerequisites of the tender. Therefore, the number of tenderers submitted tender also indicates the expected level of competition in the tender (Kamruzzaman, 2015).

Ratio of number of Tender submission and number of tender document sold (KPI-10)

It is expected by the procuring entity that all the tender document sold should be submitted to ensure competition and transparency. The more the value of ratio more better result can be achieved (Kamruzzaman, 2015).

Percentage of cases TOC included at least ONE member from TEC (KPI-11)

Rule 7 of PPR 2008 expresses how the Tender Opening Committee (TOC) will be formed and this is the base for KPI 11. According the to the provision of Rule 7, there should three members in the TOC one of them must be from Tender Evaluation Committee (TEC) and two others from concerned procuring entity and other organization (Kamruzzaman, 2015).

Percentage of cases TEC formed by contract approving authority (KPI-12)

Formation of TEC by the Contract approving authority is a standard practice in public procurement. But variation of this can also exist in case of special circumstances. Usually, in case of variation TEC formation is done by the authority higher than the contact approving authority (Kamruzzaman, 2015).

Percentage of cases TEC included two external members outside the Ministry or Division (KPI-13)

Percentage of cases TEC included two external members outside the Ministry or Division (KPI 13) is adhered to Rule 8 which has explained in Schedule II of PPR 2008. As per provision of Rule 8, TEC should be constituted with minimum five (5) and normally not exceeding seven (7) members, two (2) of whom at least shall be from outside the Ministry or Division or agencies under it. However, for low value procurement, TEC should be formed with minimum three (3) members, one (1) of whom shall be from other agency or procuring entity (Kamruzzaman, 2015).

Average number of days between tender opening and completion of evaluation (KPI-14)

Rule 36 explains the procurement approval procedure which has been explained in more details in Schedule 3 of PPR 2008. This KPI is based on the stated rule earlier. Depending on the contract approving authority (CAA), it varies from 2 to 3 weeks (Kamruzzaman, 2015).

Percentage of cases tender evaluation completed within timeline (KPI-15)

PPRP-2008 has provided specific time limits for completion of evaluation tenders by the tender committees separately for the tenders each valued up to Tk. 20 million and above Tk. 20 million. The analysis of data collected in this regard from the procuring entities, therefore, indicates to what extent they have been able to complete evaluation of their tenders within the specified timelines (Kamruzzaman, 2015).

Average number of responsive tenders (KPI-16)

Responsiveness of a tender is entirely dependent upon fulfilling all the prerequisites mentioned in the tender document which again is dependent upon the degree of willingness and capacity of the tenderers who submitted tender. A non-responsive tender reduces competition. Therefore, the higher the number of responsive tenders, the high is the level of competition. The tenderers should also be known about the PPA 2006 and PPR 2008 as like by the government officials for procurement using public fund (Kamruzzaman, 2015).

Percentage of cases TEC recommended for Re-Tendering (KPI-17)

Re tendering is not expected in public tendering process. The re-tendering process took higher time to complete the procurement. It also hampered the project progress as planned. It might the cause of poor specification prepared the PE or because of the negligence of the tenderer. The lesser the percentage indicates the better efficiency. Sometimes in spite of taken sufficient care was taken by the tenderer, the PE is compelled is to go for re-tendering (Kamruzzaman, 2015).

Percentage of cases where tender process cancelled (KPI-18)

The reasons for cancellation of tender process might vary from organization to organization and also depends on time. If the HOPE or PE understands that the tender process did not followed the rules and regulations specified by the PPA(2006) and PPR(2008) and this will not ensure value for money, it is better to cancelled the whole tender process, that will ensure transparency (Kamruzzaman, 2015).

Average number of days taken between submissions of tender evaluation report and approval of contract (KPI-19)

This KPI is also concerned with Rule 14 and 36 of PPR 2008. Depending on CAA, it varies from one (1) week (for PD, PM or AO) to two (2) weeks (HOPE, Ministry, CCGP) (Kamruzzaman, 2015).

Percentage of tenders approved by the proper financial delegated authority (KPI- 20)

Rule 36 also explains that Delegation of Financial Powers (DoFP) issued by Finance Division, Ministry of Finance (MoF) should be followed in case of approval of procurement/tender. This is a

vital issue of ensuring transparency in procurement and has been base for KPI 20 (Kamruzzaman, 2015).

Percentage of cases TEC submitted report directly to the contract approving authority where approving authority is HOPE or below (KPI-21)

Where the Approving Authority is at the level of the Head of a Procuring Entity or Project Director (PD), Project Manager (PM), or an authorized officer (AO) as per DoFP, it is the [17] rule to submit the Tender Evaluation Report (TER) by the TEC directly to the Head of the Procuring Entity (HOPE) or the Project Director, Project Manager, or the authorized officer for approval [Rule 36(3)]. This is the basis of KPI 21 which has been fixed for compliance monitoring of PPR (2008) (Kamruzzaman, 2015).

Percentage of contract awards decisions made within timeline (KPI-22)

PPR-2008 has also provided specific time limits for making contract award decisions separately for the contracts each valued up to Tk. 20 million and above Tk. 20 million. The PEs are usually tried to make it within stipulated timeframe. Still then in some cases it took more time especially where the decision depends beyond the PEs control (Kamruzzaman, 2015).

Percentage of cases TER reviewed by person/ committee other than the contract approving authority (KPI-23)

This indicator indicates how frequently the TER reviewed either by a person or by constituting a committee. Review may be necessary for various reasons including complaint received, ensuring reliability of the committee and so on (Kamruzzaman, 2015).

Percentage of Tenders approved by higher tier than the contract approving authority (KPI-24)

As per delegation of financial power threshold has been circulated to approve the tender of different categories. Still then due to bureaucratic practice some tender need to be approved by the higher authority than the authorized entity. This practice need to be stopped to reduce the time to complete the procurement cycle as well as increase the efficiency (Kamruzzaman, 2015).

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

This indicator originated from Rule 36 (4) which has been described in Schedule II of PPR 2008. It is generally within seven (7) working days of receipt of the approval but before expiry of the tender or proposal validity date. This has been carefully noticed in compliance monitoring of PPR 2008. Most of the PE tries to comply this KPI (Kamruzzaman, 2015).

Average number of days between tender opening and Notification of Award (KPI-26)

There are several steps need to complete from tender opening to notification of award. Delay in one or more than one steps will supplement the total delay in procurement process. This indicator is useful to measure the efficiency of the PE (Kamruzzaman, 2015).

Average number of days between Invitation for Tender (IFT) and Notification of Award (KPI-27)

This indicator involved one more step to issue NOA against the competent tenderer compared to KPI-26. The performance of the procuring entity utilizing this KPI would measure the Compliance as well as efficiency. The less time require will have the better efficiency (Kamruzzaman, 2015).

Publication of contract awards each valued Tk. 10 million and above in CPTU's website (KPI-28)

According to the provisions of PPR 2008, the government procuring entities are required to publish all of their contract awards each valued Tk. 10 million and above in CPTU's website. Therefore, the analysis of data demonstrates to what extent this mandatory rule of the government has been followed (Kamruzzaman, 2015).

Percentage of contracts awarded within initial tender validity period (KPI-29)

A contract is required to be awarded to the selected tenderer obviously within the initial validity period of the relevant tender, as otherwise the selected tender may refuse to accept the award creating many complicacies. Awarding of a contract within the initial period of the relevant tender is one of the main yardsticks of measuring the efficiency of the concerned TOC, TEC and CAA. Therefore, analysis of the data collected in this regard from the procuring entities reveals how efficient they have been to award a contract to the selected tenderer within the initial validity period of the relevant tender (Kamruzzaman, 2015).

Percentage of contracts completed within the scheduled time (KPI-30)

Any contract is expected to be completed within the scheduled time, as otherwise many complicacies including cost over-run, reputation loss, and legal complicity may arise. Completing a contract within the scheduled time is the main yardstick to measure the contract management capacity of the concerned procuring entity as well as the contractor. Therefore, analysis of the data collected in this regard from the procuring entities reveals how efficiently they have been able to manage the relevant contract and the contractor (Kamruzzaman, 2015).

Percentage of contracts having liquidated damage imposed for delayed delivery/completion (KPI-31)

As per Rule 39 (27), the contractor shall be liable to pay liquidated damages at the rate per day or week as specified in the contract for each day of delay from the Intended Completion Date (ICD) of the original contract or extended completion date provided that the total amount of liquidated damages shall not exceed the amount defined in the contract. On the basis of this, KPI 31 has been formulated for studying compliance of PPR 2008 (Kamruzzaman, 2015).

Percentage of contracts fully completed and accepted (KPI-32)

This KPI is used to measure the procurement performance of the PE's efficiency and effectiveness. The expenditure incurred for procurement need to be effective to ensure value for money of the public

fund. Due to various reasons the contract could not be completed fully as designed. If contract could not be completed fully as per design it should be revised as per prevailing situation with both parties consent (Kamruzzaman, 2015).

Average number of days taken to release payment from the date of certificate of PM/Engineer (KPI-33)

As a measure of compliance monitoring of PPR 2008, KPI-33 has been taken under consideration. This KPI-33 has been formulated from Rule 39(22). It has been specified that the Procuring Entity shall pay the contractor's bill certified by the Project Manager (PM) within twenty eight (28) days of the Project Manager's issuing a certificate of completion. The less the days taken will facilitate the contractor and also worked as a motivating tool for contractor (Kamruzzaman, 2015).

Percentage of cases (considering each installment as a case) with delayed payment (KPI-34)

The contractor need payment on time after completing the contract and accepted by the PE. But sometimes it becomes delayed to make payment to the contractor after fulfilling the all relevant requirement and submitting the papers on due time due to non-availability of fund on time or shortage of fund due to lack of planning and arranging the fund (Kamruzzaman, 2015).

Percentage of contracts where interest for delayed payments was made (KPI-35)

Payment of interest is a mandatory requirement of PPR 2008. It is a right to get if not paid as scheduled during contract or any revised contract between the parties. As a compliance monitoring, it has been looked for whether interest were paid for the delayed payment or not. KPI 35 was solely developed for this to motivate the contractor. STD allows this sort of mechanism to minimize the cost of finance of the contractor (Kamruzzaman, 2015).

Percentage of tender procedures with complaints (KPI-36)

Sometimes there are complaints arose due to mishandling of the contract either because of the PE or the contractor or other stakeholders. Any complaint is responsible for the delay which hampered smooth implementation of the procurement activities (Kamruzzaman, 2015).

Percentage of complaints resulting in modification of award (KPI-37)

If there are complaints arose due to either party's interest it should be resolved to make the contract effective. For effective contract management it needs to modify the contract with the consent of both parties (Kamruzzaman, 2015).

Percentage of cases complaints have been resolved (KPI-38)

The complaints rose by any party need to be resolved at early at possible without further escalation. It would be better to solve at the initial level. The complaints should resolve through ADR method to avoid litigation. Litigation took long time and it is expensive also. It also hampered the reputation of both parties and relationship also affected between the parties involved in the procurement process (Kamruzzaman, 2015).

Percentage of cases review panel's decision upheld (KPI-39)

As part of Alternative Dispute Resolution (ADR) many contract's dispute to be finalized by the review panel as mentioned in the PPR (2008) as well as in the contract document. If the decision of the panel is not accepted by the either party it can sue in the court for mitigation of the complaints. Litigation process involved much time and it is expensive. Moreover, the reputational loss and relationship damage may also need to be thought by the both parties (Kamruzzaman, 2015).

Percentage of contract amendments/variatio ns (KPI-40)

If the procuring entity initially would not be able to specify the work or services to be procured under the contract or there rose necessity to change the scope of the contract it would create necessity to amend or need variations to be made to fulfill the requirements. Sometimes the initial contract could not cover the actual demand of the PE due the various reasons especially when the performance specifications and BOQ method were used (Kamruzzaman, 2015).

Percentage of contracts with unresolved disputes (KPI-41)

Sometimes contract manger of the PE could not be able to resolve the disputes in spite of trying to mitigate the problems. This sort of situation is not desirable to any procuring entity. Still there might be a possibility to have any disputes without being solved because of either party's fault or negligence (Kamruzzaman, 2015).

Percentage of cases fraud & corruption detected (KPI-42)

To ensure value for money, fraud and corruption need to be avoided or controlled properly by ensuring transparency in procurement activities. It can happen from both party and not desirable to anyone in usual course of procurement. Any party undergone with fraud/corruption hampered the procurement. The transparency of both the parties can ensure the protection of fraud/ corruption. Also good governance of the PE's could prevent fraud/ corruption. There should be a joint campaign to prevent fraud/corruption (Kamruzzaman, 2015).

Average number of trained procurement staff in each procuring entity (KPI-43)

The procurement entity having personnel with proper training on procurement will ensure the better performance of the PE and can manage the contract with better efficiency and able to ensure the effectiveness of the procurement. The more trained personnel on procurement will ensure better practice of PPA and PPR in any organization. It would be better to organize/declare a prize for the best procurement officer as recognition in the organizational culture (Kamruzzaman, 2015).

Percentage of procuring entity which has at least one trained / certified procurement staff (KPI-44)

The PE having no trained personnel on procurement would suffer in compared to that PE having at least one trained personnel in procurement. Though the selected two organizations are being the targeted agency of the CPTU, some PE may not have the trained procurement personnel due to new recruitment. But this is the management competency of that PE to ensure at least one trained

procurement staff should be arranged at each procuring entity. Otherwise the dispute will be arise and value for money would not be achieved (Kamruzzaman, 2015).

Total number of procurement persons in the organization with procurement training (KPI-45)

The more personnel having procurement training in any organization will ensure good procurement practice and also ensure value for money especially in the public sector. If all the members of the procurement team having the training on procurement it will ensure the good practice of PPR and feedback from the practitioners will help the government to modify the Act and Rules as necessary for ensuring better value for money as well as to increase the effectiveness of the procurement activities (Kamruzzaman, 2015).

Chapter Three

Methodology

Introduction

This study was conducted to find out the efficiency of the procurement process followed for rural piped water supply schemes of BWRSSP. This chapter outlined the procedure for analysis of the data to interpret the results. It includes the primary and secondary data collection process and the procedure for analysis.

Sample Procedure

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

1. Primary Data
2. Secondary Data

Primary data were collected through questionnaire survey. The purpose of the survey was to find out the perception of the policy makers and experts in the water supply sector about the importance of procurement process in effective service delivery in water supply sector. The efficiency, compliance, transparency and competitiveness of the present procurement process of rural piped water schemes were evaluated analyzing the key performance indicators (KPIs). The data for analyzing KPIs were secondary data that were collected from official record. The procurements of BRWSSP which is the project for rural piped water schemes of DPHE were conducted manually. Therefore, the official files were the only source of secondary data.

Primary Data Collection

The primary data that were collected are qualitative in nature. A structured questionnaire was used for this purpose. It was distributed to the concern respondents for their voluntary filling up and answers were tested before adoption.

The respondents were selected randomly from policy making and expert level personnel of different organization involved in rural piped water supply activities. Their perceptions are important as they are the key personnel involved in improving the efficiency in service delivery of rural piped water supply. Awareness among them about importance of procurement process in effective service delivery can improve the procurement process in

this sector as a whole. Though it is better to collect data from face-to-face interview, but for time and resource constraints it was not possible.

The data were collected via email using a web based software name “Survey Monkey”. The questionnaire was sent to 14 (fourteen) respondents. These respondents were either organizational head or key persons in their organization working in rural piped water supply systems. The organizations considered for response were - Hilful Fuzul Samaj Kallyan Sangstha, Social Development Fund (SDF), Rural Development Academy (RDA), Hygiene Sanitation and Water Supply (HYSAWA), World Bank (WB), UNICEF and Department of Public Health Engineering (DPHE). One respondents was the Head of Hilful Fuzul Samaj Kallyan Sangstha, two respondents were from Social Development Fund (SDF) who work as water supply specialist there, two respondents were selected from Rural Development Academy (RDA), one respondent was from HYSAWA who is Director General of the organization, three respondents were from World Bank, one respondents from UNICEF and three respondents from Department of Public Health Engineering (DPHE). The respondents are all experts in water supply sector and have direct involvement in rural piped water supply activities. Questionnaire consists of different factors and the degree of importance (extremely important, very important, important, some how important and not important) provided to each factors. Individuals had to choose one degree of importance for each factor. It helps to determine if they are considering procurement one of the important factors for effective service delivery in this sector.

Secondary Data collection

Secondary data of tender of rural piped water supply scheme under BRWSSP project collected for the official record files. The total number of schemes under this project is 35. Data collected for total 29 schemes. Data was found related to 31 KPIs. As the activity under these tenders not yet completed that’s why KPIs related to contract management were not found. The KPIs are analyzed to show the efficiency, compliance, transparency and competitiveness in the present procurement process.

Efficiency: Among 45 KPIs there are 7 KPIs that shows the efficiency in procurement process. These are –

1. KPI – 7: Percentage of tenders having sufficient tender submission time
2. KPI – 15: Percentage of cases tender evaluation completed within timeline
3. KPI – 17: Percentage of cases TEC recommended for Re-Tendering
4. KPI – 18: Percentage of cases where tender process cancelled

5. KPI – 22: Percentage of contract awards decisions made within timeline
6. KPI – 29: Percentage of contracts awarded within initial tender validity period
7. KPI – 44: Percentage of procuring entity which has at least one trained / certified procurement staff.

Compliance: There are 14 KPIs that shows the compliance of the procurement process with Public Procurement Rules 2008. These are as follows:

1. KPI – 3: Tenders following GoB Procurement Rules
2. KPI – 4: Tender following Development Partner Rules
3. KPI – 6: Average number of days allowed preparing tender for submission
4. KPI – 11: Percentage of cases TOC included at least ONE member from TEC
5. KPI – 12: Percentage of cases TEC formed by contract approving authority
6. KPI – 14: Average number of days between tender opening and completion of evaluation
7. KPI – 15: Percentage of cases tender evaluation completed within timeline
8. KPI – 20: Percentage of tenders approved by the proper financial delegated authority
9. KPI – 21: Percentage of cases TEC submitted report directly to the contract approving authority where approving authority is HOPE or below
10. KPI – 25: Average number of days between final approval and Notification of Award
11. KPI – 26: Average number of days between tender opening and Notification of Award
12. KPI – 27: Average number of days between Invitation for Tender (IFT) and Notification of Award
13. KPI – 43: Average number of trained procurement staff in each procuring entity
14. KPI – 45: Total number of procurement persons in the organization with procurement training.

Transparency: Transparency of the procurement process can be identified from 6 KPIs. These are –

1. KPI – 1: IFTs Publication in widely circulated national/ local newspapers
2. KPI – 2: Publication of IFTs each valued Tk. 10 million and above in

CPTU's website

3. KPI – 13: Percentage of cases TEC included two external members outside the Ministry or Division
4. KPI – 23: Percentage of cases TER reviewed by person/ committee other than the contract approving authority
5. KPI – 24: Percentage of Tenders approved by higher tier than the contract approving authority
6. KPI – 28: Publication of contract awards each valued Tk. 10 million and above in CPTU's website

Competitiveness: Competitiveness related indicators are as follows:

1. KPI – 5: Multiple locations submission of tenders
2. KPI – 8: Average number of tenderers who purchased tender document
3. KPI – 9: Average number of tenderers who submitted tender
4. KPI – 10: Ratio of number of Tender submission and number of tender documents sold
5. KPI – 16: Average number of responsive tenders

Data Analysis

Data were collected for individual KPI. Then the data were analyzed to find out deviation from the standard limits set by PPR 2008. The measures of central tendency and measures of dispersion used to interpret the results. The range, variance, standard deviation, skewness and kurtosis were used for the analysis. Microsoft Excel 2010 was used for statistical analysis.

The analysis shows how much the present procurement process deviated from the standard. The average showed the general value of a particular indicator. It helps to show how much the mean of the real value deviate from the standard limit set by PPR.

The range helped to identify how much the value dispersed. The lesser the range fewer the value is dispersed and more consistent. However, range does not always give good interpretation as it depends on two values. Range is calculated by subtracting the minimum value from the maximum value of a particular indicator.

$$\text{Range} = \text{Maximum Value} - \text{Minimum Value}$$

Variance is a measurement of the spread between numbers in a data set. The variance measures how far each number in the set is from the mean. Variance is calculated by taking the differences between each number in the set and the mean, squaring the differences (to make them positive) and dividing the sum of the squares by the number of values in the set.

$$\sigma^2 = \frac{\sum (X - \mu)^2}{N}$$

Standard deviation is a measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

Skewness describes asymmetry from the normal distribution in a set of statistical data.

Skewness can come in the form of "negative skewness" or "positive skewness", depending on whether data points are skewed to the left (negative skew) or to the right (positive skew) of the data average. Skewness measure how the data skewed from balanced normal distribution.

It shows the nature of deviation of the data.

Kurtosis is a statistical measure used to describe the distribution of observed data around the mean. Kurtosis describes trends in charts. A high kurtosis portrays a low, even distribution, whereas a low kurtosis portrays a distribution concentrated toward the mean.

Chapter Four

Data Analysis and Discussion

Introduction

The section discuss about data analysis to interpret result. The purpose of the study was to find out the compliance of the procurement process of rural piped water supply systems under BRWSSP with Public Procurement Rules 2008 (PPR 2008). For this purpose data collected for those that are related to the tendering process and analyze those based on standards set under PPR 2008. This analysis helps to find out how much the procurement process under BRWSSP project comply with public procurement rules. For checking the compliance with PPR 2008, KPIs set by CPTU considered as the basis of analysis. The data collected for 38 packages. The bidding activity was conducted package by package. There were one to three schemes under each package. The analysis was carried out to find out the efficiency, compliance, competitiveness and transparency in existing procurement process. Also the perception of the policy makers and experts in the said sector were analyzed from the primary data.

Perception of the Experts in water supply sector about the Competitive

Procurement Procedure

Using PPP model in rural piped water supply is completely a new concept. Implementing PPP model always requires good negotiation and evaluation skills. The people working in this sector are expert in technical knowledge of water supply systems. However, they are not quite expert in procurement processes which is a crucial requirement in implementing PPP model. The perception of the policy makers and experts working in this sector was collected. A questionnaire was developed to collect response. The questionnaire was developed based on different important factors in private operated rural piped water schemes that may affect the service delivery of the rural piped water supply system. 14 factors were identified as influencing factor in rural piped water supply systems. These factors were collected through literature review and studies on rural piped water systems of other countries.

Demographic overview of the respondents

Years of experience in Water supply sector

The respondents were selected from experts and personnel involved in policy making level in the said sector. All respondents have experience more than 20 years in this sector.

Years of experience in public procurement

Although the respondents are experts in water supply sector, few of them have experience in procurement activity. Only respondents from DPHE have procurement related experience. Although the respondents

have less experience in procurement they play crucial role in implementing PPP model in water supply sector.

Gender

Males were the dominant practitioners in water supply sector. Lower representation of female may represent the lower representation in civil engineering sector. It involves field activity in remote areas including dealing with multidimensional professionals and people which may not be interesting for women as profession.

Level of Education

All respondents had post graduate level education. 2 out of 10 i.e. 20% of them have Phd. They have degree in Civil Engineering, Environmental Science, Geology and other subject related with water supply.

Training on public procurement

Respondents from DPHE had training in public procurement. However, respondents from other organization do not have any training in public procurement or procurement.

Analysis of Primary Data

Data were collected from 10 respondents. The questionnaire is provided in Appendix A1. The answer of the respondents would provide the which factor they are providing more importance. The data collected in five categories. The factors they think “Extremely Important”, “Very Important”, “Important”, “Somewhat Important” and “Not Important”.

The graphs were plotted based on these categories to find out which of the factors they are considering as crucial. The graphs are provided in Figure 4.1, 4.2, 4.3 and 4.4. In figure 4.1, the factors that most of the respondents think most important provided. It is found that 70% of the respondents think that strong and competitive partner is extremely important in effective service delivery. On the other hand, none of the respondents think that competitive tendering process is necessary. It shows the weakness of the respondents in linking the procurement process with getting competitive partner.

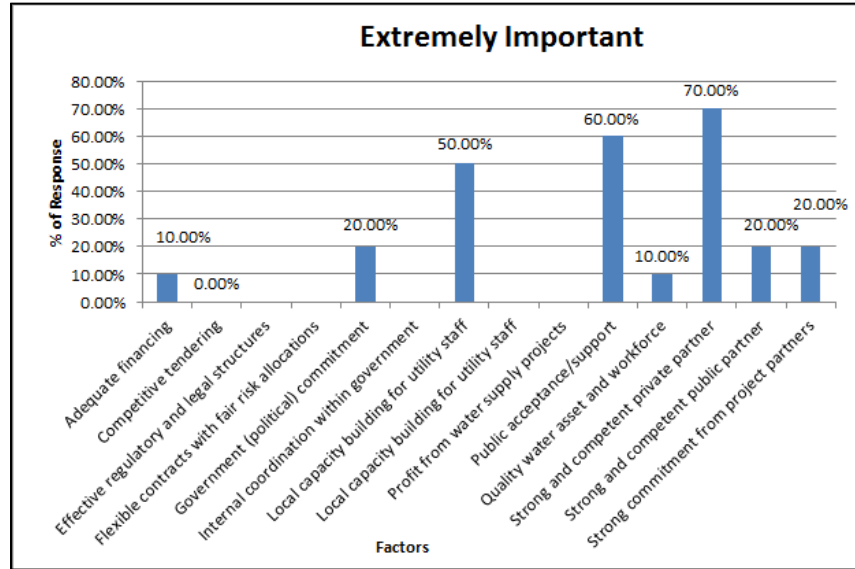


Figure 4.1: Factors respondents considered extremely important

From Figure 4.2, it is found that 80% of the respondents thinks that water quality and workforce working for water supply system is very important. Only 10% respondents thinks that competitive tendering process is important. This reflects that the respondents are focused more on technical issues rather than management issues of PPP model.

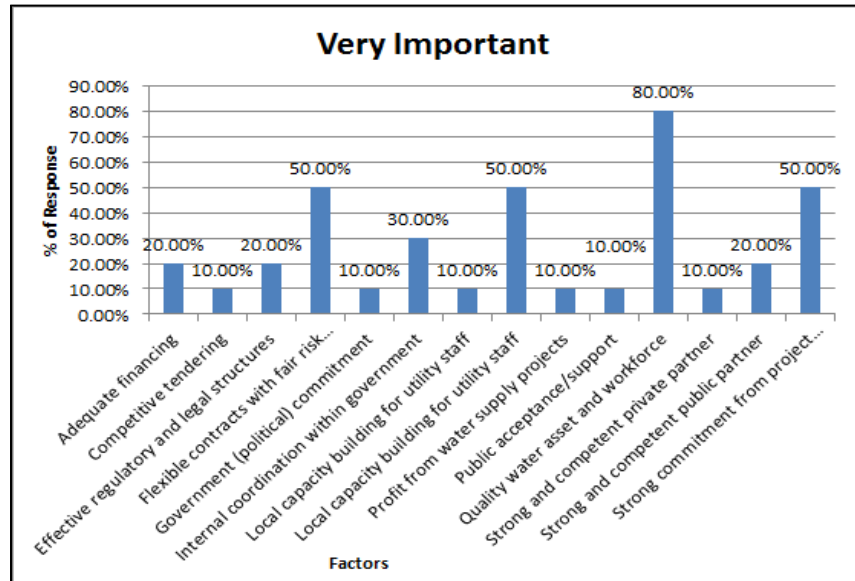


Figure 4.2: Factors respondents considered very important

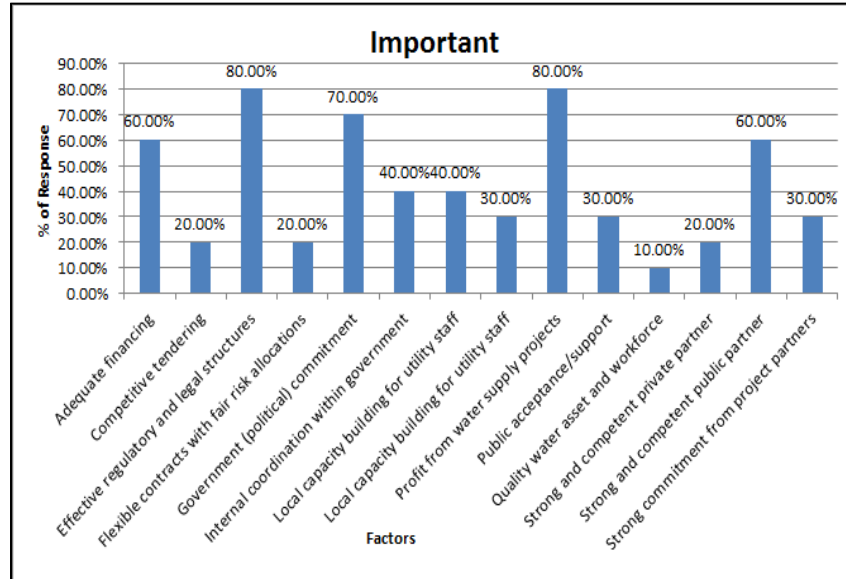


Figure 4.3: Factors respondents considered important.

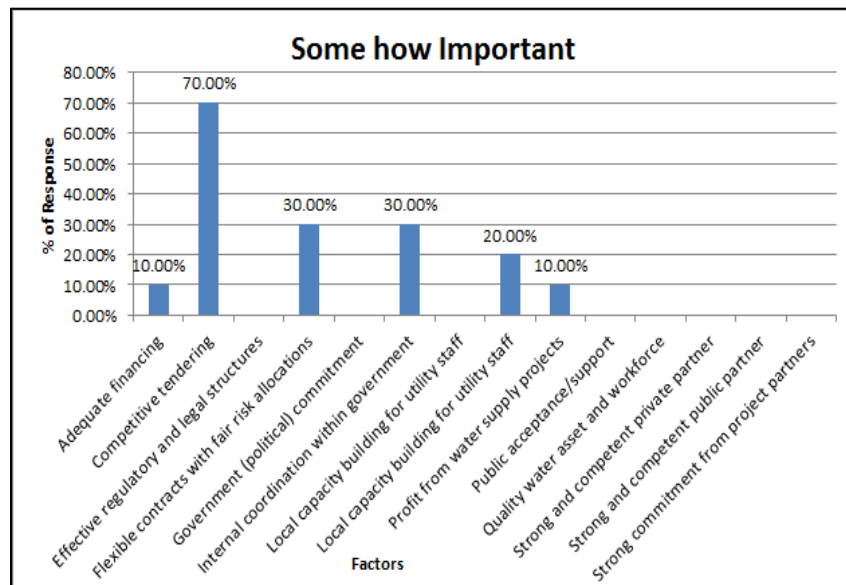


Figure 4.4: Factors respondents considered somehow important

From Figure 4.3, it is found that 80% of the respondents think that the profit making and proper legal framework is important. Figure 4.4 show that 70% of the respondents think competitive tendering is somehow important. This implies that policy makers and experts working in this sector are giving more importance on technical issue rather than procurement issue. Their perception was clear about giving strong emphasis in getting strong private owner. To get strong and competitive private sponsor/owner it is required to ensure competitive tendering process. The link might be missing because of lack of awareness

and having more focus on technical matters. None of the factors considered “not important”. It means all the factors are important in some way.

Analysis of KPIs related to Efficiency

The efficiency in procurement process related to KPI 7,15,17,18,22,29,44. Data collected related to these KPIs are analyzed and discussed below.

KPI – 7: Percentage of tenders having sufficient tender submission time

This KPI related to the previous KPI – 6. Among 38 packages, data about publishing of the advertisements and deadline of tender submission was found for 36 packages. From this collected data the duration provided for tender submission was calculated which is provided in Appendix A2. As per section 61 (4) of PPR 2008, the minimum duration for tender submission should be 14 days.

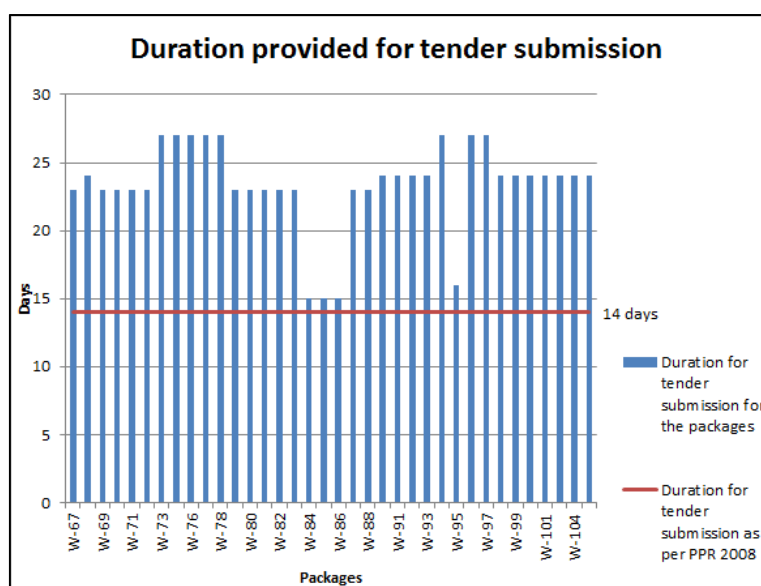


Figure 4.5: Duration provided for tender submission

From the Figure 4.5 it is found that tenderer had sufficient time for tender submission in all packages considered. Tender process was cancelled for two packages (W75 and W89). Those two packages were not considered in the above mentioned analysis. Except these two packages all other tender had sufficient time for tender submission. Therefore the result of the KPI is 100%.

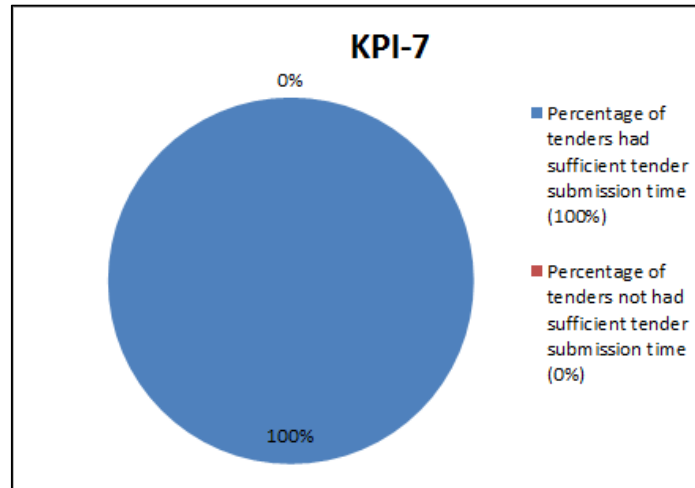


Figure 4.6: Percentage of tenders having sufficient tender submission time.

KPI – 15: Percentage of cases tender evaluation completed within timeline

Tender evaluation should be completed by Tender Evaluation Committee (TEC) within specified timeline set by PPR 2008. The duration set under section 8 (14) of PPR 2008 which is further elaborated in schedule – III. The approving authority in the considered tenders was HOPE. Therefore the maximum duration available for completion evaluation was five (5) weeks i.e. 35 days. The detail data regarding submission of the evaluation reports are provided in Appendix A3. The average of the actual duration for submission of the tender evaluation report was calculated from the available data. The range, standard deviation (σ) and skewness was calculated. The brief description about the packages for which tender evaluation report completed within time are provided below –

Table 4.1: Percentage of cases tender evaluation completed within timeline.

Description	Value
Total No.of Package	38
Evaluation completed of the Packages within time limit	10
Evaluation didn't completed of the Packages within time limit	28
Percentage of cases tender evaluation completed within timeline	26.32%
Percentage of cases tender evaluation didn't completed within timeline	73.68%

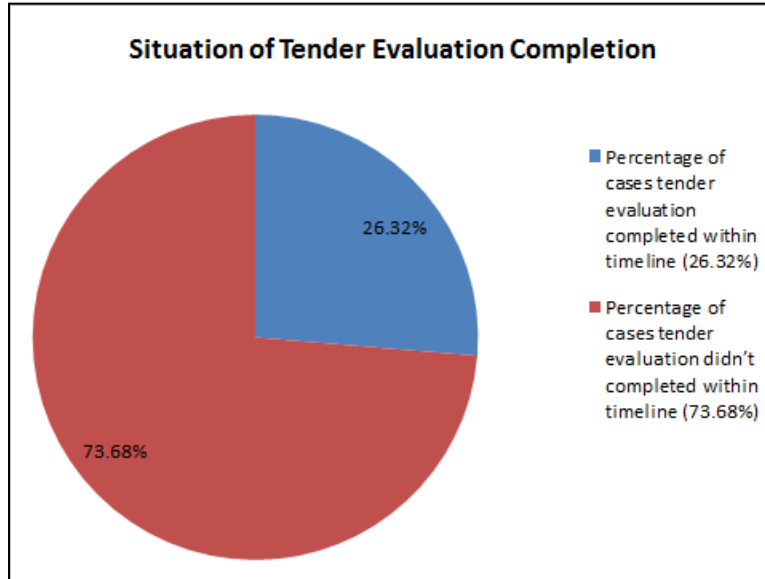


Figure 4.7: Situation of tender evaluation report submission.

The graph shows that only for handful of packages, tenders submission report submitted on time. The statistical analysis can provide more idea about the situation. The value of different statistical parameters and graph showing the timeline set by PPR 2008, average and actual duration for tender evaluation are provided below -

Table 4.2: Value of the statistical parameters estimated for tender evaluation duration

Estimated Statistical Parameter	Value
Average Duration for Tender Evaluation Report Submission	48.86
Median	53
Mode	61
Range	91.00
Variance	609.67
Standard Deviation	24.69
Skewness	-0.52

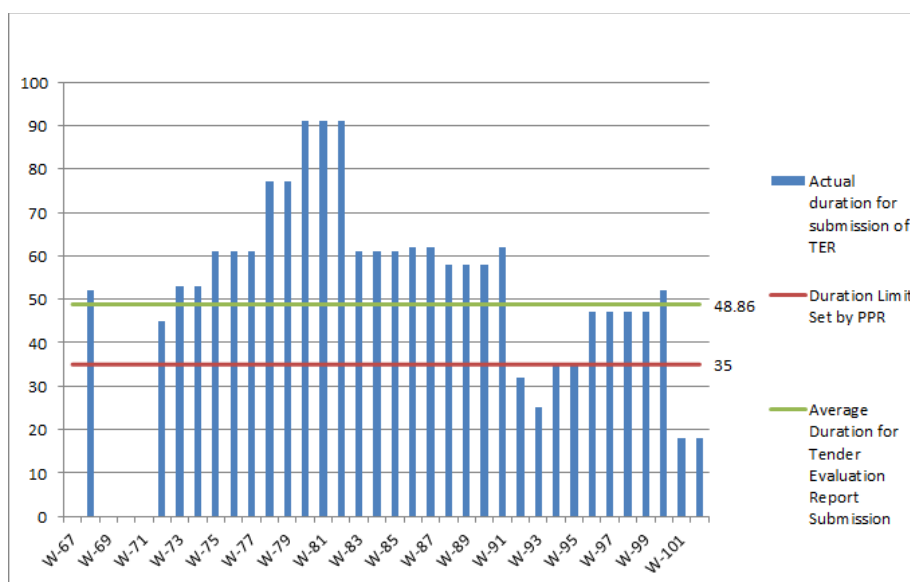


Figure 4.8: Tender evaluation completion duration

From Figure 4.8 it is found that the average of the actual duration for tender evaluation is fairly higher than the standard limit set by PPR. Thus it can be predicted that the no. of days took for tender evaluation is much higher than the provided timeline by PPR. The range value is 91 which indicates the variation of duration for TER submission is high i.e. the TER submission time is not consistent. The standard deviation is 24.96 indicates the same. The duration varies 48.86 ± 24.96 which indicates high varied time for TER submission. The negative skewness value (-0.52) indicates that the balance of normal deviation is moderately skewed to the left which means that most of the TER submission time are higher than the average. Therefore it can be said that the overall time spent for tender evaluation for the considered schemes took longer time than the standard limit set by PPR 2008. This may be because of lack of sufficient man power for procurement activities. It may also be possible that the tenders were all done manually which gives the tender evaluation committee a chance to be relaxed in submitting tender evaluation report.

KPI – 17: Percentage of cases TEC recommended for Re-Tendering

Among 38 packages there were no cases for which tender evaluation committee (TEC) recommended re-tendering. The percentage of cases TEC recommend re-tendering is 0%.

KPI – 18: Percentage of cases where tender process cancelled

Tender for 2 packages W75 and W89 were cancelled i.e. 5.26% cases where tender process was cancelled.

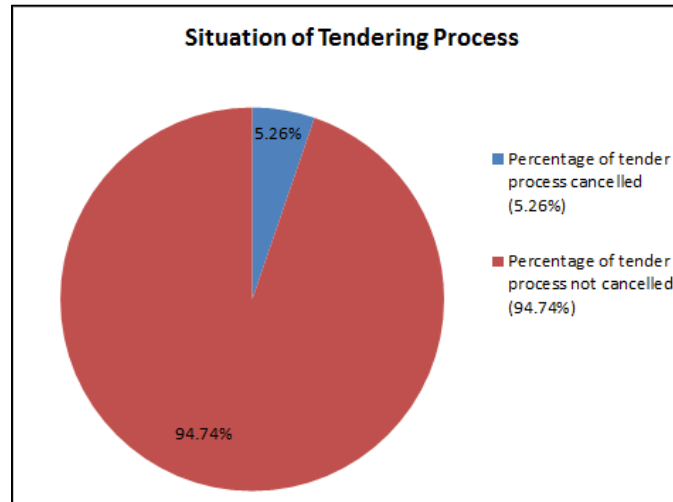


Figure 4.9: Situation of tendering process for schemes

KPI – 29: Percentage of contracts awarded within initial tender validity period The percentage of contract award decision made was calculated from the duration get from IFT and issuing of NOA and the tender validity period mentioned in TDS. The initial tender validity period mentioned in the TDS was 120 days. The detail calculation is provided in Appendix A4. From the analysis the estimated result shown below –

Table 4.3: Percentage of contracts awarded within initial tender validity period

Description	Value (%)
% of Contract Awarded within tender validity period	55.56%
% of Contract Award not complete within initial tender Validity Period	44.44%

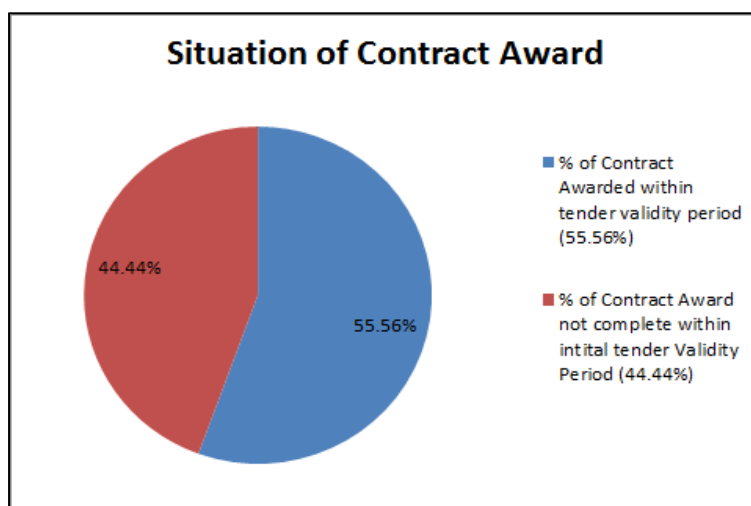


Figure 4.10: The situation of the contract award decision

From Figure 4.10 and Table 4.3, it is found that around 55.56% of the contract decision made within tender validity period whereas for 44.44% case contract award decision cannot be made within initial tender validity period.

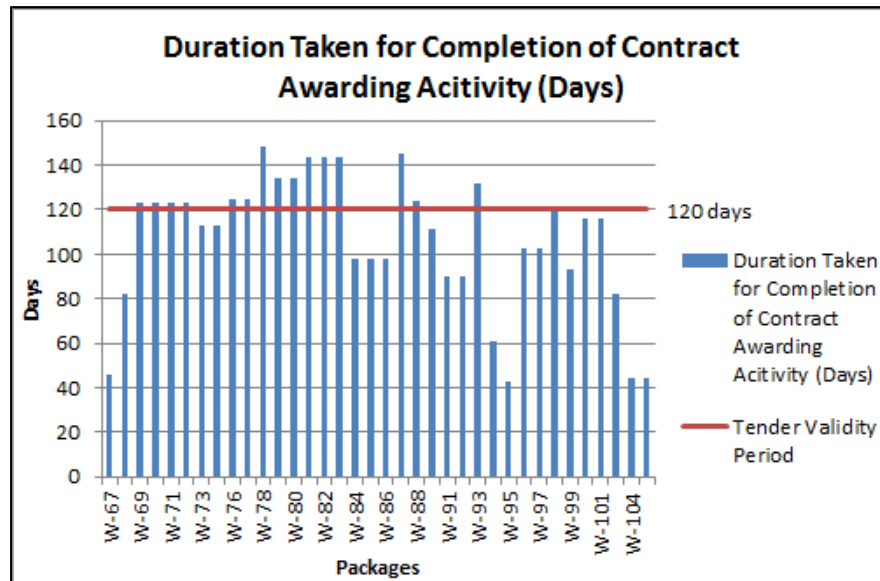


Figure 4.11: Package wise situation of duration taken to complete awarding contract.

Table 4.4: Statistical parameter related to duration of completing contract award.

Estimated Statistical Parameter	Value
Average Duration for Completion of Contract Awarding Activity	107.11
Median	114.5
Mode	123
Range	105
Variance	911.1873
Standard Deviation	30.18588
Skewness	-0.85231

The average value of duration is less than 120. It depicts that the most of the contract award decision complete within time. It is also validate from the percentage of no. of contract award complete (55.56%). However, the value of duration varied highly with range of 105 days. The standard deviation value shows the duration took for different contract award varied within 107 ± 30 days. For most of the packages the duration took to award contract are larger than average as the skewness value is negative. It means it took more than 107 days for most of the cases to complete contract awarding.

Analysis of KPIs related to Compliance

KPI – 3: Tenders following GoB Procurement Rules

The tenders of all considered packages followed PPR 2008. Therefore the target of this KPI achieved is 100%.

KPI – 4: Tender following Development Partner Rules

The considered project BRWSSP was funded by World Bank. The World Bank's procurement guidelines was also considered in the procurement process. Thus, this KPI also achieved 100%.

KPI – 6: Average number of days between publishing of advertisement and Tender submission deadline

The days from publishing IFT to tender opening is the duration tendered got for preparing tender. As per PPR 2008 section 61 (4), the minimum 14 days need to be provided for procurement under 2 crore taka. The water supply schemes whose procurement process are considered are all below 2 crore taka. Therefore minimum 14 days is sufficient for tender submission. The average no. of days provided for tender submission is 24 days which is higher than the minimum requirement (Figure 4.12). Thus the achievement this KPI is also 100%.

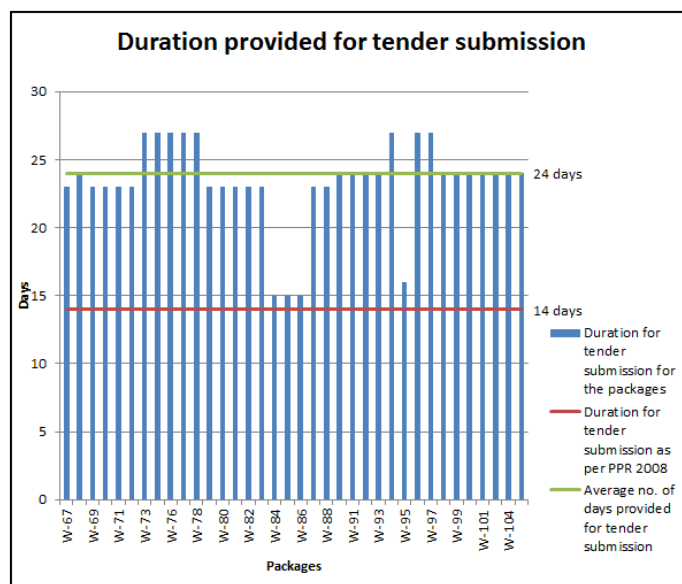


Figure 4.12: Duration for tender submission

KPI – 11: Percentage of cases TOC included at least ONE member from TEC

As per section 7 of PPR 2008, the tender opening committee (TOC) should include at least one member from tender evaluation committee (TEC). The TOC of all procurement included one member of TEC. Thus the result of this indicator is 100%

KPI – 12: Percentage of cases TEC formed by contract approving authority

The tender evaluation committees (TEC) for all procurement that conducted under BRWSSP project office were formed by HOPE. The contract approving authority for these procurements is HOPE. Therefore in 100% cases the TECs are formed by the contract approving authority.

KPI – 14: Average number of days between tender opening and completion of evaluation

The average no. of days between tender opening and completion of evaluation i.e. time taken to complete evaluation is an important indicator. Schedule III of PPR provided the time limit for completion of evaluation. Delay in evaluation causes delay in the whole procurement process. The average no. of days taken to complete evaluation is 49 days (from Table 4.5), which is higher than the time limit set by PPR i.e. 14 days. However, as evaluation is an important part of tendering process sometimes it can take more time and less time for issuing notification of award. That's why maximum time considering the time of notification of award is 21 days. Figure 4.13 represents the time taken by individual packages to evaluation. The detail data provided in Appendix A5.

Table 4.5: Statistical parameters estimated for duration of evaluation

Estimated Statistical Parameter	Value
Average no. of days between tender opening and completion of evaluation	49
Median	53
Mode	61
Range	91
Variance	609.67
Standard Deviation	24.69
Skewness	-0.52

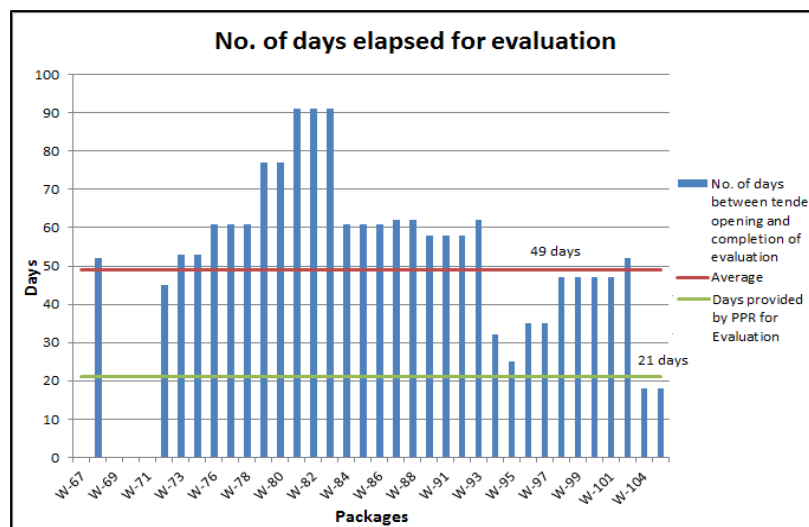


Figure 4.13: Duration for evaluation for each package

The range of the duration is quite high which indicate highly scattered duration value. Standard deviation value is 24.69 which shows the duration of evaluation varies within 49 ± 24.69 . The average is less than median value and median is less than mode value. This indicates the distribution of the value is not normal. It is also clear from skewness value. The negative skewness value indicate the distribution is of the values are skewed in left side i.e. most of the duration values are higher than the average. This indicates that the duration taken for completion of evaluation is generally high for these packages and has less compliance with the timeline provided by PPR.

KPI 15: Percentage of cases tender evaluation has been completed within timeline

The tender evaluation completed within 14 days in only 11.11% cases. For the rest 88.89% cases the evaluation took more than 14 days (Figure 4.14 and Table 4.6).

Table 4.6: Tender evaluation completion time

Description	Value
Percentage of cases tender evaluation has been completed within timeline	11.11%
Percentage of cases tender evaluation not has been completed within timeline	88.89%

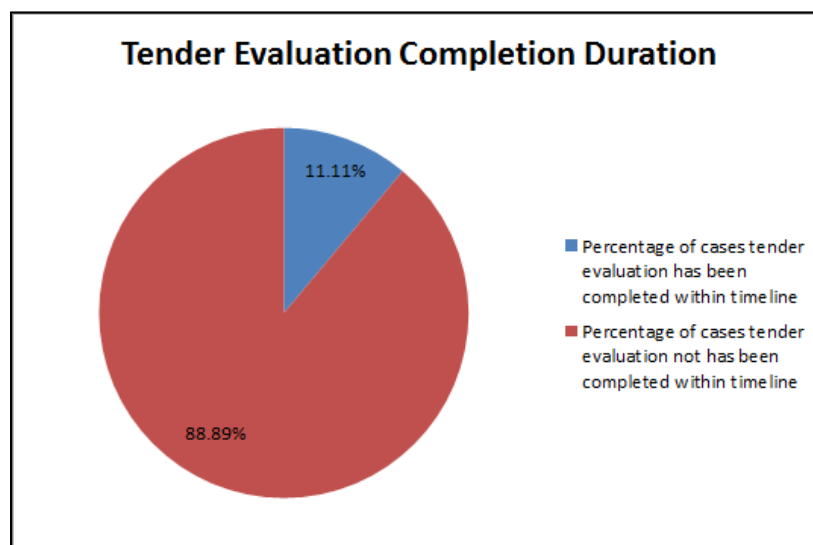


Figure 4.14: % of Tender evaluation complete within time

KPI – 20: Percentage of tenders approved by the proper financial delegated authority The procuring entity for the packages considered was project director of the project BRWSSP. The approving authority higher than that position is HOPE. It is found that for this 38 packages all tenders approved by HOPE. Thus the achievement is 100% for this KPI.

KPI – 26: Average number of days between tender opening and Notification of Award The average no. of days between tender opening and issuing notification of award is the time taken for evaluation. Although the time for submission of tender evaluation report is 14 days the notification of award should have to be provided within tender validity period or within 7 days whichever is early. Thus the time between tender opening and notification of award is maximum 21 days. Figure 4.15 shows that the average days taken for the said activity is higher than the standard limit. This duration need to be reduced to the limiting standard value. The detail data are provided in Appendix A6.

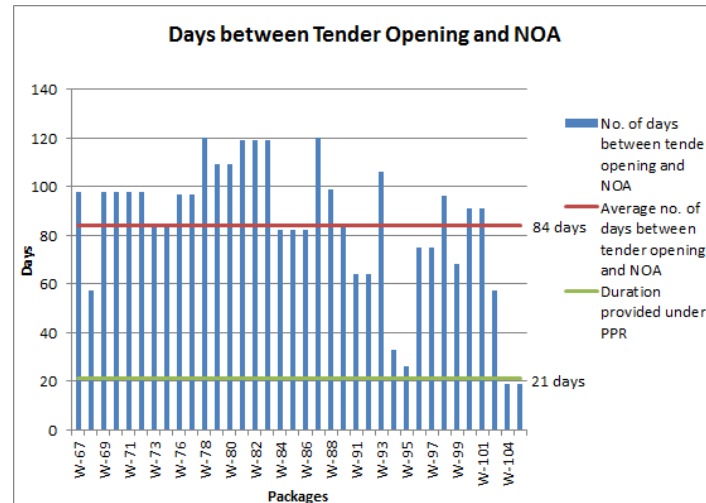


Figure 4.15: Days between tender opening and NOA.

KPI – 27: Average number of days between Invitation for Tender (IFT) and Notification of Award

Average no. of days between IFT and NOA should be within tender validity period set by procuring entity. In this case the tender validity period is 120 days. The detail data are provided in Appendix A7.

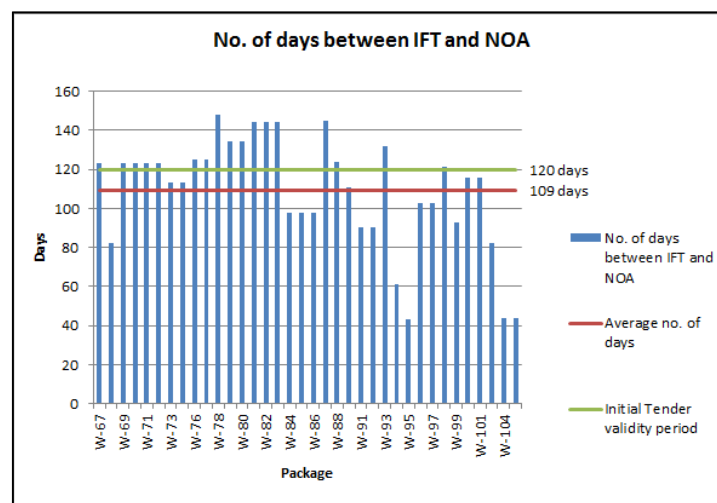


Figure 4.16: Number of days between Invitation for Tender (IFT) and Notification of Award

The average days taken for these procurements are 109 days (Figure 4.16). This value is less than the initial tender validity period.

KPI – 45: Total number of procurement persons in the organization with procurement training

The 3 weeks procurement training of CPTU was completed by almost all officers of DPHE. Therefore, the percentage of persons with procurement training is approximately 100%. There are approximately 70 procurement persons in DPHE. Almost all of them have procurement training except few who recently promoted to that position.

Analysis of KPIs related to Transparency

KPI – 1: IFTs Publication in widely circulated national/ local newspapers

The IFT of all packages published in two national newspapers. Therefore the procurement process achieved 100% in this KPI. This ensures transparency in procurement process.

KPI – 2: Publication of IFTs each valued Tk. 10 million and above in CPTU's website

The estimated prices of the schemes were more than 10 million. The IFTs were all published in CPTU's website. Thus achievement in this KPI is 100%.

KPI – 13: Percentage of cases TEC included two external members outside the Ministry or Division

The tender evaluation committee (TEC) for all tenders had two external members outside the ministry. Thus for 100% cases the TEC included two external members.

KPI – 28: Publication of contract awards each valued Tk. 10 million and above in CPTU's website

The contract awards were all published in CPTU's website. All packages were with value more than 10 million. The achievement of this KPI is 100%

Analysis of KPIs related to Competitiveness

The KPIs interpret that competitiveness of the procurement processes under consideration. The detail analysis of individual KPIs are given below.

KPI – 5: Multiple locations submission of tenders

The tenders under considered are not allowed multiple dropping. Although there is provision for multiple dropping in section 96 (11) (ka) and 96 (11) (ga) the procurement process under considered project does not allow multiple dropping.

KPI – 8: Average number of tenderers who purchased tender document

There is no fixed minimum or maximum number of tenderers for open tenders. If sufficient duration provided for tender submission and only one tender found submitted the tender is valid. The average no. of tenderers purchased tender is 3 (Figure 4.17). The detail of the data provided in Appendix A8.

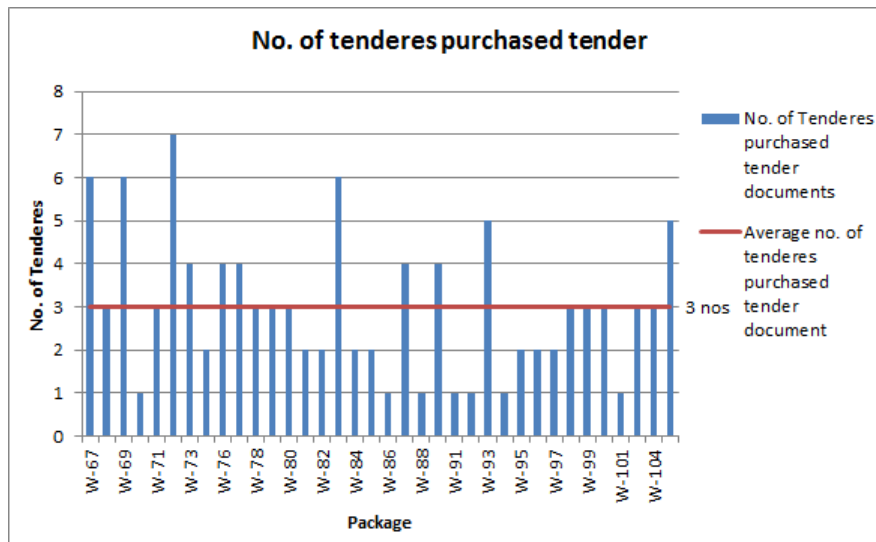


Figure 4.17: No. of tenderer purchased tender

KPI – 9: Average number of tenderers who submitted tender

The average number of tenderers submitted tender is 2. The no. of tenderers submitted tender indicates the level of competitiveness in tendering process. The detail of the data provided in Appendix A9 and the grap shown in Figure 4.18.

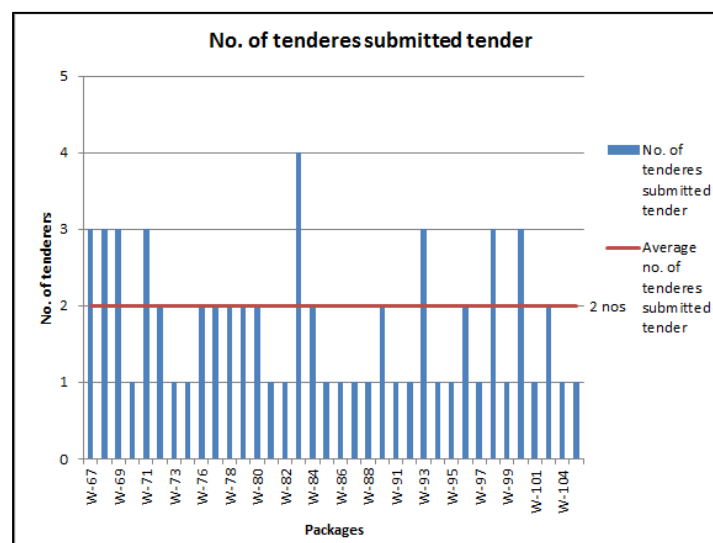


Figure 4.18: No. of Tenderers submitted tender

KPI – 10: Ratio of number of Tender submission and number of tender document sold

The average ratio of tender submission and no. of tender document sold is 0.67 (Figure 4.19). It means on an average 2 tenderers submitted tender while no. of tender document sold is 3. The detail data provided in Appendix A10. The less the ratio less is the number of tender submission and there is a chance of possible coercion. The value of ratio indicates there is no possible corruption takes place.

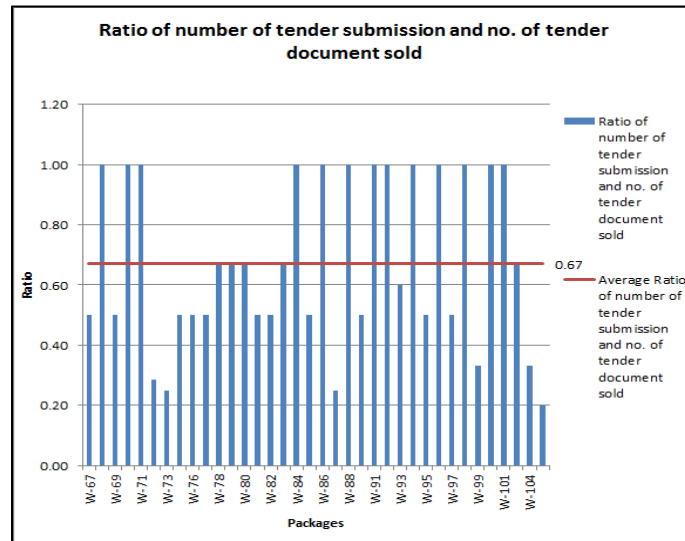


Figure 4.19: Ratio of No. of tender submission and no. of tender document sold

KPI – 16: Average number of responsive tenders

The average number of responsive tender is 2 (Figure 4.20). This is same as average no. of tender submission. The detail data provided in Appendix A 11. This indicates that the competitiveness ensured in the present procurement process.

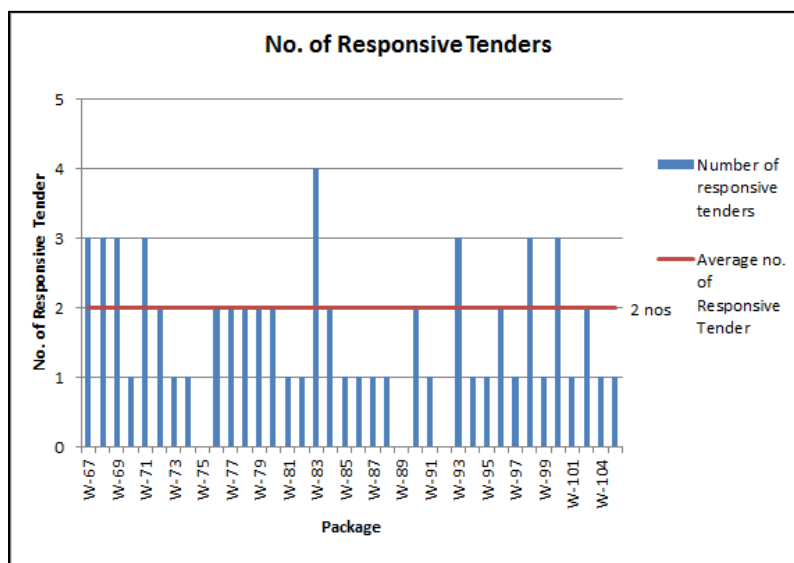


Figure 4.20: No. of responsive tenders

4.7 Summary of KPI Results

The KPIs are analyzed to find out the overall situation of the procurement process of present rural piped water supply schemes. The summary of the KPI results given below –

Table 4.7: Summary of the KPI results

Topics	KPI No.	KPI	Result	PPR Standard	Remarks
KPI Related to Invitation for tender	KPI-1	Percentage of Invitation for Tender (IFT) published in news paper	100%	100%	
	KPI-2	Percentage of invitation for tender (above threshold) advertise in CPTU's website	100%	100%	
	KPI-3	Percentage of Tenders following GoB Procurement Rules	100%	100%	
	KPI-4	Percentage of Tenders following Development Partner Rules	100%	100%	
KPI related to tender submission	KPI-5	Percentage of Tenders allowed submitting in multiple locations	0%	-	
	KPI-6	Average number of days between publishing of advertisement and Tender submission deadline	24 Days	Minimum 14 days	
	KPI-7	Percentage of tenderers having sufficient tender submission time	100%	100%	
	KPI-8	Average number of tenderers purchased tender documents	3	Minimum 1 no. if sufficient tender submission provided	
	KPI-9	Average number of tenderers submitted Tenders	2	Minimum 1 no. if sufficient tender submission provided	

Topics	KPI No.	KPI	Result	PPR Standard	Remarks
	KPI-10	Ratio of number of tender submission and no. of tender document sold	0.67	-	
KPIs related to tender opening committee and tender evaluation committee	KPI-11	Percentage of cases TOC included at least ONE member from TEC	100%	100%	
	KPI-12	Percentage of cases TEC formed by Contract Approving Authority	100%	100%	
	KPI-13	Percentage of cases TEC included two external members outside the Ministry or division	100%	100%	
KPIs for tender evaluation	KPI-14	Average number of days between Tender opening and completion of evaluation	49 days	14 days (AA is HOPE)	Required improvement in completion of evaluation
	KPI-15	Percentage of cases tender evaluation has been completed within timeline	11.11%	100%	Required improvement in completion of evaluation
	KPI-16	Number of responsive tenders	2	-	
	KPI-17	Percentage of cases TEC recommended for Re-Tendering	0%	-	
	KPI-18	Percentage of cases where Tender process cancelled	5.26%	-	
KPI for Evaluation report	KPI-20	Percentage of tenders approved by the proper financial delegated authority	100%		
KPI related to Contract Award	KPI-26	Average number of days between tender opening and notification of award	84 days	21 days or within tender validity period	Required significant improvement
	KPI-27	Average number of days between invitation for tender (IFT) and	109 days	120 days (Initial tender validity period)	

Topics	KPI No.	KPI	Result	PPR Standard	Remarks
		notification of award			
	KPI-28	Percentage of Contract awards published in CPTU's website	100%	100%	
	KPI-29	Percentage of contracts awarded within initial tender validity period	55.56%	100%	Required improvement in awarding contract
Procurement Management Capacity	KPI-45	Total number of procurement persons in the organization with procurement training	80	-	

Chapter Five

Conclusion

Conclusion

Rural piped water supply is comparatively new concept in water supply sector of Bangladesh. It introduced to provide arsenic contamination free safe water to the rural population. The implementation of PPP model (BOOT) for implementing this system is completely new concept in this country. Therefore, the personnel working in this sector have less idea about implementing PPP model effectively. The important key of implementing PPP model is to ensure effective procurement process with strong evaluation and negotiation skills. Although in earlier project of rural piped water supply (BWSPP) didn't considered procurement activities seriously, the later project considered procurement process as an important factor for implementing PPP model successfully. The contracts under this project are not completed yet. That's why the result is not clear. However, the effectiveness, compliance, transparency and competitiveness of the procurement process measured using KPIs set under PPR 2008. From analyzing primary and secondary data collected the conclusion can be drawn as follows –

1. The practitioners and policy makers working in this sector still not much aware about the importance of effective procurement process in efficient service delivery by water supply schemes that using PPP model.
2. The procurement process is more streamlined in BRWSSP compare to BWSPP.
3. The tender submission time is sufficient in 100% cases. It allows tenderers to submit the tender without much hassle.
4. The tender evaluation process is still not robust and strong. Delay in evaluation shows there are lack of expert manpower for the work. Only 26.32% tender evaluation completed within time limit.
5. Contract award completed within initial tender validity period for 55.56% cases. For 44.44% cases the contract award cannot be completed within initial tender validity period.
6. Transparency ensured as for 100% case the IFT published in newspaper and in CPTU's website. The contract award decision also published in CPTU website for all procurement.
7. The competitiveness of the tender ensured as the average no. of tender submitted is 2. Normally this number looks low. But it is difficult to find out sponsors who have expertise in constructing piped water supply and also want to construct scheme in remote areas. The ratio of tender buyer and tender submitter is 0.67 which means 2 out of 3 tenders submitted by the tenderers. This also indicates that there were less chances of coercion or cohesion.

8. Compliance with PPR was maintained in somewhat satisfactory manner. The procurement followed GOB and Donor's procurement rules for 100% cases. On an average 109 days to complete tendering process i.e. within initial tender validity period of 120 days. Contracts were approved by proper approving authority. However, the completion of evaluation and awarding contract took more time than it is supposed to be under PPR 2008.

9. There were no cases of retendering suggest by TEC. Only two tendering process were canceled and tenderers had sufficient time tender submission. This indicates the tendering process is moderately efficient.

Recommendation

From the above mentioned conclusion few recommendations for improvement provided below –

1. Seminars, workshops can be conducted for raising awareness about importance of effective procurement process among practitioners and policy makers in water supply sector.
2. More procurement experts need to be developed within organization for ensuring effective procurement process.
3. Special care should be taken to ensure completion of evaluation within specified time limit.
4. Electronic tendering process should be introduced and practiced for procurement process. This will ensure the completion of activities within specified time limit.
5. Awareness needs to be raised among DPHE personnel about usefulness of electronic tendering system.
6. Training program need to be introduced for training all DPHE personnel who are involved in procurement about electronic tendering system.

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Evaluation of factors affecting private owned rural piped water supply

1. How much important are the factors provided below in operation and management (O&M) of rural piped water supply?

	Extremely Important	Very Important	Important	Some how Important	Not Important
Government (political) commitment	☐	☐	☐	☐	☐
Adequate financing	☐	☐	☐	☐	☐
Public acceptance/support	☐	☐	☐	☐	☐
Strong and competent private partner	☐	☐	☐	☐	☐
Effective regulatory and legal structures	☐	☐	☐	☐	☐
Strong and competent public partner	☐	☐	☐	☐	☐
National PPP policy and implementation unit	☐	☐	☐	☐	☐
Strong commitment from project partners	☐	☐	☐	☐	☐
Local capacity building for utility staff	☐	☐	☐	☐	☐
Quality water asset and workforce	☐	☐	☐	☐	☐
Competitive tendering	☐	☐	☐	☐	☐
Profit from water supply projects	☐	☐	☐	☐	☐
Flexible contracts with fair risk allocations	☐	☐	☐	☐	☐
Internal coordination within government	☐	☐	☐	☐	☐
Other factor (please Specify)					

Analysis of duration for tender submission			
Package No.	Duration for tender submission for the packages	Duration for tender submission as per PPR 2008	Excess days provided more than minimum requirement
W-67	23	14	9
W-68	24	14	10
W-69	23	14	9
W-70	23	14	9
W-71	23	14	9
W-72	23	14	9
W-73	27	14	13
W-74	27	14	13
W-76	27	14	13
W-77	27	14	13
W-78	27	14	13
W-79	23	14	9
W-80	23	14	9
W-81	23	14	9
W-82	23	14	9
W-83	23	14	9
W-84	15	14	1
W-85	15	14	1
W-86	15	14	1
W-87	23	14	9
W-88	23	14	9
W-90	24	14	10
W-91	24	14	10
W-92	24	14	10
W-93	24	14	10
W-94	27	14	13
W-95	16	14	2
W-96	27	14	13
W-97	27	14	13
W-98	24	14	10
W-99	24	14	10
W-100	24	14	10
W-101	24	14	10
W-102	24	14	10
W-104	24	14	10
W-105	24	14	10

Average no. of days provided for tender submission = 24 days

Minimum no. of days should be provided = 14 days

Package	Date of TER Submission	Date of Tender Opening	Actual duration for submission of TER	Duration Limit Set by PPR	Excess time taken for submission of TER
W-67	02-10-14	02-10-14	0	35	Completed within Time
W-68	04-06-15	13-04-15	52	35	17
W-69	02-10-14	02-10-14	0	35	Completed within Time
W-70	02-10-14	02-10-14	0	35	Completed within Time
W-71	02-10-14	02-10-14	0	35	Completed within Time
W-72	16-11-14	02-10-14	45	35	10
W-73	07-12-14	15-10-14	53	35	18
W-74	07-12-14	15-10-14	53	35	18
W-75	Tender Cancelled				
W-76	15-12-14	15-10-14	61	35	26
W-77	15-12-14	15-10-14	61	35	26
W-78	15-12-14	15-10-14	61	35	26
W-79	05-02-15	20-11-14	77	35	42
W-80	05-02-15	20-11-14	77	35	42
W-81	19-02-15	20-11-14	91	35	56
W-82	19-02-15	20-11-14	91	35	56
W-83	19-02-15	20-11-14	91	35	56
W-84	31-03-15	29-01-15	61	35	26
W-85	31-03-15	29-01-15	61	35	26
W-86	31-03-15	29-01-15	61	35	26
W-87	22-02-15	22-12-14	62	35	27
W-88	22-02-15	22-12-14	62	35	27
W-89	Tender Cancelled				
W-90	25-03-15	26-01-15	58	35	23
W-91	25-03-15	26-01-15	58	35	23
W-92	25-03-15	26-01-15	58	35	23
W-93	29-03-15	26-01-15	62	35	27
W-94	30-03-15	26-02-15	32	35	Completed within Time
W-95	08-06-15	14-05-15	25	35	Completed within Time
W-96	02-04-15	26-02-15	35	35	Completed within Time
W-97	02-04-15	26-02-15	35	35	Completed within Time
W-98	21-04-15	05-03-15	47	35	12
W-99	21-04-15	05-03-15	47	35	12
W-100	21-04-15	05-03-15	47	35	12
W-101	21-04-15	05-03-15	47	35	12
W-102	04-06-15	13-04-15	52	35	17
W-104	08-06-15	21-05-15	18	35	Completed within Time
W-105	08-06-15	21-05-15	18	35	Completed within Time

KPI - 29 Related Analysis

Packages	Date of IFT	NOA Date	Date of Tender Validity Ending	Tender Validity Period	Findings
W-67	07-09-14	23-10-14	05-01-15	120	Contract Awarded within tender validity period
W-68	19-03-15	09-06-15	17-07-15	120	Contract Awarded within tender validity period
W-69	07-09-14	08-01-15	05-01-15	120	Contract Award not complete within intital tender Validity Period
W-70	07-09-14	08-01-15	05-01-15	120	Contract Award not complete within intital tender Validity Period
W-71	07-09-14	08-01-15	05-01-15	120	Contract Award not complete within intital tender Validity Period
W-72	07-09-14	08-01-15	05-01-15	120	Contract Award not complete within intital tender Validity Period
W-73	17-09-14	08-01-15	15-01-15	120	Contract Awarded within tender validity period
W-74	17-09-14	08-01-15	15-01-15	120	Contract Awarded within tender validity period
W-76	17-09-14	20-01-15	15-01-15	120	Contract Award not complete within intital tender Validity Period
W-77	17-09-14	20-01-15	15-01-15	120	Contract Award not complete within intital tender Validity Period
W-78	17-09-14	12-02-15	15-01-15	120	Contract Award not complete within intital tender Validity Period
W-79	26-10-14	09-03-15	23-02-15	120	Contract Award not complete within intital tender Validity Period
W-80	26-10-14	09-03-15	23-02-15	120	Contract Award not complete within intital tender Validity Period
W-81	26-10-14	19-03-15	23-02-15	120	Contract Award not complete within intital tender Validity Period
W-82	26-10-14	19-03-15	23-02-15	120	Contract Award not complete within intital tender Validity Period
W-83	26-10-14	19-03-15	23-02-15	120	Contract Award not complete within intital tender Validity Period
W-84	13-01-15	21-04-15	13-05-15	120	Contract Awarded within tender validity period
W-85	13-01-15	21-04-15	13-05-15	120	Contract Awarded within tender validity period
W-86	13-01-15	21-04-15	13-05-15	120	Contract Awarded within tender validity period
W-87	27-11-14	21-04-15	27-03-15	120	Contract Award not complete within intital tender Validity Period

Packages	Date of IFT	NOA Date	Date of Tender Validity Ending	Tender Validity Period	Findings
W-88	27-11-14	31-03-15	27-03-15	120	Contract Award not complete within intital tender Validity Period
W-90	31-12-14	21-04-15	30-04-15	120	Contract Awarded within tender validity period
W-91	31-12-14	31-03-15	30-04-15	120	Contract Awarded within tender validity period
W-92	31-12-14	31-03-15	30-04-15	120	Contract Awarded within tender validity period
W-93	31-12-14	12-05-15	30-04-15	120	Contract Award not complete within intital tender Validity Period
W-94	29-01-15	31-03-15	29-05-15	120	Contract Awarded within tender validity period
W-95	27-04-15	09-06-15	25-08-15	120	Contract Awarded within tender validity period
W-96	29-01-15	12-05-15	29-05-15	120	Contract Awarded within tender validity period
W-97	29-01-15	12-05-15	29-05-15	120	Contract Awarded within tender validity period
W-98	08-02-15	09-06-15	08-06-15	120	Contract Award not complete within intital tender Validity Period
W-99	08-02-15	12-05-15	08-06-15	120	Contract Awarded within tender validity period
W-100	08-02-15	04-06-15	08-06-15	120	Contract Awarded within tender validity period
W-101	08-02-15	04-06-15	08-06-15	120	Contract Awarded within tender validity period
W-102	19-03-15	09-06-15	17-07-15	120	Contract Awarded within tender validity period
W-104	26-04-15	09-06-15	24-08-15	120	Contract Awarded within tender validity period
W-105	26-04-15	09-06-15	24-08-15	120	Contract Awarded within tender validity period

Analysis of no. of days between tender opening and completion of evaluation

Package	Date of TER Submission	Tender Opening	No. of days between tender opening and completion of evaluation
W-67	02-10-14	02-10-14	0
W-68	04-06-15	13-04-15	52
W-69	02-10-14	02-10-14	0
W-70	02-10-14	02-10-14	0
W-71	02-10-14	02-10-14	0
W-72	16-11-14	02-10-14	45
W-73	07-12-14	15-10-14	53
W-74	07-12-14	15-10-14	53
W-76	15-12-14	15-10-14	61
W-77	15-12-14	15-10-14	61
W-78	15-12-14	15-10-14	61
W-79	05-02-15	20-11-14	77
W-80	05-02-15	20-11-14	77
W-81	19-02-15	20-11-14	91
W-82	19-02-15	20-11-14	91
W-83	19-02-15	20-11-14	91
W-84	31-03-15	29-01-15	61
W-85	31-03-15	29-01-15	61
W-86	31-03-15	29-01-15	61
W-87	22-02-15	22-12-14	62
W-88	22-02-15	22-12-14	62
W-90	25-03-15	26-01-15	58
W-91	25-03-15	26-01-15	58
W-92	25-03-15	26-01-15	58
W-93	29-03-15	26-01-15	62
W-94	30-03-15	26-02-15	32
W-95	08-06-15	14-05-15	25
W-96	02-04-15	26-02-15	35
W-97	02-04-15	26-02-15	35
W-98	21-04-15	05-03-15	47
W-99	21-04-15	05-03-15	47
W-100	21-04-15	05-03-15	47
W-101	21-04-15	05-03-15	47
W-102	04-06-15	13-04-15	52
W-104	08-06-15	21-05-15	18
W-105	08-06-15	21-05-15	18

Average no. of days between tender opening and completion of evaluation = 49 days
Days provided by PPR for Evaluation = 21 days

No. of days between tender opening and NOA

KPI	NOA Date	Tender Opening	No. of days between tender opening and NOA
W-67	08-01-15	02-10-14	98
W-68	09-06-15	13-04-15	57
W-69	08-01-15	02-10-14	98
W-70	08-01-15	02-10-14	98
W-71	08-01-15	02-10-14	98
W-72	08-01-15	02-10-14	98
W-73	08-01-15	15-10-14	85
W-74	08-01-15	15-10-14	85
W-76	20-01-15	15-10-14	97
W-77	20-01-15	15-10-14	97
W-78	12-02-15	15-10-14	120
W-79	09-03-15	20-11-14	109
W-80	09-03-15	20-11-14	109
W-81	19-03-15	20-11-14	119
W-82	19-03-15	20-11-14	119
W-83	19-03-15	20-11-14	119
W-84	21-04-15	29-01-15	82
W-85	21-04-15	29-01-15	82
W-86	21-04-15	29-01-15	82
W-87	21-04-15	22-12-14	120
W-88	31-03-15	22-12-14	99
W-90	21-04-15	26-01-15	85
W-91	31-03-15	26-01-15	64
W-92	31-03-15	26-01-15	64
W-93	12-05-15	26-01-15	106
W-94	31-03-15	26-02-15	33
W-95	09-06-15	14-05-15	26
W-96	12-05-15	26-02-15	75
W-97	12-05-15	26-02-15	75
W-98	09-06-15	05-03-15	96
W-99	12-05-15	05-03-15	68
W-100	04-06-15	05-03-15	91
W-101	04-06-15	05-03-15	91
W-102	09-06-15	13-04-15	57
W-104	09-06-15	21-05-15	19
W-105	09-06-15	21-05-15	19

Average no. of days between tender opening and completion of evaluation = 49 days
Days provided by PPR for Evaluation = 21 days

No. of days between IFT and NOA

Packages	Date of IFT	NOA Date	No. of days between IFT and NOA
W-67	07-09-14	08-01-15	123
W-68	19-03-15	09-06-15	82
W-69	07-09-14	08-01-15	123
W-70	07-09-14	08-01-15	123
W-71	07-09-14	08-01-15	123
W-72	07-09-14	08-01-15	123
W-73	17-09-14	08-01-15	113
W-74	17-09-14	08-01-15	113
W-76	17-09-14	20-01-15	125
W-77	17-09-14	20-01-15	125
W-78	17-09-14	12-02-15	148
W-79	26-10-14	09-03-15	134
W-80	26-10-14	09-03-15	134
W-81	26-10-14	19-03-15	144
W-82	26-10-14	19-03-15	144
W-83	26-10-14	19-03-15	144
W-84	13-01-15	21-04-15	98
W-85	13-01-15	21-04-15	98
W-86	13-01-15	21-04-15	98
W-87	27-11-14	21-04-15	145
W-88	27-11-14	31-03-15	124
W-90	31-12-14	21-04-15	111
W-91	31-12-14	31-03-15	90
W-92	31-12-14	31-03-15	90
W-93	31-12-14	12-05-15	132
W-94	29-01-15	31-03-15	61
W-95	27-04-15	09-06-15	43
W-96	29-01-15	12-05-15	103
W-97	29-01-15	12-05-15	103
W-98	08-02-15	09-06-15	121
W-99	08-02-15	12-05-15	93
W-100	08-02-15	04-06-15	116
W-101	08-02-15	04-06-15	116
W-102	19-03-15	09-06-15	82
W-104	26-04-15	09-06-15	44
W-105	26-04-15	09-06-15	44

Average no. of days between IFT and NOA = 109 days

Days provided by PPR for completion of tendering process i.e. providing NOA = 120 days

No. of Tenderers purchased tender				
Packages	No. of Tenderes purchased tender documents		Packages	No. of Tenderes purchased tender documents
W-67	6		W-86	1
W-68	3		W-87	4
W-69	6		W-88	1
W-70	1		W-90	4
W-71	3		W-91	1
W-72	7		W-92	1
W-73	4		W-93	5
W-74	2		W-94	1
W-76	4		W-95	2
W-77	4		W-96	2
W-78	3		W-97	2
W-79	3		W-98	3
W-80	3		W-99	3
W-81	2		W-100	3
W-82	2		W-101	1
W-83	6		W-102	3
W-84	2		W-104	3
W-85	2		W-105	5

Average no. of tenderes purchase tender document = 3

No. of tenderes submitted tender				
Packages	No. of tenderes submitted tender		Packages	No. of tenderes submitted tender
W-67	3		W-86	1
W-68	3		W-87	1
W-69	3		W-88	1
W-70	1		W-90	2
W-71	3		W-91	1
W-72	2		W-92	1
W-73	1		W-93	3
W-74	1		W-94	1
W-76	2		W-95	1
W-77	2		W-96	2
W-78	2		W-97	1
W-79	2		W-98	3
W-80	2		W-99	1
W-81	1		W-100	3
W-82	1		W-101	1
W-83	4		W-102	2
W-84	2		W-104	1
W-85	1		W-105	1

Average no. of tenderes purchase tender document = 2

Ratio of number of tender submission and no. of tender document sold			
Packages	No. of Tenderes purchased tender documents	No. of tenderes submitted tender	Ratio of number of tender submission and no. of tender document sold
W-67	6	3	0.50
W-68	3	3	1.00
W-69	6	3	0.50
W-70	1	1	1.00
W-71	3	3	1.00
W-72	7	2	0.29
W-73	4	1	0.25
W-74	2	1	0.50
W-76	4	2	0.50
W-77	4	2	0.50
W-78	3	2	0.67
W-79	3	2	0.67
W-80	3	2	0.67
W-81	2	1	0.50
W-82	2	1	0.50
W-83	6	4	0.67
W-84	2	2	1.00
W-85	2	1	0.50
W-86	1	1	1.00
W-87	4	1	0.25
W-88	1	1	1.00
W-90	4	2	0.50
W-91	1	1	1.00
W-92	1	1	1.00
W-93	5	3	0.60
W-94	1	1	1.00
W-95	2	1	0.50
W-96	2	2	1.00
W-97	2	1	0.50
W-98	3	3	1.00
W-99	3	1	0.33
W-100	3	3	1.00
W-101	1	1	1.00
W-102	3	2	0.67
W-104	3	1	0.33
W-105	5	1	0.20

No. of Responsive Tenders				
Package No.	Number of responsive tenders		Package No.	Number of responsive tenders
W-67	3		W-86	1
W-68	3		W-87	1
W-69	3		W-88	1
W-70	1		W-89	0
W-71	3		W-90	2
W-72	2		W-91	1
W-73	1		W-92	0
W-74	1		W-93	3
W-75	0		W-94	1
W-76	2		W-95	1
W-77	2		W-96	2
W-78	2		W-97	1
W-79	2		W-98	3
W-80	2		W-99	1
W-81	1		W-100	3
W-82	1		W-101	1
W-83	4		W-102	2
W-84	2		W-104	1
W-85	1		W-105	1

Average no. of responsive tenders = 2 nos